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FROM RETENTION TO SATISFACTION: New Outcomes for Assessing the Freshman Experience

Liz Sanders and John D. Burton

To meet higher education's challenge of accountability from a customer-satisfaction perspective, one urban institution has developed an integrated approach to studying the freshman-year experience in order to develop comprehensive outcome measures for assessing freshman success. Multiple sources of data (freshman satisfaction survey data, enrollment data, and academic performance data) are integrated into a database that provides the institution with a comprehensive set of outcome indicators and a model of the freshman experience. This institution used the integrated data set to develop models of freshman retention. In order to focus more clearly on customer satisfaction, models of student satisfaction were developed to determine critical components in freshman satisfaction.

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CONCEPTUAL FRAMEWORK

Institutions of higher education nationwide have been challenged by their various constituents to demonstrate student success. Traditionally, these mea-

Liz Sanders, Director, Information and Institutional Research, Illinois Institute of Technology, 10 West 32nd, E1-117, Chicago, IL 60616. John D. Burton, Director, Academic Support, 2320 N. Kenmore Ave., DePaul University, Chicago, IL 60614-3298.

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sures of success have included such indicators as freshman retention and graduation rates. Retention and graduation rates are institutionally focused measures, however, falling short of the broad, process-oriented measures advocated by quality enhancement initiatives (Sherr and Lozier, 1991; Coate, 1991). These outcomes measure success from the university's point of view. Traditional measures of success fall short in addressing the issue of improving services to all students, including those who are retained, nor do they address dissatisfaction with educational experiences among students who do eventually graduate. Quality enhancement programs, on the other hand, have stressed broader views of the student experience and focus on improving satisfaction among all students. They do not focus simply on an end point (graduation), but on a process over time. Rather than asking how many of our students reenroll at the institution for a second year, researchers should be asking to what type of experiences does our institution intend to provide students and to what degree are students satisfied with those experiences (Levine, 1989).

Student assessment programs broadly conceived provide an excellent conceptual model for supporting quality enhancement initiatives (Ewell, 1991). Regular assessment of a broad range of student outcomes would lead to continuous improvement in student academic and support programs and services. Ewell suggests that these assessment efforts need to focus on the larger processes of the academic experience, not simply on successful course completion. Assessment efforts need to cut across courses to make connections within the academic experience to better understand the degree to which attending college is meeting students' educational and social needs. Focusing on students' satisfaction with their experiences puts the emphasis on the customer, rather than on the desired ends of the institution.

Studying student satisfaction also provides additional statistical rigor in model building. By definition, retention modeling depends on a dichotomous dependent variable; either a student stays in school or leaves school, requiring the use of logistic regression models. Thus, rigor is lost in the model building. Satisfaction modeling adds additional rigor to assessment. Because satisfaction is a continuous variable, it captures a range of responses, and allows for the use of traditional regression models. In a highly competitive market, the drive for quality enhancement demands that all higher education sectors work for institutional improvement. Although strongly connected to retention, student satisfaction is a more powerful measure that can continue to be improved even in institutions with high retention and graduation rates. Even in institutions with high retention, satisfaction models can still be developed that will guide quality enhancement efforts focused at groups who can be expected to remain and graduate.

METHODOLOGY

The Office of Institutional Planning and Research (OIPR) developed an integrated freshman database by linking student survey data to other institutional data, including freshman Cooperative Tnstitutional Research Program (CIRP) data, one-year attrition data, academic performance data, and graduation data.

Student Satisfaction Survey

OIPR conducts the Student Satisfaction Survey in the spring of each academic year. The survey, originally developed in 1990 by the Office of Student Affairs as a quality of service measure, has been administered by OIPR since 1991. The survey assesses student satisfaction with various facets of the university and includes key sets of questions focusing on

- Programs and services
- University learning and social environment
- University mission and values
- Education preparation
- Transfer intent
- General satisfaction
- Attitudes toward coursework
- Student demographic information

Survey Development and Sample Selection

The office involves the university community in the annual survey review process. We have developed our own mail survey instrument instead of using a commercially available survey because it provides the university with more institutional-specific information for quality improvement. The limitation of using a survey developed in-house, however, is that no national comparative data are available. We strive for an instrument that is sufficiently consistent to allow longitudinal tracking of data as well as flexible enough to address important topical concerns as they arise.

All freshmen and samples of undergraduates, graduate students, and law students receive this mail survey in the spring of the academic year. The freshman surveys are number coded to allow us to link these data with data from other sources. The initial mailing is followed by colorful reminder cards and additional mailings to ensure a high response rate. In addition, subsets of students are targeted for special reminders, such as freshmen CIRP respondents. A high response rate is especially important when linking multiple data sets, in order to ensure a large pool of students who can be linked to data from other sources.

For the 1992 Satisfaction Survey, the overall response rate was 47.3%, with 56.5% for freshmen, 34% for undergraduates, 56.5% for graduates, and 47.9% for law students. In 1993, the overall response rate improved to 51.8%, with 47.6% for freshmen, 49.6% for undergraduates, 59.5% for graduates, and 53.6% for law students.

Long-Range Survey Plan

We developed a survey plan to track students who responded to the Student Satisfaction Survey as freshmen (Sanders and Chan, 1993). This plan allows DePaul to develop a comprehensive set of attitudinal indicators spanning the breadth of the freshmen student experience and includes the following information:

1. *CIRP Survey:* surveys freshmen as they enroll in the institution. This survey provides information on precollege attitudes, college achievement indicators, and student demographic information.
2. *Student Satisfaction Survey:* surveys freshmen in the spring term of their freshman year. This survey will provide information on customer satisfaction with the institution's academic and student support services, perceptions of the overall environment of the institution, and information related to student retention.
3. *Registration and Academic Performance Data:* drawn from the university database. The student profile information includes admissions indicators (high school GPA, ACT scores), registration activity (credit hours and terms registered), and academic performance indicators (cumulative GPA, credit hours successfully completed). This information is linked to the survey results.

MAJOR FINDINGS

Retention Models

An institution-specific model of freshman retention was developed drawing on the work of Pascarella and Terenzini (1983), by linking the 1992 Student Satisfaction Survey data with the 1991–92 first-time, full-time freshman attrition data. This gave us a sample of 540 students with both attitudinal and retention data; 484 students who reenrolled and 56 who did not reenroll. The sample was slightly overrepresentative of students who returned to DePaul. DePaul's overall first-time, full-time freshman attrition rate in 1991–92 was only 19.7%, up slightly from 18% in 1990–91. In the sample, 10.4% of the students left before the beginning of their sophomore year.

Using the linked data set of student satisfaction survey responses and enrollment and academic performance indicators, we started to develop a student retention model for DePaul's freshmen, based on the social and academic integration indicators identified by Pascarella and Terenzini. The first step was to identify the differences between those students who reenrolled their sophomore year and those who did not. Nonparametric statistics indicated that there were several statistically significant differences between the two groups. Compared to students who did not return to DePaul for their sophomore year, students who reenrolled were generally from in-state, had higher cumulative DePaul GPAs, and were more satisfied with their academic experiences, level of preparation provided by DePaul, level of personal growth, and the admissions and orientation processes.[1]

In developing a model of retention, we used logistic regression to assess which variables significantly increased the probability of students staying at DePaul. The analysis indicated that the three most important variables that increased the likelihood of freshmen leaving DePaul were out-of-state status, low cumulative freshman grade-point averages, and low institutional commitment (low agreement that attending this institution was the right decision).[2] This model correctly classified only 19% of the leavers.

The next year, we created two more powerful retention models, based on a linked data set of the CIRP survey, the Student Satisfaction Survey, and academic and enrollment indicators. One model, based on the admissions indicators and the CIRP survey, focused on prematriculation indicators of student success. The other, based on the Student Satisfaction Survey and the students' enrollment and academic information, focused on indicators from the collegiate experience. Although the two models provided far more information on student behavior and statistically they explained much more of the variance, they were still limited to explaining attrition and retention and did not provide policymakers with guidance to improving services to all students (DePaul University, 1994). One of DePaul's obstacles to model building was the limited number of students who left the institution. Although DePaul was focused on improving the student experience, given the university's low freshman attrition rate, improving retention was not going to affect a large number of students. On a more practical level, model building was hampered by the low number of nonreturnees.

Limitations of the Retention Model

In general, retention models provide institutions with useful information about why students may stay or leave the institution. Our retention model gave us information on key differences between those freshmen who stayed at De-

Paul and those who left. However, this retention model was limited for several reasons. First, the merged data set contained data for 484 freshmen who reenrolled for their sophomore fall semester and only 54 freshmen who did not reenroll. This represented only 24% of the total group of students who did not return to DePaul.

Second, this assessment did nothing to promote continuous improvement of student services and experiences nor did it focus on the needs of the consumers. The focus of this study was to predict students who would stay or leave DePaul, not to assess the quality of their experiences while at DePaul or whether DePaul met their expectations.

Third, this model of retention did not illuminate variables in the analysis that could be manipulated by the institution. In addition, this study provided little information for policymakers in developing recommendations to improve the student experience.

For these reasons, we shifted our focus from developing a model to predict retention to developing a model of freshman satisfaction. This model allows for a more powerful analysis of the freshman experience by focusing on students' perceptions of their educational experience and allows us to develop strategies for continuous improvement and to draw more specific policy implications to strengthen the student experience for students who remain at the institution.

Satisfaction Models

In order to respond to new challenges in higher education by addressing the needs and concerns of the consumer, we chose to take this analysis a step further and examine what the important variables are in predicting student satisfaction. We used the 1993 Student Satisfaction Survey data and merged this with the one-year attrition data to provide academic performance information. Our sample was 484 students, 414 who were retained and 49 who left (with missing attrition data for 21 students). This was a freshman response rate of 47.6%.

Using reliability analysis, we constructed 10 indices from the Student Satisfaction Survey (see Table 1) using items to which over 75% of the students had responded (reliabilities in parentheses). These 10 indices and academic performance data, which included high school grade-point average (GPA), cumulative DePaul GPAs, and composite SAT scores, were used in a regression analysis to determine which of these variables were important in predicting overall satisfaction with DePaul. Our dependent variable was, "In general, I am satisfied with my experiences at DePaul." Our results showed that the key variable in predicting overall satisfaction was overall academic satisfaction, followed by students/social life and environment (standardized beta weights of .56, .18, and .11 respectively).

TABLE 1. Satisfaction Indices and Reliability

Overall Academic Satisfaction (.84)
- Academically challenged
- Education preparing for real life
- Excellent academic reputation
- Satisfied with academic experiences
- Satisfied with intellectual development
- Confident in right decision to attend DePaul
- Good academic atmosphere

Students/Social Life (.78)
- Close relationships with other students
- Relationships with students satisfying
- Good social atmosphere
- Social activities—something for everyone
- Clubs/organizations that match my interest
- Places to relax and meet friends

Environment (.74)
- Aware of other cultures
- Men and women have equal opportunities
- Minority students have opportunities
- DePaul encourages me to get involved
- I feel welcome at DePaul

Mission (.79)
- Catholic presence
- University committed to Vincentian ideals
- Demonstrated commitment to urban mission
- Environment fosters growth
- Spirit of respect between cultures
- Open to expressing religious views

Academic Support (.80)
- Academic advisors are available
- Meetings with advisors are helpful
- Advisors are sensitive to students' needs

Financial Aid (.84)
- Financial aid office kept me informed
- Office answered my problems
- Tuition counselors helpful

Support Services (.84)
- Adequate copiers, of good quality
- Reasonable cost of copiers
- Enough phones on campus
- Quality of food in cafeteria good, reasonably priced
- Cafeteria is clean, pleasant
- Cafeteria staff is friendly
- Satisfied with recycling program
- Bookstore hours are convenient
- Bookstore staff is helpful
- Textbooks are available
- Library has needed materials, convenient hours
- Library personnel are helpful

Teaching Faculty (.83)
- Quality of instruction is excellent
- Faculty instructional methods are compatible with my needs
- Liberal Studies Program is effective
- Easy to reach faculty during office hours
- Students/faculty take course evaluations seriously
- Students receive personal attention
- Developed close relationship with faculty member
- Outside of class interaction with faculty is positive
- Faculty are generally superior teachers
- Faculty are interested in students

General Education Courses (.83)
- Gen. Ed. courses are interesting/academically challenging
- Gen. Ed. courses are offered at convenient times
- Gen. Ed. courses are relevant to life/area of study
- There is a good selection of course options
- Courses are generally satisfying
- I mostly enjoy taking these courses

Admissions/Orientation (.90)
- Admissions reps/materials gave accurate picture
- Admissions was helpful
- Visit to DePaul was helpful
- Orientation made adjustment easier
- Orientation introduced me to values
- I would advise a freshman to attend orientation
- Programs were helpful
- Orientation just the right length

We also examined the differences in overall satisfaction for several groups of students. There were no significant differences in overall satisfaction:

- By gender
- By geographic location (in Chicago/suburbs vs. out of the metropolitan area)
- By residence hall status (currently lived in the residence halls vs. off-campus)
- By college

However, there were differences in the level of overall satisfaction by ethnicity. Hispanic students had significantly lower student satisfaction compared to white students (means of 2.9 compared to 3.3).[3]

Although there were no significant differences in overall satisfaction for these demographic variables with the exception of ethnicity, we noted that different indices were important in predicting overall satisfaction between these groups (see Table 2).

1. The important variables for men were overall academic satisfaction and teaching compared to overall academic satisfaction and students/social life for women.
2. The important variables for students outside the Chicago/suburban area were overall academic satisfaction, students/social life, and support services, whereas support services were not important for students in the Chicago/suburban area.
3. For commerce students, overall academic satisfaction, students/social life, and high school GPA were significant, but high school GPA was not significant for liberal arts students.
4. For students who lived in the residence halls, overall academic satisfaction and students/social life were significant predictors of satisfaction, but for students who did not live in the residence halls, overall academic satisfaction was joined with environment and academic support.
5. Due to small sample sizes for different minority groups, we constructed an ethnicity indicator of minority vs. nonminority status. For minority students, academic satisfaction, environment, and cumulative GPA were significantly important in predicting overall satisfaction, but for nonminority students, overall academic satisfaction and students/social life were significant.

Strengths of the Model

One important feature of focusing on student satisfaction instead of attrition is that we can explore differences between student subgroups, such as satisfaction by gender or ethnicity. Our sample of students who responded to the student satisfaction survey and who did not return to DePaul for their sophomore

TABLE 2. Regression Analyses

Overall	
Adj. R^2	.59
Overall Academic Satisfaction Std Beta	.56
Students/Social Life	.18
Environment	.11
By Gender	
Men:	
Overall Academic Satisfaction	.67
Teaching	.22
Women:	
Overall Academic Satisfaction	.55
Students/Social Life	.27
By College	
Commerce:	
Overall Academic Satisfaction	.51
Students/Social Life	.33
High School GPA	−.13
Liberal Arts:	
Overall Academic Satisfaction	.64
Students/Social Life	.22
By Residence Hall Status	
Yes/In	
Overall Academic Satisfaction	.52
Students/Social Life	.34
No/Not in	
Overall Academic Satisfaction	.53
Environment	.24
Academic Support	.12
By Ethnicity (2-level)	
Minority	
Overall Academic Satisfaction	.55
Environment	.29
Cumulative GPA	−.13
Nonminority	
Overall Academic Satisfaction	.57
Students/Social Life	.26
By Geographic Location	
Outside Chicago	
Overall Academic Satisfaction	.56
Students/Social Life	.40
Support Services	−.21
Chicago/Suburbs	
Overall Academic Satisfaction	.63
Students/Social Life	.21

year was small. Therefore, our retention modeling using logistic regression (with the dichotomous dependent variable "retention") is limited to the overall freshman sample. However, using the continuous variable "overall satisfaction" as the dependent variable allows us to use the power of multiple regression to study the attitudes and behaviors of subgroups within the overall population. Moreover, the focus of institutional efforts will be on improving services to all students, not just the 20% who leave after their first year.

In addition, this analysis indicates that for different subgroups of the student population, our efforts to improve student satisfaction should focus on different key variables (in addition to the key variable for all groups of overall academic satisfaction). For example, to strengthen minority student satisfaction, efforts need to be focused on environmental factors, such as perceptions of equal opportunities for students of all ethnic backgrounds and gender and developing a sense of belonging, rather than on social factors such as developing meaningful relationships with other students and student organizations.

To develop stronger student satisfaction for residence hall students, this analysis suggests that working with the Student Affairs Office to develop programs to enhance positive student relationships and provide meaningful social activities would be more effective, because of these students' close relationships with students in the residence halls, whereas enhancing perceptions of equal opportunities of students and a sense of belonging would be more effective for nonresidence students.

Limitations of Satisfaction Models

Although these models of student satisfaction give us insight into how the components of satisfaction differ among groups of students, there are limitations to this first attempt at modeling satisfaction. First, these are attempts at model building. The next step in confirming these analyses is to test these models. Our sample sizes for the student subgroups were not large enough to allow us to split the sample to validate our models. In the future, with multiple years of data on which to draw, we will be able to conduct more powerful analyses.

Second, although there were significant differences in the perceived overall satisfaction with DePaul between ethnic groups, because of the small samples of individual ethnic groups it was difficult for us to probe the group differences. As discussed above, a multiyear database will allow us to further explore these differences.

Third, our satisfaction indices were intercorrelated, leading to a problem of multicollinearity in the multiple regression analyses. This multicollinearity in some way distorts the regression findings.

Although there are limitations to these analyses, our models of student satis-

faction give us insight into the important components of student satisfaction. As the retention literature suggests, these models found that academic and social perceptions are important to students as they weigh the impact of their educational experiences.

STUDY IMPLICATIONS

For many institutions with low attrition rates, quality enhancement programs focused solely on reducing student attrition may be too limited in scope. Institutions need to continue their services to all students, including cohorts where there may be little significant attrition. The emphasis on TQM in many institutions has refocused energies on overall student satisfaction, recognizing that continual improvement will reap long-term rewards in academic quality, student recruitment, improved graduation rates, fund-raising, and institutional advancement. Moreover, given the limited number of students who leave in their first year, it was difficult to break the freshman cohort into smaller groups to study differences in attitudes and behavior. However, using satisfaction modeling, it was statistically possible to examine these smaller cohorts in order to develop more targeted models that can have more wide-reaching effects than many retention programs.

For example, DePaul found that the quality of the academic experience had wide-reaching effects among all cohorts of freshmen; however, other measures, such as social interaction and student life, were effective with only some groups. Similarly, although there were not significant differences in the satisfaction levels between many of the cohorts of students, based on several demographic variables, the factors affecting student satisfaction were different.

Ultimately, looking at multiple student outcomes, such as retention, graduation, and satisfaction, can lead to more powerful institutional improvement programs and can connect retention efforts to a larger process of student development; more satisfied students are not only more likely to be retained and graduate, they are also better candidates for long-term institutional affiliation including support for alumni and university enhancement activities.

IMPLICATIONS FOR INSTITUTIONAL RESEARCH

1. *Institutional researchers can use integrated freshman databases to provide more comprehensive outcomes assessment measures.* With increasing emphasis on student outcomes assessment, integrated freshman databases provide a more comprehensive assessment of student outcomes, including satisfaction with the academic and student service environment, and perceptions of integration into the community, as compared to traditional indicators such as freshman retention and attrition rates. Our overall model of student satisfaction indicated that per-

ceptions of overall academic satisfaction was the key variable in predicting student satisfaction, followed by students/social life and environment. Academic performance variables did not enter into the equation.

These outcome measures can be used to support outcomes assessment. Because these measures are more subjective, however, student perceptions may be affected by factors outside the control of the institution. For example, a difficult job market for law students may reduce satisfaction with career planning services. For this and other reasons, it is important for us to validate our models of satisfaction in order to be more confident that our results are not a function of external factors.

2. *Integrated data that provides a comprehensive picture of the freshman experience provides decision makers with more useful information for developing successful institutional strategies.* For example, a study of freshman satisfaction that includes attitudinal data (survey data) and academic performance data provides decision makers with more useful information than simple satisfaction percentages for developing strategies to improve student satisfaction. Our analyses indicate that the focus of this attention should be on improving perceptions of the overall academic reputation of the institution by continuing to provide a strong academic program and being aggressive in communicating these strengths to students.

3. *Institutional researchers can develop longitudinal databases and institution-specific models of the freshman experience.* Multiple years of freshman data can be linked in order to provide a stronger, more powerful data set to study longitudinal trends in freshman attitudes and behavior. These comprehensive models of the student experiences are more useful to policymakers in developing strategies to improve the student experience. One difficulty to consider in developing longitudinal models is the changes in survey methodology and the survey instrument. For example, we have recently dramatically revised the student satisfaction survey for the next year's analysis. These improvements substantially change the survey, providing a more focused, less redundant study of the student experience. However, making longitudinal comparisons will be problematic. In this study, since we modified our indicator of overall student satisfaction, we were limited to one year of student satisfaction data.

In addition, using theory as a guide, researchers can develop their own institution-specific models of student satisfaction that include the various programs and offerings related to the institution's unique mission. These institution-specific models allow policymakers to develop strategies that directly impact their students' unique educational experiences.

4. *This integrated analysis of the freshman experience uses a total quality approach to understand the freshman experience.* Integrating attitudinal, behavioral, and descriptive data sources builds on the central themes of total quality management (Sherr and Lozier, 1991; Coate, 1991), focusing on students as

important constituents and identifying problem areas within the university. Our satisfaction modeling recognizes the importance of student perceptions of their educational experiences and focuses our attention on improving their experiences, not merely keeping students enrolled at DePaul. We can develop action strategies related to these important factors to prove satisfaction can be developed and success can be measured via trends in multiyear student satisfaction data.

NOTES

1. Chi-square and Mann-Whitney U-tests were significant at the $p < .05$ level.
2. These variables entered into the stepwise logistic regression and the Exp(B) were 5.02 for in-state status; 1.0 for cumulative DPU GPA; and .47 for institutional commitment.
3. Differences were significant using one-way ANOVAs $p < .05$, with Scheffe post-hoc tests.

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