Measuring Service Quality in a Nontraditional Institution Using Importance-Performance Gap Analysis

Mrinal Mugdh
Director of Institutional Research
Empire State College
State University of New York
One Union Avenue
Saratoga Springs, NY 12866
(518) 258-3865
mmugdh@yahoo.com

Measuring Service Quality in a Nontraditional Institution Using Importance-Performance Gap Analysis

Abstract

Recent studies in higher education suggest that nontraditional students view their education in the same light as any other form of market exchange. Subsequently, they demand high service quality that reflects convenience, flexibility, and value. Responding to the needs and wants of these students, nontraditional colleges have adopted research strategies that take into account both student expectations as well as their perception of satisfaction to assess service quality at their institutions. As one of the model adult learner focused institutions, Empire State College used Noel-Levitz Adult Learner Inventory in Fall 2002 to measure adult students' satisfaction with a wide range of college experiences. The paper investigates response data from the survey using importance-satisfaction gap analysis, factor analysis and quadrant analysis to study important dimensions of service quality for assessment and quality improvement initiatives. Results suggest that nontraditional students value responsiveness and relationships as key dimensions in evaluating the teaching-learning and service delivery processes.

Background and Literature Review

Higher education in the United States has witnessed a paradigm shift over the past few years. As Michael, et al. (1995, p.22) observe, this shift is subtle and steady and "entails, among other things, a shift from pre-employment, youth-based education to a lifelong, adult-oriented education." This shift is also a reflection of changing student demographics, which shows adult nontraditional learners as the new undergraduate majority (CAEL, 2003). Recent data from National Center for Educational Statistics (NCES) suggest that 73% of the undergraduate students in the United States have one or more nontraditional characteristics (2002). The demographic profile of the contemporary undergraduate students in the United States reveal that 44% of these students are mature adults over the age of 25, around 54% hold down full-time jobs or careers (Wright & O'Neill, 2002), and 51% are financially independent of parents (NCES, 2002). The changing profile of contemporary college student has encouraged traditional colleges to develop programs and practices that suit adult nontraditional learners. This has presented a new challenge to higher education institutions whose mission is to primarily serve nontraditional students. Given the new competition from the traditional institutions, nontraditional institutions are trying to address the different needs and wants of their nontraditional students. Recent research suggests that compared with young traditional students, contemporary adult nontraditional students have significantly different expectations of service quality. Nontraditional students "view their education in the same light as any other form of exchange," and subsequently, demand high service quality that reflects convenience, flexibility, and value (Wright & O'Neil, 2002; Haworth & Conrad, 1996; West, 1999). As a result, there has been a new shift in the research agenda within higher education institutions, and as Wright & O'Neil suggest, the focus has shifted "from quality of education to quality of service" (2002). The shift in the research focus

has been more pronounced among the institutions whose mission is to serve nontraditional students. Nontraditional institutions often find it difficult to find standardized instruments for measuring and benchmarking service quality. Recognizing the need for such standardized assessment tools for institutions serving adult learners, the Adult Learner Inventory was developed by Noel-Levitz and Council for Adult and Experiential Learning (CAEL) to measure adult students' satisfaction with a wide range of college experiences. The Adult Learner Inventory views students as "consumers" who have a choice about investing in educational opportunities. It recognizes that adult students have "definite expectations about what they want from their campus experience. From this perspective, satisfaction with college occurs when an expectation is met or exceeded by an institution" (Noel-Levitz, 2003). By using an importance-satisfaction scale, the inventory allows for an importance-satisfaction performance gap analysis, which has been used to measure service quality in the present study.

The importance-satisfaction performance gap analysis is based on the SERVQUAL model developed and improvised by Parasuraman et al., to study performance gap or "disconfirmation" between consumer experience and expectations (1985, 1988). Although, the SERVQUAL model has been adapted and successfully used in educational research (Ford et al., 1999), it has been criticized for its rigid dimensions which do not have universal applicability (Cronin & Taylor, 1992; Carman, 1990); its inability to account for the changing nature of consumer expectations over time, and its undue focus on expectations (Chapman, 1979). As an alternative to the SERVQUAL model with performance-expectation gaps, researchers have suggested the use of importance-satisfaction performance gap analysis to evaluate service quality in higher education (Ford et al., 1999; Martilla & James, 1977; Wright & O'Neill, 2002).

In Fall 2002, 25 adult learner focused institutions participated in a pilot project to administer the Adult Learner Inventory to more than 13,000 of their students. As one of the model CAEL adult learner focused institutions, Empire State College was invited to participate in the pilot project. This paper investigates response data from the pilot project to study important dimensions of service quality for assessment, marketing, and quality improvement initiatives.

Method

Subjects and Procedure

The Adult Learner Inventory was administered by the college electronically via the Internet between October 10, 2002 and November 29, 2002. The survey link and the password were e-mailed to 4,194 students who were enrolled at the college at the time of the survey administration and held a valid e-mail address. A total of 1,954 responses were received by the college, yielding an overall response rate of 46.6%.

Survey Instrument

As noted above, the Noel-Levitz Adult Learner Inventory was used as the survey instrument. The inventory had seven-point Likert-type scales to collect both importance and satisfaction ratings on 54 attributes. It also included questions on student

demographics and two summary items related to student overall satisfaction with the institution. The inventory construction was based on seven principles, that were identified by CAEL as effective principles for serving adult students: outreach, life and career planning, financing, assessment of learning outcomes, teaching-learning process, student support systems, and technology.

Results

Demographics

A broad section of gender, age, and ethnicity were represented in the survey. Sixty-six percent of the respondents were women, 92.2% of the respondents were 25 or older, 80.03% of the respondents were White/Caucasian, 8.69% were Black/African-American, 4.98% were Hispanic, and 1.43% were Asian. Further analysis of the responses to the demographic questions on the survey revealed that 65.65% of the respondents were married or had a domestic partner, 61.83% had dependents, and 73.32% had full-time employment.

Factor analysis and survey reliability

The results showed that the Adult Learner Inventory performed well in terms of both reliability and validity. A factor analysis was conducted to validate the performance gap scores (importance scores-satisfaction scores). Using principal component method and varimax rotation, the factor analysis identified nine dimensions of service quality: mentoring/advising, financial access, adult focused learning, flexible curriculum, technology, interactive learning, convenient programs/procedures, information access, and instructor responsiveness. These nine factors were able to explain 65.34% of the total variance. Table 1 displays the total variance explained by the nine factors.

Tests of internal consistency across different dimensions showed that overall, the Adult Learner Inventory was a fairly reliable tool to measure service quality dimensions among the nontraditional college students. According to Nunnally (1978), reliability coefficients greater than .70 are standard for adequate reliability of questionnaires and protocols. The chronbach alpha score for the nine service quality dimensions identified by factor analysis ranged between 0.72 and 0.89 establishing the overall reliability of the survey instrument. Table 2 displays factor means and reliability estimates.

Table 1. Total Variance Explained by the Model

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	21.92	40.58	40.58	21.92	40.58	40.58	4.83	8.95	8.95
2	2.78	5.15	45.73	2.78	5.15	45.73	4.81	8.91	17.85
3	2.19	4.06	49.79	2.19	4.06	49.79	4.53	8.39	26.24
4	1.81	3.35	53.14	1.81	3.35	53.14	4.42	8.19	34.43
5	1.78	3.29	56.43	1.78	3.29	56.43	4.05	7.50	41.94
6	1.40	2.59	59.02	1.40	2.59	59.02	3.84	7.10	49.04
7	1.32	2.44	61.46	1.32	2.44	61.46	3.52	6.52	55.55
8	1.23	2.29	63.75	1.23	2.29	63.75	2.70	4.99	60.55
9	1.13	2.09	65.83	1.13	2.09	65.83	2.59	4.80	65.34

Table 2. Factor Means and Reliability Estimates

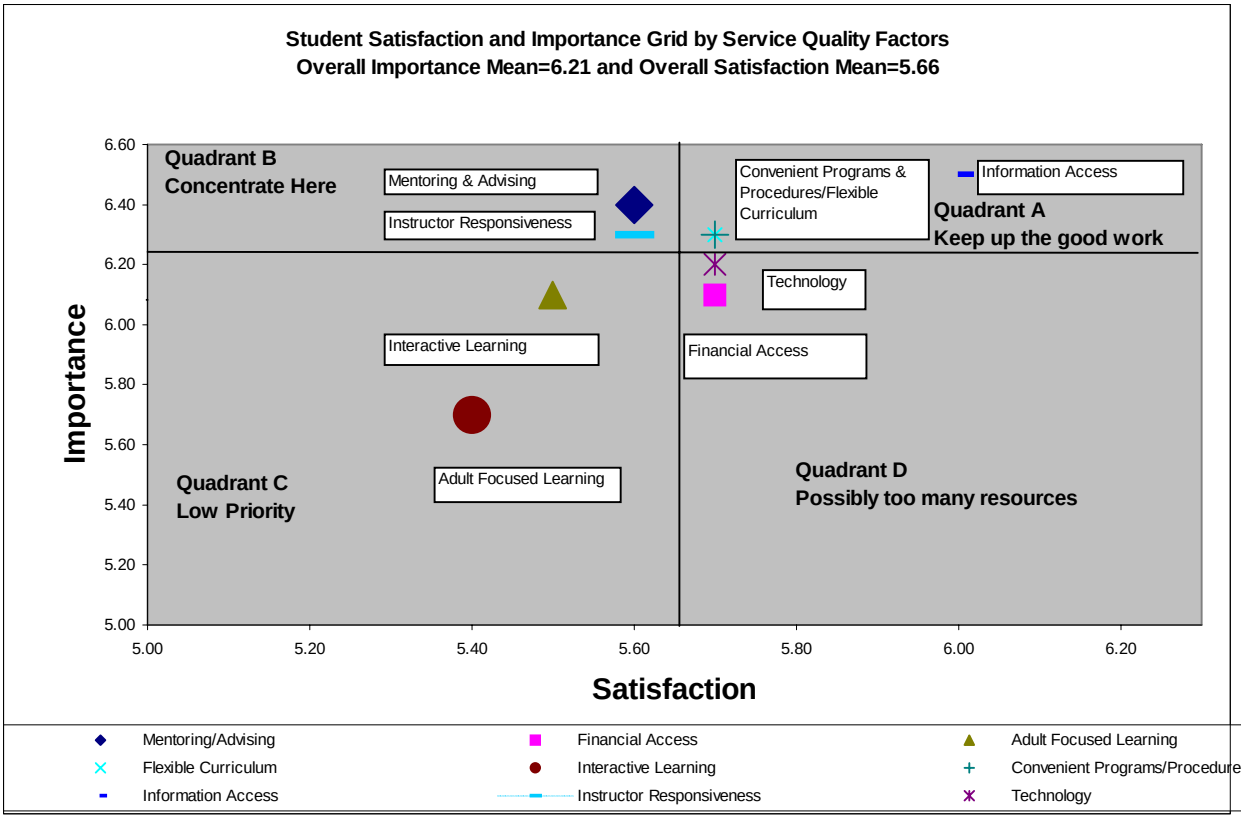
Factor Code	Factor Name	Importance Mean	Satisfaction Mean	Performance Gap	Alpha	Standardized Alpha
Factor 1	Mentoring/ Advising	6.4	5.6	0.8	0.89	0.89
Factor 2	Financial Access	6.1	5.7	0.4	0.85	0.85
Factor 3	Adult Focused Learning	6.1	5.5	0.6	0.88	0.88
Factor 4	Flexible Curriculum	6.3	5.7	0.6	0.86	0.86
Factor 5	Technology	6.2	5.7	0.5	0.71	0.72
Factor 6	Interactive Learning	5.7	5.4	0.3	0.76	0.76
Factor 7	Convenient Programs/ Procedures	6.3	5.7	0.6	0.83	0.83
Factor 8	Information Access	6.5	6.0	0.5	0.83	0.83
Factor 9	Instructor Responsiveness	6.2	5.4	0.8	0.79	0.80

Quadrant analysis and evaluation of gap scores

Once the factors were isolated, a quadrant analysis was used to find areas that needed special attention for quality improvement, marketing, and effective planning. The quadrant analysis was based on a scatter plot of satisfaction and performance means of the nine factors identified by factor analysis of the gap scores. Figure 1 presents the results of the quadrant analysis. Quadrant A represents high importance and high satisfaction; Quadrant B represents high importance and low satisfaction; Quadrant C

represents low importance and low satisfaction; and Quadrant D represents low importance and high satisfaction.

Figure 1. Matrix for Prioritizing Action



The four quadrants present a matrix for prioritizing action (Noel-Levitz, 2003). As shown in Fig. 1, Quadrant A includes convenient programs/procedures, flexible curriculum, and information access. These areas represent areas of strength that could be used for marketing and public relations. These areas need to be monitored, but do not need immediate resources (Westfall, 2003). Factors in Quadrant B, on the other hand, require immediate attention for quality improvement efforts as they represent areas of high disconfirmation. Instructor responsiveness and mentoring/advising were the two factors located in Quadrant B. Items related to these factors showed large performance gaps. Further analyses of the gap scores on mentoring/advising items revealed that timeliness of help in developing a study plan, receiving help to make decisions about courses and programs, and timely response to request for information were key attributes that needed immediate attention. The gap scores on instructor responsiveness and mentoring/academic advising items are presented in Table 3 and Table 4. Among the items on instructor responsiveness, timely feedback on academic progress, instructors taking time to discuss educational goals with students, and instructors' involvement in assessing student learning received the lowest satisfaction ratings. Items related to interactive learning and adult focused learning fell in Quadrant C, suggesting low priority items not needing immediate attention. Items related to technology and financial access

fell in Quadrant D suggesting a possibility of too many resources being allocated to these areas. Looking at the priority matrix, it appears that some of the resources from technology and financial services may well be diverted to provide training to faculty on student advising and instructional planning and delivery.

Table 3. Mentoring and Academic Advising

	Importance		Satisfaction		
Attribute	**Mean**	**S.D.**	**Mean**	**S.D.**	**Gap**
This institution provides students with the help they need to develop a plan of study before enrolling	6.3	1.0	5.2	1.8	1.1
I receive the help I need to make decisions about courses and programs that interest me	6.5	0.8	5.6	1.6	0.9
I receive timely responses to my requests for information	6.5	0.7	5.6	1.5	0.9
My advisor is knowledgeable about requirements for courses and programs of interest to me	6.6	0.7	5.8	1.6	0.8
This institution periodically assesses my skill level to guide my learning experiences	5.7	1.3	4.9	1.5	0.8
Staff here are available to help me solve unique problems I encounter	6.4	0.9	5.6	1.5	0.7
Mentors are available to guide my career and life goals	6.4	1.1	5.7	1.6	0.7
My advisor is available either by phone, fax, e-mail, or online when I need help	6.6	0.7	6.0	1.4	0.6

Table 4. Instructor Responsiveness

	Importance		Satisfaction		
Attribute	**Mean**	**S.D.**	**Mean**	**S.D.**	**Gap**
My instructors provide timely feedback about my academic progress	6.5	0.8	5.5	1.6	1.1
My instructors take the time to discuss my educational goals with me	6.3	1.0	5.4	1.7	0.9
My instructors respect student opinions and ideas that differ from their own	6.4	0.9	6.0	1.5	0.4
My instructors involve me in assessing my own learning	6.0	1.2	5.5	1.3	0.5

Discussion

Traditional student satisfaction surveys measuring only the student perception of satisfaction with service quality have limited utility for nontraditional institutions, as they are unable to address the disconfirmation between student importance and satisfaction ratings. Results from the present study show that, compared with an analysis based purely on satisfaction scores, importance-satisfaction performance gap analysis provide a more accurate measure of service quality. Across all dimensions identified in this study, satisfaction scores had smaller means and larger standard deviations than the importance scores. The high scores on importance items suggest that like other consumers engaged in a commercial exchange activity, nontraditional students have high expectations of service quality from their educational institutions (Boulding, 1993). In addition, lower standard deviations on importance items suggest that the general agreement among the

respondents was more on importance items and less on satisfaction items (Westfall, 2003).

Compared with national averages, Empire State College students showed higher satisfaction on all dimensions. Despite their high satisfaction ratings, Empire State College students showed a general disconfirmation with service quality items as the survey revealed positive value of performance gap (importance score-satisfaction score) scores on all 54 attributes. This further confirms that satisfaction scores alone cannot present a holistic assessment of service quality. The focus on disconfirmation between importance and satisfaction provides gap analysis an objective context to evaluate service quality for quality improvement, marketing, and resource allocation. Moreover, in terms of prioritizing action, gap analysis provides a focused action plan for resource allocation by pinpointing low priority and high priority areas, thereby facilitating diversion of scarce resources to areas where improvements can make strongest impact on customer satisfaction and retention.

Results from quadrant analysis indicate that attributes related to "instructor responsiveness" and "mentoring/advising" had the largest performance gaps with high importance scores and low satisfaction scores. Structural issues like financial access and technology were important to students. Nevertheless, there was less "disconfirmation" on items related to these dimensions. Results from quadrant analysis not only underscore the relationship aspect of the teaching-learning process, they also validate the assertion that adult nontraditional students value *relationships* that are friendly *partnerships*, "much like the partnership formed between banks and supermarkets and the modern-day consumer" (Wright & 0'Neill, 2002; Levine & Cureton, 1998).

References

Boulding, W., Staeling, R., Kalra, A. & Zeithaml, V.A. (1993). A dynamic process model of service quality: from expectations to behavioural intentions, *Journal of Marketing Research*, 30, 7-27.

Carman, J.M., (1990). Consumer perception of service quality: an assessment of the SERVQUAL dimensions. *Journal of Retailing*, 66(1), 33-35.

Chapman, R. (1979). Pricing policy and the college choice process. Research in Higher Education, 10(37), 57.

Cronin, J.J. & Taylor, S.A. (1992). Measuring service quality: a re-examination and extension. *Journal of Marketing*, 56 (July), 56-68.

Council on Adult and Experiential Learning. *Serving adult learners in higher education: Principles of effectiveness (Executive Summary).* (n.d.). Retrieved July 1, 2003, from http://www.cael.org

Ford, J.B., Joseph, M., & Joseph, B. (1999). Importance-performance analysis as a strategic tool for service marketers: The case of service quality perceptions of business students in New Zealand and the USA. *The Journal of Services Marketing*, 13(2), 171-186.

Haworth, J.G., & Conrad, C.F. (1997). *Emblems of quality in higher education: developing and sustaining high quality programs*. Boston: Allyn and Bacon.

Joseph, M., & Joseph, B. (1997). Service quality in education: a student perspective. *Quality Assurance in Education*, 5(1), 26-37.

Kaye, M.M. & Li, R.Y. (1998). Measuring service quality in the context of teaching-study of the longitudinal nature of students' expectations and perceptions. *Innovations in Education and Training International*, 35(2), 145-154.

Levine, A., & Cureton, J.S., (1998). Collegiate life: An obituary. *Change*, (May/June), 12-17.

Lovelock, C., Patterson, P.G., & Walker, R.H. (1998). *Services Marketing*. Sydney: Prentice Hall.

Martilla, J. & James, J. (1977). Importance-performance analysis. *Journal of Marketing*, 41 (January), 77-79.

Michael, S.O., Hamilton, A. & Dorsey, M.R. (1995). Administering the adult and continuing education programme in a free market economy: The use of strategic marketing planning. *International Journal of Education Management*, 9 (6), 22-32.

National Center for Education Statistics. (1996). Nontraditional undergraduates, trends in enrollment from 1986-1992 and persistence and attainment among 1989-90 beginning postsecondary students (NCES 97-578). Washington, DC: U.S. Department of Education.

National Center for Education Statistics. (2002). *The Condition of Education, 2002*. Washington, DC: U.S. Department of Education.

Noel-Levitz. (2003). *Campus Report, State University of New York Empire State College*. Noel-Levitz.

Nunnally, J.C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, (Fall), 41-50.

Parasuraman, A., Zeithaml, V.A. and Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perception of service quality. *Journal of Retailing*, 64 (Spring), 12-40.

West, G.B. (1999). Teaching and technology in higher education: Changes and challenges. *Adult Learning*, 10, 16-18.

Westfall, J.E. (2003). *Elementary schools facilities survey report: Sheboygan Area School District.* Sheboygan, WI: Applied Ph.D. Research, LLC. Retrieved May 12, 2004, from http://www.sheboygan.k12.wi.us/sisrv/research/assessment/documents/ELEMfacilities.pdf

Wright, C. & O'Neill, M. (2002). Service quality evaluation in the higher education sector: An empirical investigation of students' perceptions. *Higher Education Research & Development*, 21(1), 23-39.