# THE NATURE OF THE IMPORTANCE-SATISFACTION RELATIONSHIP IN RATINGS: EVIDENCE FROM THE NORMATIVE DATA OF THE NOEL-LEVITZ STUDENT SATISFACTION INVENTORY

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## ABSTRACT

The nature of the relationship between importance and satisfaction in consumer ratings was studied on an aggregate basis using the published national normative data from the last five annual surveys of student satisfaction conducted by the Noel-Levtiz organization. The average importance and the average satisfaction ratings for 11 scales of the Student Satisfaction Inventory (SSI) were correlated. For three of the four college types (private 4-year, 2-year, and career), there was a linear relationship to the data, so that attributes with higher average satisfaction ratings also had higher average importance ratings. Conversely, when the mean importance and mean satisfaction ratings on the 11 attributes were plotted for the 4-year public colleges, there was a V-shape to the distribution, such that attributes with low average satisfaction and attributes with high average satisfaction received higher average importance ratings than the attributes with mid levels of satisfaction. These results indicate that both linear and non-linear associations between satisfaction and importance are possible. The V-shaped relationship occurs if the range of satisfaction is unrestricted whereas the linear relationship is observed when the range of expressed satisfaction is truncated.

## INTRODUCTION

Although the notion is still controversial (Salisbury, Branson, Altreche, Funk, and Broetzmann, 1997; Scrabec, 2000) it is now more commonplace to view the student as a " customer " (Browne, Kaldenberg, Browne and Brown, 1998; McCollough and Gremler, 1999) and consequently the measurement of student satisfaction is currently considered by some administrators to be just as crucial in higher education as it is in other areas of commerce (e.g., Hom, 2002; McCollough and Gremler, 1999). However, there is considerable disagreement in the field of consumer behavior about what constitutes customer satisfaction and the best means of assessing it (Babin and Griffin, 1998; Brady, Cronin, and Brand, 2002; Yuksel and Rimmington, 1998). Moreover, since education is a service, it is an intangible, and therefore assessing satisfaction with education is probably an even more difficult undertaking than if it were a product (see Parasuraman, Zeithaml and Berry, 1985).

Many colleges and universities continue to craft their own customized, homegrown instruments to assess student satisfaction, but a number of commercially produced measures are available. The primary advantages of standardized surveys are that (a) they are developed on some theoretical basis, (b) they typically provide benchmarks (norms), and (c) the psychometric properties of the instruments have been studied. The major drawbacks are cost and the reduction in ability to customize the survey.

The two most popular comprehensive standardized satisfaction measures in higher education are the Student Opinion Survey (SOS) published by American College Testing (ACT) and the Student Satisfaction Inventory (SSI) marketed by Noel-Levitz, a consulting firm specializing in higher education. Miller (1997) compared the two instruments, finding them to be very similar in their objectives and content, but different in item format. On the SOS, students indicate only their satisfaction with an attribute, whereas on the SSI students report their satisfaction as well as the importance of the issue being rated. Relative to the SOS, the SSI is a longer scale (33 minutes versus 20 minutes to complete) and it is also costlier according to Miller. The SOS allows for more detailed benchmarks than the SSI.

The importance-rating component of the SSI

is featured by the Noel-Levitz organization as a major strength of the instrument. A promotional brochure for the SSI contains the headline "Avoid This Mistake!" with the following text: "Using a traditional satisfaction survey, a Midwest institution once learned that parking access was dissatisfying to its students (a common complaint), and subsequently decided to build a multimillion dollar parking structure. But once it was built, the structure did little to increase satisfaction overall. The problem? The availability of parking really didn't matter very much to students. While they agreed that parking was a problem, it was of little importance when compared to other campus issues they believed were far more important." The brochure goes on to say: " With the Noel-Levitz satisfaction-priorities surveys, you can avoid these types of mistakes. You can launch and promote your initiatives boldly, knowing that what you do will matter to your students."

This same point is reiterated in the 2002 National Student Satisfaction Report (Noel Levitz, 2002), which presents the aggregate results based on the institutions participating in the annual survey: "Traditionally, colleges and universities have measured one dimension of student satisfaction only. However, for greatest impact and accuracy, satisfaction should be viewed within the context of student expectations (levels of importance). For example, the quality of food service and the use of student activity fees repeatedly surface as areas of high dissatisfaction for students. But when asked to indicate the importance of these areas to their overall educational experience, students rate food service and activity fees relatively low" ( p.1).

Noel-Levitz contends that the importance and satisfaction ratings should be used to classify a college's services into the quadrants of a "Matrix for Prioritizing Action", namely : (a) high importance-high satisfaction, (b) low importance-low satisfaction (c) high importance-low satisfaction, and (d) low importance-high satisfaction. According to Noel-Levitz, the corresponding actions to be based on these quadrants are: (a) strengths to be featured in promotional literature, (b) opportunities to examine areas with low status, (c) key challenges that require immediate correction, and (d) areas from which it might be possible to divert institutional resources to areas of higher importance. This type of classification system is common in marketing, with Barsky and Labagh (1992) using the following terminology for these quadrants: (a) critical strengths, (b) potential threats, (c) key challenges that require immediate correction (risk/opportunity), (d) insignificant strengths. Kotler (2000) calls the corresponding quadrants: (a) keep up the good work, (b) low priority (c) concentrate here, and (d) possible overkill.

In addition, the SSI's publisher indicates that the satisfaction and importance ratings can be used to calculate gap scores between importance and satisfaction. By subtracting the satisfaction rating from the importance rating, a *performance gap* is determined for an attribute. The gap is purported to indicate how well the institution performs relative to student expectations --- the larger the gap, the worse the performance. Some users of the SSI also compute weighted satisfaction scores by multiplying the satisfaction rating by the importance rating to come up with an overall satisfaction index, although the publisher does not explicitly endorse this procedure.

Undeniably, the importance-satisfaction framework, with its great intuitive appeal, has numerous proponents (Attarian, 1995; Geva and Goldman, 1991; Guadagnolo, 1985; Hawes and Rao, 1983; Martilla and James, 1977; Shin, and Elliott, 2001). It also seems to be a major selling feature of the SSI, frequently being identified as the reason why the SSI was selected over its competitors (e.g., University of Kentucky, 1995). While it seems like just plain common sense to include an importance rating given that dissatisfaction with a service that is unimportant has less severe repercussions than dissatisfaction with an important service, there is a body of research questioning this practice (Blood, 1971; Crompton and Love, 1995; Danaher, 1997; Dorfman, 1979; Kraut and Ronen, 1976; Mobley and Locke, 1970; McFarlin and Rice, 1992; Peter, Churchill, and Brown, 1993; Staples and Higgins, 1998; Yuksel and Rimmington, 1998).

The following concerns have been voiced about the inclusion of importance ratings in a satisfaction questionnaire: (a) it increases the burden for the respondent (b) consumers tend to rate almost every attribute as important, (c) the stated importance may not be what actually drives consumer behavior, (d) people implicitly weigh the importance of an issue when forming their satisfaction rating so it is already part of the satisfaction rating, (e) importance can be easily judged by the magnitude of the correlation between satisfaction on a given attribute and the overall satisfaction score or some other bottom-line measure, and (f) integrating the importance and satisfaction data in a gap score poses statistical problems.

Relying on gap scores can be frustrating. In a study using the SSI, Elliot and Healy (2001) assessed the validity of the gap scores in predicting overall satisfaction and found results that were contrary to the gap theory. In the regression equation using gaps the strongest predictor (Beta =.36) was " student centeredness," which was of low importance (8th of 11) and high satisfaction (4th of 11), falling into the action matrix quadrant that calls for diversion of resources from that dimension to more important issues. Conversely, "safety and security" had average ratings that placed it 3rd in importance and dead last in satisfaction (11th of 11), resulting in the highest gap score, yet it had a relatively minor role in the multiple regression (Beta =.07). The article does not report the simple inter-correlations between predictors, so one can't tell if part of the reason for this result may the nature of the inter-correlation of the predictors, but this study nonetheless demonstrates the perils of relying on gap scores.

There are no published studies using the SSI on the value of weighting satisfaction by importance, but the literature on this topic suggests that this practice may be futile. Despite its intuitive appeal, with a few exceptions (e.g., Furukawa, 1975; Hsieh, 2003), weighting satisfaction by importance in other contexts has generally been unproductive (Crompton and Love, 1995; Quinn and Mangione, 1973; Rao and Kelkar, 1997; Sarveswara, 1974; Waters and Roach, 1971; Yuksel and Rimmington, 1998).

Interestingly, even though they acknowledge that importance weights fail to improve the explanatory power of a satisfaction index, some researchers nonetheless feel that importance ratings should be included in a satisfaction survey because the combination makes the results more diagnostic and actionable, allowing the manager to prioritize areas in need of improvement (Crompton and Love, 1995; Rao and Kelkar, 1997; Yuksel and Rimmington, 1998). For instance, Yuksel and Rimmington (1998) write: "We caution that although weighting importance does not add to the explanatory power of the models, we are not recommending that the importance dimension be discarded. Knowing the importance ascribed to service attributes may still be useful for managers."(p. 70). Supporters of importance ratings, like Barsky and Labagh (1992), contend that the matrix can serve as a "planning tool" and a "strategic control instrument."

The issue of whether direct or imputed importance has the greater validity is still open to debate. Studies addressing this point are few in number and their results are mixed. The literature suggests that stated importance ratings and derived importance (i.e., inferred from the size of the correlation between satisfaction on an attribute and overall satisfaction) can produce different interpretations of the importance of various facets, depending in part on how the overall satisfaction question is phrased (Chu, 2002; Kraut and Ronen, 1976; Roszkowski and Ricci, in press; Soper, 1980; Wanous and Lawler ,1972 ).

Even the more basic question regarding the nature of the relationship between importance and satisfaction judgments is not fully understood. There is some evidence that people may employ heuristics to form their importance and satisfaction ratings. Three relationships between importance and satisfaction have been proposed: (a) independence (small or no correlation), (b) linear relationship, and (c) non-linear relationship. Under a linear model, satisfactory attributes are rated as important (or more important) and dissatisfactory attributes are rated as unimportant (or less important). The non-linear model proposes a V-

shaped distribution in which very dissatisfactory and very satisfactory attributes are rated as important while the attributes with mid-level satisfaction are rated as less important. In other words, in this model only attributes that are considered important can lead to satisfaction or dissatisfaction.

The issue of importance-satisfaction association has been addressed in the literature two ways. In the first approach, conducted at the person level, the importance and satisfaction scores of each individual in a sample are correlated. A correlation is conducted for each attribute and the average correlation across attributes is then calculated. The second approach, which relies on aggregated data, involves first computing the average importance and the average satisfaction for each item in the sample and then correlating the mean importance and mean satisfaction for each item. In the first approach, the subject (case) is the person, whereas in the second approach the subject (case) is the survey item or question.

Most of the early literature on the nature of the relationship between importance and satisfaction comes from research on job satisfaction. In one of the first studies to consider this matter, Schaffer (1953), examining the issue at the individual level, found correlations between importance and satisfaction that were as high as +.71 when positive and -.45 when negative in direction. Such results cause one to question the independence of the two constructs. More recent studies are based on consumer satisfaction research. For example, Wessels, De Witte, Weiss-Lambrou, Demers and Wijlhuizen (1998), employing a Dutch version of QUEST (the Quebec User Evaluation of Satisfaction with Assistive Technology), reported correlations between importance and satisfaction that only ranged between 0.15 and 0.41 for each of the 24 items on a 6-point scale, which the authors took to mean that a "distinction between these two aspects, `importance' and `satisfaction', is meaningful." They view their data as supportive of the independence of the two constructs. However, Wessels et al did not consider the possibility of a non-linear relationship to their data.

The few studies that have looked at the issue from both the individual and the aggregate perspective found that the resultant correlations are higher using the aggregate approach. For example, Roszkowski and Ricci (in press), employing a customized survey devised by a college's student government association, collected data on 25 specific attributes regarding services rated for both importance and satisfaction. The Pearson correlations between importance and satisfaction, computed using the 126 students as subjects, ranged from 0 to .61, with an average of about .23. At the aggregate level, where the 25 items served as the subjects, the Pearson correlation between the average importance ratings and the average satisfaction ratings equaled .40. However, when the data at the aggregate level were plotted with satisfaction on the abscissa and importance on the ordinate, there was a V-shape pattern to the plot. In other words, two linear lines could be fit to the distribution. The left side of the V (low satisfaction) had an associated Pearson correlation of $r$ = -.53 whereas on the right side of the V (high satisfaction), the $r$ = +.76. Separately, each correlation was stronger than the $r$ = .40 derived for the entire set of 25 items considered together.

Roszkowski and Ricci's results were consistent with those of Friedlander (1965) who studied the relationship between average job satisfaction and average job importance ratings. Friedlander reported that the linear correlation between mean importance and mean satisfaction scores on 73 pairs of ratings was only .11. However, if the satisfaction data were dichotomized on the median, and separate satisfaction-importance correlations were computed for the dissatisfied and the satisfied portions of the distribution, the correlations increased to -.36 and +.51, respectively. Dachler and Hulin (1969) similarly observed a V-shaped relationship between job satisfaction and job importance on 16 characteristics rated with a 5-point Likert scale, but not if satisfaction was measured with a five item cumulative point adjective check list. Also working with job satisfaction ratings, Borg (1991) found both a linear and a V-shaped distribution in his data, depending on the domain being analyzed.

**Table 1**
**Number of Respondents to the Student Satisfaction Inventory by Year of Survey and School Type**

| | Year | | | | |
|---|---|---|---|---|---|
| Institution Type | 1997-1998 | 1998-1999 | 1999-2001 | 2000-2001 | 2001-2002 |
| Private | 75,486 | 85,514 | 92,409 | 77,483 | 94,606 |
| Public | 37,725 | 46,087 | 54,884 | 35,763 | 42,722 |
| Two Year | 37,357 | 55,571 | 82,852 | 83,851 | 82,370 |
| Career | 3,383 | 8,927 | 10,450 | 13,290 | 15,622 |

Perhaps the discrepant findings across studies are a function of sampling error and the unreliability of the measures. Conceivably, by using a reliable instrument and very large samples, more consistent results would be observed. An opportunity to explore this issue on this basis exists using Noel-Levitz's annual reports summarizing the scores of institutions that are using the SSI, an instrument with known psychometric properties and a large database of respondents.

## METHOD

### Questionnaire

Three versions of the SSI are published: (a) 4-Year College and University, (b) 2-Year Community, Junior and Technical College, and (c) Career and Private School. On each version, the items are rated for importance and satisfaction (7-point scale) and produce 12 scales. Nine scales are common to all three instruments: Campus Climate, Campus Support Services, Concern for the Individual, Instructional Effectiveness, Registration Effectiveness, Responsiveness to Diverse Populations, Safety and Security, Service Excellence, and Student Centeredness. The Junior and Technical College version and the Career and Private School version also contain the following three scales: Academic Advising Effectiveness, Academic Services, and Admission and Financial Aid Effectiveness. The three scales unique to the 4-year College and University version are: Academic Advising Effectiveness, Campus Life, Recruitment and Financial Aid Effectiveness. Importance ratings are not collected on Responsiveness to Diverse Populations, so this domain was not considered in the present analysis.

Psychometric data on the SSI (Schreiner and Juillerat, 1993), available from the publisher, indicates that: (a) Cronbach's coefficient alpha equals .97 for importance and .98 for satisfaction scores, (b) the three-week, test-retest reliability coefficient is .85 for importance and .84 for satisfaction. A study by Obiekwe (2000) also found the SSI to be internally consistent.

### The Data

The normative data reported in the 2002 National Student Satisfaction/Priorities Report served as the basis for the analysis. (The report is available online at http://www.noellevitz.com/library/research/satisfaction.asp#ssi). Average importance and average satisfaction scale scores for academic years 1997-98,1998-99, 1999-2000, and 2001-02 were used. Data are reported by four types of institutions: four-year private colleges and universities, four-year public colleges and universities, two year institutions, and career schools (see pages 9-12 of the document). The sample sizes used to compute these means are very impressive (see Table 1).

### Procedure

The 2002 National Student Satisfaction/

Priorities Report (Noel-Levitz, 2002) presents five-year trends on the four school types participating in their survey. A mean importance and a mean satisfaction rating are indicated for 11 of the 12 scales for each school type at each year. These data, taken from the Noel-Levitz report, were analyzed at the aggregate level with the 11 items serving as the subjects.

The first step consisted of the computation of a Pearson correlation between the mean satisfaction rating and the mean importance rating using the 11 satisfaction -importance pairs. This was done for each year and each school type, resulting in the 20 correlations that labeled "full set." Next, the 11 data points (pairs of mean satisfaction -importance ratings) within each of the 20 full data sets were rank-ordered from lowest to highest on the basis of the satisfaction ratings. The intent was to create two subgroups for each full set: a low(er) satisfaction subgroup and a high(er) satisfaction subgroup. However, because of the odd number of items, a split into two even halves was impossible, so the decision was made to include the 6th ranked data point in each of the two halves. These two halves were labeled as "lower half" satisfaction and "higher half" satisfaction. Pearson correlations were then run between average importance and average satisfaction within each subgroup using the 6 attributes in each subgroup as the subjects. In other words, for each year of the 5 years of data on each of the 4 school types, 3 correlations were computed; (a) full set (11 data pairs), (b) lower half satisfaction scales (6 data pairs), and (c) higher half satisfaction scales (6 data pairs).

## RESULTS

The resulting coefficients are listed, respectively, under the headings of full set, lower half satisfaction, and higher half satisfaction in Table 2. It is instructive to begin the analysis by focusing on the Pearson correlation coefficients for the 11 data points considered together in the same analysis (i.e., full set). First of all, one should observe that all correlation coefficients are positive in direction. Secondly, the reader should note that there is remarkable consistency over the five years in how well a Pearson correlation described the relationship between satisfaction and importance within each of the four types of institutions.

However, the Pearson correlation was not equally effective in describing the relationship within each college type. In all five surveys, the Pearson importance – satisfaction correlations were strongest in the careers schools (average $r$ = .79), followed by the two-year colleges (average $r$ =. 64), and the private schools (average $r$ =. 60). The differences between these three types of schools were not large, but all three differed substantially from the public college category, which was a clear outlier with an average (five-year) importance – satisfaction correlation of only .19. What is particularly intriguing is that the same rank-order on the magnitude of the importance-satisfaction correlation occurred for each and every one of the five administrations of the SSI, namely, (1) career school, (2) 2-year college, (3) 4-year private, and (4) 4-year public.

Ignoring the split-half subgroups, it would be tempting to conclude that there is a strong relationship between importance and satisfaction for all school types except the 4-year public college, where there seems to be independence between satisfaction and importance. If one realizes that the Pearson tests for linear relationships, this rush to judgment must be tempered, and further probing at the subgroup level needs to be conducted. When the full set data are compared to the split data, the differences between the full set and the halves are not remarkable, except for the 4-year public college category. There, the Pearson importance-satisfaction correlation coefficients in each one of the two halves are larger than the corresponding correlation in the full set. Moreover, within the 4-year public institution category, all the correlations in the lower satisfaction subset are negative in direction, whereas in the higher satisfaction subset, they remain positive. In the other three categories of school types, the correlations in both subgroups within each set remain positive in direction.

The presence of the negative satisfaction-importance correlations for the lower satisfaction

**Table 2**
**Pearson Correlations between Mean Importance and Mean Satisfaction on the SSI Scales by Year of Survey and Institution Type**

| Institution Type | Satisfaction Rating | Year 1997-1998 | 1998-1999 | 1999-2001 | 2000-2001 | 2001-2002 | *M* | *SD* |
|---|---|---|---|---|---|---|---|---|
| Private | Full Set | .64 | .62 | .59 | .58 | .57 | .60 | .03 |
| | Lower Half | .20 | .23 | .99 | .40 | .38 | .44 | .32 |
| | Higher Half | .94 | .89 | .44 | .80 | .77 | .77 | .20 |
| Public | Full Set | .22 | .19 | .18 | .20 | .17 | .19 | .02 |
| | Lower Half | -.43 | -.43 | -.40 | -.37 | -.37 | -.40 | -.03 |
| | Higher Half | .80 | .49 | .54 | .54 | .38 | .55 | .15 |
| Two Year | Full Set | .67 | .64 | .65 | .65 | .57 | .64 | .04 |
| | Lower Half | .66 | .60 | .67 | .67 | .54 | .63 | .06 |
| | Higher Half | .58 | .51 | .47 | .46 | .79 | .56 | .14 |
| Career | Full Set | .85 | .76 | .76 | .83 | .73 | .79 | .05 |
| | Lower Half | .84 | .70 | .91 | .81 | .60 | .77 | .12 |
| | Higher Half | .06 | .29 | .82 | .12 | .34 | .33 | .30 |

half and positive correlations for higher satisfaction half suggests the presence of a V-shape to the scatterplot, which was confirmed by graphing the data and inserting best-fit regression lines. For illustrative purposes, the 1997 average satisfaction and importance ratings for the private and the public institutions are depicted in Figure 1. For 4- year private schools, a single regression was fit into the full set (11 data points), whereas two regression lines are plotted for the 4-year public schools (one for the left half of the full set and the other for the right half of the full set, that together form a V).

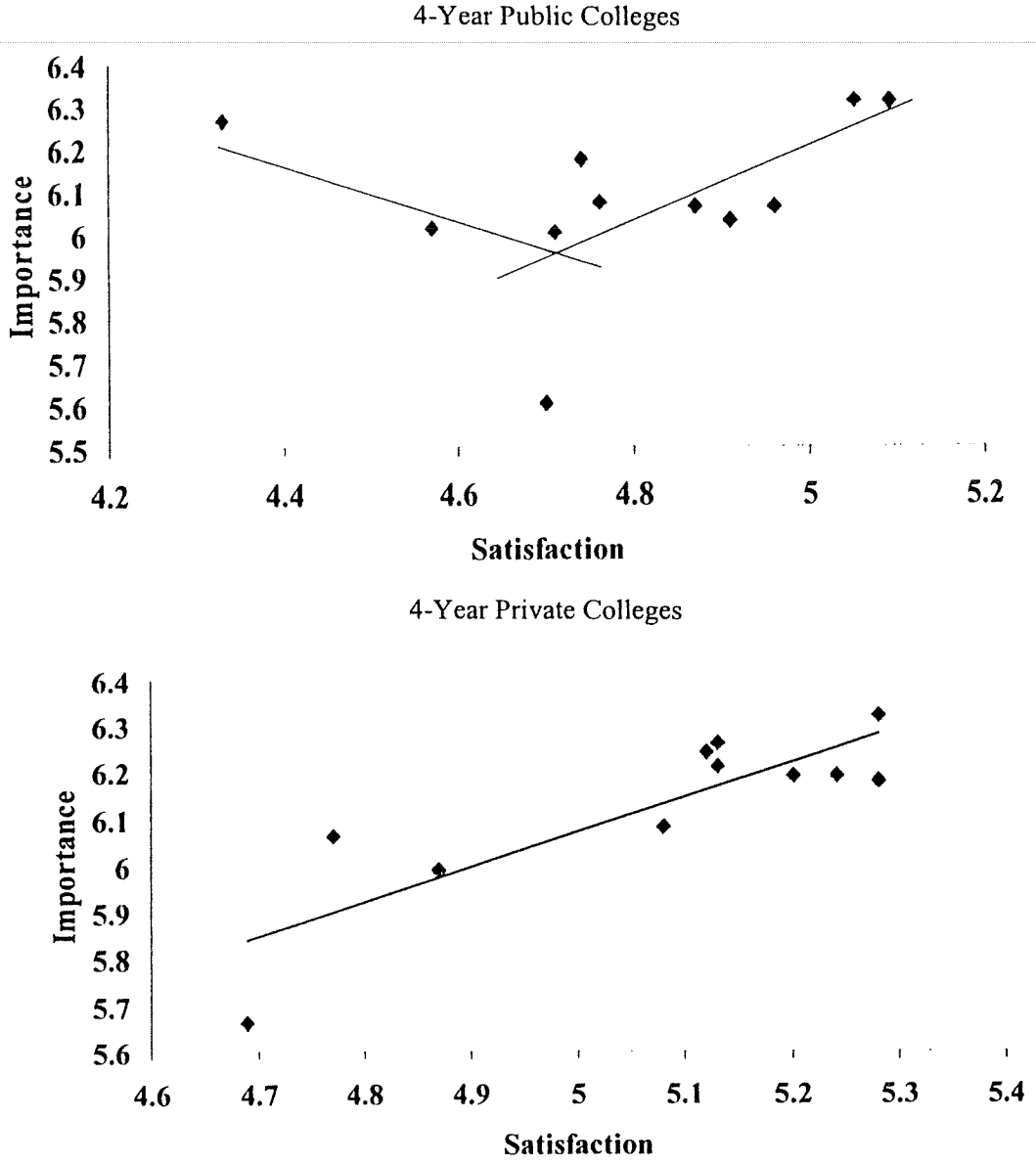
I sought an explanation for these findings by examining the distribution of satisfaction ratings in the four institutional types. Table 3 reports the lowest average satisfaction rating, the highest satisfaction rating, as well as the difference between them (i.e., the range). It is notable that the 4-year public college category differs from the other three college classifications by having the broadest range in every one of the five surveys.

The range I believe provides the answer as to why the public school data showed a V-shaped distribution between satisfaction and importance, whereas the other three school types had a linear distribution between these two ratings. That is, the public school distribution is less truncated, having more values falling toward the negative end of the satisfaction continuum, so that both sides of the V are represented. In the other three school types, the satisfaction ratings lean more toward the satisfactory end, and so only the right side of the V emerges.

## DISCUSSION

The aim of this study was to determine the nature of the relationship between ratings of importance and ratings of satisfaction. The data from the national norms of the SSI clearly show that there exists an association between average importance ratings and average satisfaction ratings, so that it is inappropriate to view them as totally independent dimensions. If the range of satisfaction ratings is fairly wide, it is probable that there will be a V-shape to the scatterplot of average satisfaction and average importance ratings. If the ratings are truncated, however, a linear pattern will be observed because only one side of the V is visible. For the three groups providing mainly satisfactory ratings of the 11

**Figure 1**
**V-Shaped and Linear Relationships between Satisfaction and Importance**




attributes, the relationship is linear, so that the attributes with higher satisfaction also get higher importance ratings. That is, only the right side of the V could be seen because there were not enough negatively rated attributes. In the fourth group, which produced more attributes with lower satisfaction ratings, the relationship is a bit more complex, adhering to the V-shaped distribution. In other words, attributes with either low satisfaction or high satisfaction are assigned high importance relative to attributes with middle levels of satisfaction.

Viewed this way, the contradictory results from previous studies on the nature of the

**Table 3**
**Range of Average Satisfaction Ratings on the 11 SSI Scales by Year of Survey and Institution Type**

| Institution Type | Satisfaction Rating | Year 1997-1998 | 1998-1999 | 1999-2001 | 2000-2001 | 2001-2002 | *M* |
|---|---|---|---|---|---|---|---|
| Private | Minimum | 4.72 | 4.71 | 4.66 | 4.64 | 5.64 | 4.87 |
| | Maximum | 5.35 | 5.28 | 5.24 | 5.18 | 6.33 | 5.48 |
| | Range | 0.63 | 0.57 | 0.58 | 0.54 | 0.69 | 0.60 |
| Public | Minimum | 4.33 | 4.38 | 4.30 | 4.29 | 4.36 | 4.33 |
| | Maximum | 5.09 | 5.09 | 5.14 | 5.04 | 5.09 | 5.09 |
| | Range | 0.76 | 0.71 | 0.84 | 0.75 | 0.73 | 0.76 |
| Two Year | Minimum | 4.77 | 4.82 | 4.79 | 4.81 | 4.80 | 4.80 |
| | Maximum | 5.30 | 5.30 | 5.24 | 5.26 | 5.30 | 5.28 |
| | Range | 0.53 | 0.48 | 0.45 | 0.45 | 0.5 | 0.48 |
| Career | Minimum | 4.69 | 4.59 | 4.67 | 4.64 | 4.52 | 4.62 |
| | Maximum | 5.28 | 5.28 | 5.28 | 5.25 | 5.21 | 5.26 |
| | Range | 0.59 | 0.69 | 0.61 | 0.61 | 0.69 | 0.64 |

satisfaction importance relationship in satisfaction surveys are not really conflicting and can be easily reconciled. When the range of satisfaction is constricted, a linear relationship will exist. When the range of satisfaction across attributes is wide, a V-shape will be seen. Thus, the shape of the relationship between importance and satisfaction depends on the range of satisfaction in the sample. In the analysis of the SSI norms, the school types that did not conform to the V distribution of satisfaction-importance ratings showed a positive linear relationship (i.e., the right side of the V), which was probably due to the fairly positive ratings that all the attributes received. Although it was not observed here, it is conceivable, that if all ratings are severely dissatisfactory, only the left side of the V will be evident (i.e., negative correlations).

It is also noteworthy that in the data with the V pattern, the magnitude of the relationship between satisfaction and importance on the left side of the V was lower relative to the strength of the relationship on the right side of the V. At the aggregate level of analysis, this finding was also noted by Friedlander (1965) and Roszkowski and Ricci (in press). Likewise, Schaeffer (1953), working at the individual level, observed higher positive correlations than negative correlations. Apparently, there is greater correspondence between importance and satisfaction than between importance and dissatisfaction. From this perspective, it should be mentioned that some evidence exists to suggest that satisfaction and dissatisfaction are distinct constructs rather than opposite poles of the same one (Babin and Griffin, 1998).

The major potential limitation of this analysis is that the correlations were conducted at the aggregate level, which are sometimes termed "ecological correlations." The shortcoming is that aggregated data do not necessarily reveal information about the relationships at the level of the individual. Inferring individual behavior from aggregate data is risky because an ecological fallacy results if the relationship detected at the group-level (aggregated data) fails to conform to the relationships discovered at the individual level. While Robinson (1950) warned researchers to never use aggregate data to infer individual relationships, more contemporary literature on this topic (e.g., Schwartz, 1994) is less dogmatic, cautioning the analyst of the possibly (but not necessarily) flawed conclusions that may be drawn.

Since I do not have access to the individual-level data in the Noel-Levitz database on the SSI, it is impossible for me to determine if the pattern of satisfaction and importance associations is the same or different at the more microscopic level. However, the nature of this aggregate relationship deserves attention in its own right (see King, 1997), even if no inferences are made to individual raters' behavior, because this analysis demonstrates that even without assessing importance directly, one can still draw some inferences about the importance of a particular attribute to the *group* based on the *group's* average satisfaction level. In most instances, the corrective actions to be taken on the basis of a satisfaction survey will be based on the group data. Recall that it is the mean ratings that are the basis for the "Matrix for Prioritizing Action."

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