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ASSESSING THE TEACHING QUALITY TO STUDENT SATISFACTION RELATIONSHIP: APPLIED CUSTOMER SATISFACTION RESEARCH IN THE CLASSROOM

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This study investigates the impact of multiple teaching quality factors on course satisfaction and instructor satisfaction as perceived by students. It applies established theory from customer satisfaction and educational psychology research to a sample of MBA and Undergraduate students from multiple sections of an introductory marketing course. In doing so, it demonstrates a method of obtaining diagnostic information to prioritize weaknesses and discover strengths of teaching performance that complements existing feedback processes. Substantive results indicate that learning was strongly related to course satisfaction and instructor enthusiasm was strongly related to instructor satisfaction. A discussion addresses how to use the results while managerial implications summarize benefits and requirements to implement the method.

INTRODUCTION

As marketing educators, we have all asked ourselves at one point or another, how can I improve my teaching? Many instructors have wonderful resources at their disposal including formal teaching evaluations. These evaluations are used by administrators for promotion decisions and by students for course selection decisions. In part, evaluations are useful for instructors to improve their individual teaching. However, many feel alternative methods could provide more specific information beyond basic descriptive statistics. Thus, one objective of this paper is to describe such a method that instructors could use to enhance their existing feedback processes.

The method begins with a supplementary evaluation that I ask my students to complete. It is a simple survey to obtain comprehensive information on my teaching quality and their satisfaction with the course and the instructor. I determine the relative impact of a variety of teaching quality factors on both types of satisfaction in the data analysis. The strength of these relationships provides direction on what teaching factors need improvement and what teaching factors are less critical.

As the preceding implies, the method applies customer satisfaction research to classroom teaching. Specifically, it follows a growing trend of linking various quality factors to measures of satisfaction (Dutka 1993; Rust, Zahorik and Keiningham 1996). Established research procedures for developing a list of attributes to measure product/service quality could be applied to teaching. However, this paper relies on existing educational psychology research to define and measure teaching quality. Although a useful source, educational psychology has yet to embrace concepts used in customer satisfaction research that have potential to make teaching evaluation research and feedback more informative for instructors. Thus, a secondary goal of this paper is to bridge these two streams of research. It offers marketers background material from educational psychology research and modestly extends this literature by illustrating an alternative perspective.

The paper begins by reviewing recent customer satisfaction trends that pertain to this study. Next, concepts and measures from educational psychology research are discussed. Since one objective is to illustrate an applied method, only tentative hypotheses regarding the teaching quality-satisfaction

relationship are put forth. Following this, a "students as customers" role is contrasted with other student roles in order to explain why satisfaction is a worthwhile objective and is used as a dependent variable. The paper continues with a presentation of results from a structural equation analysis of data collected, then concludes with a discussion that explains how the information can be used.

CUSTOMER SATISFACTION

A review of customer satisfaction literature reveals a growing body of knowledge (Yi 1990). As a central concept in marketing, customer satisfaction receives tremendous attention regarding its definition and measurement. Yi (1990) cites three noted perspectives (Hunt 1977; Oliver 1981; Tse and Wilton 1988) indicating satisfaction is a post-consumption evaluation of a product/service that occurs at the end of a psychological process. Observance of how product/service attributes perform is not sufficient, consumers need to form a judgment based on a comparison standard (Yi 1990). Furthermore, satisfaction ranges on a continuum from dissatisfaction to satisfaction since few studies conceive and test two factors of satisfaction and dissatisfaction (Yi 1990). Although a general definition guides satisfaction research, Yi (1990) concludes that a precise definition remains an important topic.

Collectively, satisfaction research contributes to a comprehensive model (Yi 1990) that explicates the constructs and their inter-relationships (i.e., antecedents and consequences of satisfaction). Based on the expectancy-disconfirmation paradigm, Yi (1990) suggests that the antecedents of satisfaction are, expectations, perceived performance (i.e., product/service attributes), perceived disconfirmation of expectations (i.e., subjective evaluation) and attitude. Expectations are predictions of performance and its comparison with perceived performance leads to positive disconfirmation (i.e., confirmation) or negative disconfirmation (i.e., disconfirmation). Thus, positive disconfirmation is associated with satisfaction and negative disconfirmation is associated with dissatisfaction. Consequences of customer satisfaction are complaints, word-of-mouth communication, repeat purchases and attitude. Thus, the model is a process of satisfaction that partially explains attitude change from pre-consumption to post-consumption. Since this review, three recent trends raise the importance for clarifying the definition of satisfaction for empirical research. The remainder of this section summarizes these three trends and explains how each influences this study's concepts and measures.

The first trend is a growing recognition of a conceptual and measurement distinction between customer satisfaction and quality. However, it should be noted, this is consistent with the existing hypothesized product/service performance-satisfaction relationship (Yi 1990). Oliver (1997) and Anderson, Fornell and Lehmann (1994) each suggest several conceptual differences between quality and satisfaction, however one difference from each author is relevant for this study. One difference is that quality dimensions are product/service specific whereas satisfaction is based on quality factors and external factors beyond the control of management (Oliver 1997). In the context of education, a student's satisfaction may be influenced by the poor quality of classroom facilities of which an instructor may have limited recourse to change. Another difference is quality is based on current perceptions whereas satisfaction is based on past, present and an anticipated experiences or outcomes (Anderson et al. 1994). In this study, students rate the quality of teaching they have currently received; however, satisfaction also includes their evaluation of future consequences. For example, students may include attributes regarding how well the course prepared them to make effective marketing decisions when employed.

A second trend is that customer satisfaction can be measured after a one-time experience (e.g., transaction satisfaction) or after numerous encounters (e.g., cumulative satisfaction) with a product/service (Fornell 1992; Boulding, Kalra, Staelin and Zeithaml 1993). Transaction satisfaction is measured when customers evaluate a product/service right after a consumption experience. Thus, it offers diagnostic information about a specific product/service encounter. For example, an airline might survey passengers about the flight just experienced prior to stepping off the plane. Cumulative satisfaction is measured when customers evaluate a product/service after many consumption experiences. As such, it is a key indicator of past, current and future performance which makes it useful for predicting consequences of satisfaction (Anderson et al. 1994). Continuing with the example, an airline could survey (e.g., telephone) its customers about all flights they have taken within the past year. Distinguishing between alternate views of satisfaction is important since each implies different constructs and therefore different satisfaction measures. Transaction satisfaction implies closer adherence to the expectancy-disconfirmation paradigm by including perceived subjective disconfirmation of expectations as an antecedent construct of satisfaction. In contrast, measures for perceived subjective disconfirmation of expectations can reflect cumulative satisfaction (Fornell 1992). To conclude, this trend suggests that an empirical study should address which kind of satisfaction it plans to research.

In the context of this study, satisfaction measures at the end of a course raise two questions. Does the course in its entirety constitute a single, yet extended, consumption experience? Or, do all class sessions represent separate episodes resulting in cumulative satisfaction? Quality variation is a defining

characteristic of services, so, except for unique circumstances, it is likely that instructors will not consistently deliver at the same quality level for an entire term because of many factors (e.g., fatigue, moderate illness). Furthermore, the dyadic nature of services implies students affect teaching quality since they have varying levels of receptiveness to course material for many reasons (e.g., post mid-term exam mood, end-of-term stress). Thus, a cumulative satisfaction perspective (Fornell 1992) is adopted for this study.

Finally, theoretical and applied customer satisfaction research have distinct conceptual and measurement issues. Oliver's (1997) prologue provides the impetus for this point as he believes that the *how* and *why* questions of customers becoming satisfied are more interesting than the *what* question when investigating the product/service attributes customers find satisfying. The expectancy-disconfirmation paradigm reflects the *how* and *why* questions since it is concerned with the antecedents and consequences of satisfaction. Answering the *what* question is more closely associated with applied customer satisfaction research since managers want to know which product/service attributes require resources for improvement. Recently, applied customer satisfaction research includes the development of tools and techniques for measurement and diagnosis (e.g., Rust et al. 1996). This paper adheres more to applied customer satisfaction research because of its objective to predict the teaching quality-student satisfaction relationship.

TEACHING QUALITY

Students' evaluation of teaching effectiveness (SETE) is a primary method for defining and measuring teaching quality, and many established instruments exist in educational psychology. Marsh (1987) cites five instruments as examples; Endeavor Instrument, Student Instructional Rating System (SIRS) form, Instructor and Course Evaluation System (ICES), Student Description of Teaching (SDT) questionnaire and Students' Evaluations of Educational Quality (SEEQ) instrument. One example omitted from this list is the Instructional Development and Effectiveness Assessment (IDEA) which is used extensively (see e.g., Cashin and Downey 1992). All instruments present multiple teaching quality factors (e.g., five to nine) with a varying number of survey items for each factor. Each instrument has undergone testing to empirically support its respective factor structure and is used at American universities. Similarity among factors indicates teaching quality can be consistently defined and measured (Marsh 1987).

One noteworthy meta-analysis of the SETE literature finds eight relevant teaching quality factors (Cohen 1981). However, this analysis omits aspects of teaching present in the studies examined. A more recent meta-analysis of the same data using an expanded coding scheme finds twenty four factors (Feldman 1989). Fourteen of these twenty-four factors correspond to Cohen's (1981) original eight factors, where each factor is represented by one, two or three new factors. The remaining ten factors represent additional aspects of teaching quality that emerge with the expanded coding scheme. Although, these two meta-analyses identify a variety of teaching quality factors, they are a result of summarizing factors from numerous studies.

Thus, Feldman's (1989) twenty-four factors derived from all SETE studies imply an upper bound on the number of teaching quality factors and represent a basis for assessing surveys identified previously. Marsh (1991a) compares the SEEQ factors to Feldman's (1989) factors and shows that a majority of the latter's are adequately represented in the former. Further, since factors from Feldman's (1989) meta analysis are not supported in comprehensive empirical tests, Marsh (1991a) contends that the validity of using all of Feldman's (1989) factors is questionable and may not yield valid results. In contrast, SEEQ factors are supported by many exploratory and confirmatory factor analyses with large samples to establish their validity and reliability. Based on these conclusions, the SEEQ instrument (Marsh 1987) is adopted for this study.

Overall, the SEEQ presents a comprehensive definition and measurement of teaching quality and is comprised of eight factors. *Learning* reflects the extent to which students felt they encountered a valuable teaching experience. *Enthusiasm* represents the extent to which students perceived the instructor displaying enthusiasm, energy, humor and an ability to hold their attention. *Organization* concerns the instructor's organization of the course, course materials and class presentations. *Interaction* reflects perceptions of the degree to which the instructor encouraged class discussions and invited students to share their own ideas. *Rapport* is the extent to which students perceived the instructor to be friendly, interested in students and accessible in or out of class. *Breadth* is the extent to which students perceived the instructor presenting alternative approaches to the subject. *Assignments* refer to perceptions of the value and fairness of graded work. *Material* taps the value of the course's reading requirements in aiding the appreciation and understanding of the subject.

Multidimensional SETEs (Marsh 1987) are criticized as unidimensional (Abrami and d'Apollonia 1991). It is argued that global summary measures should be employed for faculty performance decisions since they are more useful (Abrami 1989). In contrast, their composition should be examined irrespective of how they are used for personnel decisions (Marsh 1991b). Despite this debate, multidimensional SETEs appear to coincide with applied customer satisfaction research

which provides another reason for adopting this framework to assess the teaching quality-student satisfaction relationship. For example, it is generally accepted that services are comprised of multiple dimensions of quality (Rust et al. 1996; Parasuraman, Zeithaml and Berry 1988). In fact, Abrami (1989) agrees that multidimensional SETEs are useful for diagnostic purposes as feedback for individual instructors.

As suggested at the outset, this study seeks to investigate which SEEQ factors have the greatest impact on course satisfaction and instructor satisfaction; thus determining the most important factors to concentrate on for improving the teaching. Satisfaction as the dependent variable for teaching quality is in contrast to the generally accepted criterion of student achievement (Marsh 1987). Student achievement is usually measured by grades or final exam performance and is tested in multiple section courses for control purposes. In many studies, most SETE factors are positively correlated with student achievement (Feldman 1989). Furthermore, the impact of SETE factors on student achievement and other dependent variables (e.g., overall course or instructor rating) produces different results; however, high, positive correlations exist among the different dependent variables (Feldman 1989). In conclusion, the above discussion implies that all SETE factors are hypothesized to be positively related to course satisfaction and instructor satisfaction; however, the effects are not hypothesized to be equal since it is expected that students will discriminate between the two dependent constructs.

Curiously, the quality-satisfaction relationship is seldom examined explicitly. One reason is both concepts are often used synonymously (see e.g. Abrami d'Apollonia and Cohen 1990). Thus, conceptual ambiguity between quality and satisfaction that marketing is currently exploring also appears in educational psychology literature. Additionally, it is possible that overall course and instructor questions, cited previously, reflect satisfaction variables; however, the wording of each measure does not refer to an expectation (i.e., disconfirmation question) or satisfaction. This raises ambiguity since it is not clear whether these questions are intended as overall quality ratings or satisfaction evaluations. A final reason is that this research relies on predicting student achievement to the detriment of other relevant variables (Marsh 1987). While satisfaction as a criterion may be questioned, Marsh (1987) argues, "No single study, no single criterion, and no single paradigm can demonstrate, or refute, the validity of students' evaluations" (p. 709). Marsh (1987) contends the dependent variable should neither be a single item nor an unweighted average of multiple items. Cumulative satisfaction argued for previously is consistent with this recommendation since it is a function of multiple measures whose weights will be determined via structural equation data analysis. The next section presents a rationale for using satisfaction as the dependent variable and offers theoretical justification for Marsh's (1987) point.

THE ROLES OF STUDENTS

The assumption of satisfaction as the criterion variable is based on the premise that students have a role that differs from their role when student achievement is the criterion variable. A marketing perspective suggests that students are in a role as customers since satisfaction with an educational product/service is one outcome of the exchange between instructors and students. However, at least four student roles can be proposed: students as customers, students as clients, students as producers, and students as products. These roles are summarized to support Marsh's (1987) contention of no single correct criterion variable. Clearly, a variety of approaches for studying teaching are feasible depending upon one's research interests.

Students as Customers

Students are customers since they experience a highly valued service. During or following a course, the usual consumption or post-consumption consequences occur. Students with high levels of satisfaction engage in favorable word-of-mouth communication like recommendations to friends or students may inquire whether an instructor teaches another course. On the other hand, students with low levels of satisfaction engage in negative word-of-mouth communication or students complain to a department chair or dean. Taking this further in the post-consumption process from an *aggregate* perspective, highly satisfied students recommend programs, return as a graduate students, recruit prospective students or regularly donate as alumni.

Students as Clients

As clients, students receive services of a well trained, education professional who is similar to other professionals (e.g., medical doctor, dentist, therapist). In this capacity, clients have an understanding of their service needs, but are reliant on expert advice of professionals. Further, clients expect to be "personally improved" at the end of the process. In the context of education, students as clients expect to be "intellectually developed" by an instructor with achievement as the ultimate measure of success. This is consistent with the commonly used criterion variable found in educational psychology literature and illustrates an implicit assumption of this research.

Students as Producers

Armstrong (1995) offers the idea of students as producers. In this role, students take active responsibility for learning since

the instructor is a resource. This alters the exchange process from instructors imparting information to students seeking knowledge. Thus, the criterion variable should probably focus on aspects that reflect instructor and course performance from a resource perspective which suggests the SEEQ dimensions may not be completely applicable to this role.

Students as Products

Studying at a university for the sake of personal development may have been the primary motivation historically; however today, business students in particular and university students in general expect to be more marketable for potential employers. Upon graduation, students offer themselves as a package of benefits to be purchased by those seeking such "products" in the labor market. This implies an extension of students as clients: students as clients are concerned with process whereas students as products are concerned with outcome. Thus, the key criterion could be measures that characterize a students along marketing mix dimensions with a focus on differentiation and communication of attributes and benefits.

Why Satisfaction is Suitable

With students as customers, their satisfaction is a suitable criterion variable since it offers three important benefits. First, the concept of satisfaction is relatively unambiguous. Students would consider themselves expert consumers of the service experience since they have taken numerous courses previously. Although this raises a point of debate whether first year students have sufficient expertise, it is not an issue in this study as all students had previous exposure to university courses. Second, satisfaction easily reflects outcomes of reciprocity that occur between students and an instructor. Third, a concern for satisfaction keeps an instructor on his or her toes as double-check to make sure that material is relevant and current or that students see themselves learning. To summarize, some may argue that other roles are more important for testing, but students as customers allows an instructor to perform diagnostic research to improve teaching.

METHODOLOGY

Samples

Two separate student samples from an introductory marketing course were used to develop the application method. An MBA sample comprised students from two sections who were taught during the fall semester. These two sections were the only ones taught for that academic year. An undergraduate sample comprised students from two of five sections who were taught during the winter semester of the same academic

year. Semesters were thirteen weeks long and classes met two sessions per week for one and a half hours each. The courses used the same case method pedagogy supplemented with readings and text material respectively.

Survey Instrument

As discussed, the SEEQ instrument (Marsh 1987) was used for measuring teaching quality factors, however material and assignments measures were modified slightly to reflect the course. An additional alteration was a deletion of the breadth construct which measured extensiveness of covering competing theories. At the time of the study it appeared that this construct did not reflect the course's case method pedagogy which took an applied approach. Thus, the study examined the relative impact of the remaining seven SEEQ constructs. All SEEQ measures used a 5-point "strongly disagree" to "strongly agree" scale. The diagnostic discussion at the end of the paper summarizes the wording of all SEEQ measures.

MBA students responded to a global satisfaction question and to an ideal point question. Undergraduate students responded to these two measures and a third regarding the degree to which expectations were met. Not asking this question for the MBA sample was an oversight; however, correlations in the undergraduate data suggest minimal consequences. Questions for both sets of students addressed course and instructor so that MBA and undergraduate students answered four and six satisfaction questions respectively. These measures and the accompanying 10-point scale to avoid skewness are consistent with measuring cumulative satisfaction (Fornell 1992).

Method

During the final session in both semesters, all students in each class were requested to complete a supplementary course evaluation (i.e., SEEQ instrument) in addition to a regular course evaluation used by the university. Although all students in attendance responded, not all registered students completed the instrument since each class had an absenteeism rate of approximately fifteen per-cent. In total, 94 MBA students and 70 undergraduate students completed the instrument. An acknowledged limitation of the study is that no effort was made to determine whether a non-response error affected these data.

Data Analysis

Partial least squares (PLS) estimated the parameters of the measurement and structural equations. PLS explains variance via ordinary least squares (OLS), is useful for exploring less established theories, is capable of predicting constructs, is applicable to small sample sizes, and does not make any data

distribution assumptions (Fornell 1992). Thus, PLS is suitable for this study given (1) the model's tentativeness, (2) the objective to predict customer satisfaction, (3) the relatively small samples obtained and (4) skewed customer satisfaction data. The measurement model represents the relationship between each construct and its measures. The relationship for all constructs is reflective since each has been derived theoretically (Lohmoller 1986, 1989).

The measurement model is assessed by convergent validity and discriminant validity (Campbell and Fiske 1959). Convergent validity is assessed by the internal consistency (e.g., reliability) of each measure and construct, and the average variance extracted (AVE) of each construct (Fornell and Larker 1981). Single measure reliability is the squared loading when using standardized measures. This value should be greater than .5 which shows that the amount of variance captured by the construct is greater than the amount of variance due to error in measurement. Composite reliability is similar to Cronbach's alpha (Nunnally 1978) except the latter assumes that measures have equal weighting. Composite reliability is more general (Bagozzi 1980) where measures contribute differently depending upon the strength of the loadings. Acceptable levels of composite reliability are in the .6 to .8 range. The AVE of a construct is equivalent to the mean of the squared loadings of the measures of a construct assuming standardized estimates. Fornell and Larker (1981) suggest AVE should be greater than .5 so that there is greater variation due to measurement than error. Discriminant validity refers to the degree to which a construct differs from other constructs. It is assessed by determining if the shared variance between two constructs (i.e., squared correlation) is lower than each construct's AVE (Fornell, Tellis and Zinkhan 1982). The structural model is assessed by nomological validity which concerns the significance of structural paths and the structural equations' explanatory power. PLS does not require strict data criteria for estimating parameters so jackknifing (e.g., Fenwick 1979), a distribution-free method of significance testing, is typically used (Fornell 1992).

RESULTS

MBA Students

Measurement properties were adequate. Only one of 27 measures did not have single measure reliability. Composite reliability estimates ranged from .78 to .87 for seven SEEQ constructs and were .95 and .96 for two satisfaction constructs (Table 1). The AVE for seven SEEQ constructs ranged from .53 to .68 and were .91 and .92 for two satisfaction constructs (Table 1). Squared correlations of all SEEQ constructs were lower than respective AVE values, thus supporting discriminant validity.

TABLE 1
MEASUREMENT MODEL EVALUATION

| | MBA | | UNDERGRADUATE | |
	Reliability	AVE	Reliability	AVE
Learning	.81	.53	.88	.64
Enthusiasm	.86	.60	.85	.58
Organization	.78	.55	.73	.48
Interaction	.87	.68	.93	.82
Rapport	.87	.63	.76	.45
Assignments	.84	.65	.80	.51
Material	.78	.64	.63	.52
Course Satisfaction	.95	.91	.96	.88
Instructor Satisfaction	.96	.92	.96	.89

Table 2 shows structural model results. Seven SEEQ constructs explained a large proportion of variance in course satisfaction (R^2 = 74%). As expected, most constructs had positive and significant relationships with course satisfaction. Learning (.47) had the greatest impact with a coefficient that was double the assignments (.24) coefficient which was the next highest. The remaining constructs enthusiasm (.19), organization (.13) and material (.12) had substantially less effects. Despite a course with considerable interaction due to the case method, this construct was not significantly related to course satisfaction. In addition, an unexpected negative and significant relationship (-.12) was found between rapport and course satisfaction.

TABLE 2
PLS ESTIMATES OF STRUCTURAL MODEL PARAMETERS

| | MBA SAMPLE | | UNDERGRADUATE SAMAPLE | |
	Course Satisfaction	Instructor Satisfaction	Course Satisfaction	Instructor Satisfaction
Learning	.47	.21	.51	.21
Enthusiasm	.19	.34	.17	.39
Organization	.13	.20		
Interaction		.14		
Rapport	-.12		.10	.15
Assignments	.24	.13	.12	.13
Material	.12	.12	.22	.22
R^2	.74	.67	.74	.67

Non-significant paths are omitted for clarity.
All paths shown are significant (p < .001).

Seven SEEQ constructs explained less variation in instructor satisfaction (R^2 = 67%). Only rapport failed to show a

significant positive relationship with instructor satisfaction. In contrast to course satisfaction, enthusiasm (.34) had the greatest impact on instructor satisfaction. Learning (.21) and organization (.20) had relatively equal effects on instructor satisfaction as the second and third most important factors. The remaining constructs, interaction (.14), assignments (.13) and material (.12), had fairly equal relationships with instructor satisfaction.

In comparing results, it is interesting to note differences in the coefficients for learning, enthusiasm, organization and assignments. Learning and assignments reflect the marketing course to a greater degree and are in fact more highly related to course satisfaction than instructor satisfaction. Alternatively, enthusiasm and organization reflect the marketing instructor to a greater degree and are more highly related to instructor satisfaction than course satisfaction. Together these results imply nomological validity for the conceptual model that hypothesizes both instructor satisfaction and course satisfaction as important criterion variables.

Undergraduate Students

Measurement properties were adequate with a some exceptions. Six of seven SEEQ constructs had one measure each that did not achieve single item reliability. Composite reliability estimates ranged from .63 to .93 for seven SEEQ constructs and were .96 for both satisfaction constructs (Table 1). The AVE for seven SEEQ constructs ranged from .45 to .82 and were .88 and .89 for two satisfaction constructs (Table 1). Organization (.48) and rapport (.45) were two constructs that had AVE values below the .5 threshold. While it is customary to re-estimate the model without poor measures, this was not done for two reasons. First, since the objective of this paper is to present an application, less strongly related measures provide important diagnostic information for taking corrective action. Second, both are not substantially below the threshold of .5 and it was clear from the loadings that only one measure for each construct was questionable. Squared correlations of all SEEQ constructs were lower than the respective AVE values, thus supporting discriminant validity.

Table 2 shows that seven SEEQ constructs explained a large proportion of variance in course satisfaction ($R^2 = 74\%$). Five constructs had positive and significant relationships with course satisfaction. Learning (.51) had the greatest impact with a coefficient that was more than double the materials (.22) coefficient, which was the second highest. The other three constructs, enthusiasm (.17), assignments (.12), and rapport (.10), had weaker effects.

Seven SEEQ constructs explained less variation in instructor satisfaction ($R^2 = 67\%$). Similar to course satisfaction, organization and interaction did not have positive and

significant effects on instructor satisfaction. In contrast to course satisfaction, enthusiasm (.39) had the greatest impact on instructor satisfaction. Material (.22) and learning (.21) had relatively equal effects on instructor satisfaction as the second and third most important factors. Finally, rapport (.15) and assignments (.13) had weak, yet fairly equal effects on instructor satisfaction.

Results of the undergraduate sample showed that two constructs, organization and interaction, did not have positive and significant effects on either course satisfaction or instructor satisfaction. Learning and enthusiasm showed a similar relationship pattern with course satisfaction and instructor satisfaction as was observed in the MBA sample. Consistency of the material construct is interesting to note since the coefficient was unchanged across the two dependent variables. This also occurred for the MBA sample but with a weaker impact. Finally, unlike the MBA sample, the undergraduate sample showed reasonable consistency in the relationships for rapport and assignments to both satisfaction variables.

DISCUSSION

The purpose of this study was to describe a method that shows how to determine what teaching quality factors are more strongly related to course satisfaction and instructor satisfaction. The method integrates an established instrument for measuring teaching quality from educational psychology literature with a traditional marketing criterion variable satisfaction. As such, it follows a current trend in the marketing literature and marketing practice of linking quality to satisfaction. Thus, the method is designed to find relevant information in order to implement corrective action to improve one's teaching. To illustrate further, instructor satisfaction results for the MBA sample are now discussed in greater detail due to its superior nomological validity; six of seven SEEQ constructs had positive and significant effects on instructor satisfaction.

For practical purposes, it is important to explore the relationship between individual quality measures (e.g., survey instrument questions) and instructor satisfaction so that specific teaching attributes can be addressed through increased training, behavioral monitoring or practice. The PLS output permits this since it provides weights that represent the relationship between quality measures and quality constructs in addition to standardized loadings. Taking the weight of a measure to the construct and the path coefficient from the construct to instructor satisfaction, it is possible to determine the relative impact of a quality measure on instructor satisfaction. Thus, it is possible to rank the impact of all quality measures on instructor satisfaction from highest to lowest in order to determine the relative priority or importance

students place on various attributes of teaching quality. A second critical piece of information is the mean of a measure. A high mean indicates a measure that students rank favorably which cannot not be increased all that much through improved teaching. In contrast, a low mean indicates a measure that students rate unfavorably which can be improved upon.

Table 3 demonstrates the use of these two pieces of information. The horizontal axis represents the relative importance of quality measures on instructor satisfaction from low to high. The vertical axis represents the means of measures from low to high. The median of each axis is used as a dividing line to develop four quadrants. Table 3 then classifies all measures according to their mean and relative importance into an appropriate quadrant. Each measure is paraphrased with the construct in brackets. Four quadrants are used to simplify the corrective action process; however, depending upon the circumstances, one may want to develop a three-by-three matrix or plot the data to obtain a more appealing visual.

The upper right quadrant has measures that have high importance and high means. Here, the instructor's task is to "keep up the good work" because there is little room for raising these quality measures and they are highly relevant for instructor satisfaction. In contrast, the lower right quadrant has measures that have high importance and low means. Here, the instructor should "try to improve" since these items are highly relevant for instructor satisfaction and students are rating them lower. The upper left quadrant is a situation that the instructor may deem a "low priority" since it has measures that have less relevance for instructor satisfaction and higher means. Finally, the lower left quadrant represents an "opportunity" for the instructor since these measures have less importance for instructor satisfaction but have room for improvement with lower means. Thus, Table 3 shows six measures that should be maintained at high levels of performance (i.e., upper right) and seven measures that should be addressed so that students will have more satisfaction with the instructor (i.e., lower right). The remaining ten measures were not as critical in this study. However, future studies for this or other courses may indicate otherwise depending upon changes implemented or environmental factors.

MANAGERIAL IMPLICATIONS

Evidence presented in this paper indicates that the method has potential as a worthwhile endeavor for instructors since it offers a number of benefits. First, it uses an established survey instrument (i.e. SEEQ) so that data is easily obtained. It is relatively simple for an instructor to get a copy of the instrument, make appropriate adjustments and request students to participate. Another opportunity would be to add satisfaction criterion variables to the SEEQ instrument or a

similar standardized instrument and obtain the data directly from the university for individual data analysis. Alternatively, the IDEA instrument has overall measures that may tap satisfaction so instructors at universities that use this instrument could obtain the data and perform appropriate analysis. These latter two options may depend upon a university's rules and regulations regarding data access, in this case, administering the instrument oneself may be the only option.

Second, the measures represent multi-dimensional factors of teaching to comprehensively measure quality. For those colleagues who are interested in obtaining additional information on all facets of their teaching, the method uncovers specific details for eight different teaching factors. Furthermore, it provides a comprehensive summary of what students evaluate to form their satisfaction judgments.

Third, teaching quality factors explain a large amount of variance in satisfaction so confidence in the information is high. For the data presented in this paper, approximately 70% of the variance in two satisfaction variables were explained by teaching quality factors. Clearly, the method has substantial predictive power so that instructors can be confident in the results and take appropriate action without significant concern of inaccuracies.

Fourth, the relative importance of each quality measure is statistically derived to prioritize all teaching attributes and determine the most appropriate action. Statistically derived importance weights are far superior to stated importance weights (Oliver 1997) for two reasons. Methodologically, respondents are not required to answer the same question with two different scales on a survey instrument. Conceptually, importance is ambiguous and unreliable since it raises multiple interpretations in the minds of respondents.

Fifth, the overall approach offers a balance of theory and practice which should be appealing to many marketing instructors. The method starts with an established educational psychology instrument and employs current thinking in customer satisfaction research. Thus, the application is well-suited for those that desire scientific rigor in their applied managerial tools.

Despite these features, there are a handful of requirements. One, data analysis is straightforward given current dissemination of structural equation methods. PLS was used in this study but it appears that other structural equation methods could be readily applied. However, those without prior background may find the value of this kind of information not worth the challenge of getting up to speed. Alternative perspectives more easily implemented are available (e.g., Dutka 1993). One could perform independent

TABLE 3
ACTION REPORT

HIGH	**LOW PRIORITY**	**KEEP UP THE GOOD WORK**
	Students were encouraged to participate *(Interaction)*	I have learned something which I consider valuable *(Learning)*
	Instructor was friendly toward individual students *(Rapport)*	Instructor was enthusiastic about teaching *(Enthusiasm)*
	Instructor made students feel welcome in seeking help *(Rapport)*	Instructor was well prepared *(Organization)*
	Instructor has a genuine interest in individual students *(Rapport)*	Students were invited to share their ideas *(Interaction)*
	Instructor was accessible during office hours *(Rapport)*	Students were encouraged to ask questions *(Interaction)*
	Assignments tested course content emphasized *(Assignments)*	Cases contributed to understanding of subject *(Material)*
MEAN	**FUTURE OPPORTUNITY**	**NEED TO BE IMPROVED**
	I have learned & understood the subject material *(Learning)*	Course is intellectually challenging and stimulating *(Learning)*
	Feedback on assignments was valuable *(Assignments)*	Interest in the subject has increased *(Learning)*
	Methods of evaluation were fair and appropriate *(Assignments)*	Instructor was dynamic and energetic *(Enthusiasm)*
	Readings contributed to understanding of subject *(Material)*	Instructor enhanced course with humor *(Enthusiasm)*
		Instructor's style held your interest *(Enthusiasm)*
		Instructor's explanations were clear *(Organization)*
LOW		Consistent course objective so direction was clear *(Organization)*
	LOW IMPORTANCE HIGH	

principal component analysis for each factor to obtain weights for each measure. Then, using factor scores from each analysis, one could execute a multiple regression on satisfaction. Both of these techniques can be performed on standard statistical packages. Once the weights and path coefficients are determined, simple multiplication provides the statistical importance which can be combined with the means of all measures to form an action grid. The preceding implies that a lack of familiarity with structural equation methods is not a sufficient reason to avoid attempting additional research.

Two, the method will only work for relatively large classes since a reasonably large sample is required for the statistical analysis. A "rule of thumb" suggests ten cases for every dependent variable parameter estimate. So, eighty respondents would be necessary if all eight SEEQ factors were tested. As a compromise, data from two sections were combined to estimate each model in this study. Discretion is encouraged if an instructor plans to combine different courses. Alternatively, if one were interested in a sub-set of

teaching quality factors, then less students could be tested. Another idea would be to collect data over time and perform analysis when sufficient cases are obtained

Three, some instructors may find the survey instrument requires minor modifications if it does not fit their course. A couple changes were made to the assignments and materials factors in this study due to the use of cases and less reliance on lectures. Overall, this did not appear to alter the instrument's integrity since its factors explained extensive variation in satisfaction and demonstrated adequate measurement properties.

In conclusion, it appears that assessing the teaching quality-student satisfaction relationship is a fruitful method of gaining important diagnostic information to improve one's teaching. I continue to use the method and find interesting variations. I welcome results from the standardized, university-wide evaluation tool since it provides statistics for important questions. Nevertheless, the added value of this method is quite satisfying!

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