

SERVQUAL in an internal nonprofit market;
psychometric issues

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SERVQUAL IN AN INTERNAL NONPROFIT
MARKET: PSYCHOMETRIC ISSUES

By

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SERVQUAL IN AN INTERNAL NONPROFIT MARKET: PSYCHOMETRIC ISSUES

Abstract

Quality of service, as perceived by the customer, has been shown by research to be a critical factor contributing to organizational performance in recent years. Therefore, the management of service quality is a key variable, and for service quality to be managed, it has to be measured. There have been significant advances in the measurement of service quality in the past fifteen years, resulting in a stream of research, mostly concentrating on the external customers of profit-seeking firms. A key factor driving this research was the development of an apparently reliable, valid instrument for the measurement of service quality. This instrument called SERVQUAL, was developed by US researchers A. "Parsu" Parasuraman, Valarie Zeithaml and Len Berry. It has spawned an enormous debate in the marketing literature, leading to the further exploration and refinement of the dimensions of the service quality construct.

While the use of SERVQUAL has been extensively investigated in external markets, and in for-profit firms, less attention has been given to its use, and more importantly, its reliability and validity in internal markets, and in not-for-profit organizations. These settings are becoming increasingly important from a services marketing perspective. Internal markets (where fellow employees are also customers) are being subjected to market testing, and many services previously provided within the organization are being outsourced. In order to survive, many functions such as information systems, training, catering and cleaning are being forced to market their services internally, and this includes assessing service quality, and improving it. Likewise, private and public nonprofit organizations are coming under increasing scrutiny, as donors and taxpayers alike become evermore concerned about the value gained from the expenditures made by these organizations with their funds.

In this study, the SERVQUAL instrument was used to measure service quality as perceived by the internal customers of a large IT department within an extensive government organization. The main objectives of the study were to assess the psychometric properties of the SERVQUAL instrument in this setting.

It was found that SERVQUAL generally performs well under these circumstances, with regard to reliability, construct, convergent and nomological validity. However, the instrument appears to be problematical in terms of discriminant validity. This is probably less attributable to the measurement situation as to the instrument itself, for the finding mirrors evidence from the literature. The study also identifies implications for management, and opportunities for future research.

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CHAPTER 1

SERVQUAL IN AN INTERNAL NONPROFIT MARKET: PSYCHOMETRIC ISSUES INTRODUCTION, OBJECTIVES AND RESEARCH WORKPLAN

1.0 INTRODUCTION

The development of the SERVQUAL instrument [Parasuraman, Zeithaml and Berry 1988] and its subsequent refinements [PZB 1991; PBZ 1993; PBZ 1994] has provided services marketers with an apparently reliable, valid device for the measurement of service quality, which has been used in many countries, industries and environments. The process involved resulted in the identification of five broad dimensions of service quality, namely tangibles, reliability, responsiveness, assurance and empathy. However, there has also been much attention given, beginning with the work of Carman [1990] and by many subsequent researchers [Babakus and Boller 1992; Brown, Churchill and Peter 1993; Cronin and Taylor 1992; Cronin and Taylor 1994; Dabholkar, Thorpe and Rentz 1996; Peter, Churchill and Brown 1993; Teas 1994; Teas 1993; Pitt, Oosthuizen, and Morris 1992] to various aspects of its general applicability, and more specifically facets of its psychometric properties. This would seem to accentuate Carman's [1990] suggestion that SERVQUAL is not (nor would be) the last word on service quality measurement, and that much further work would need to be done in the field.

Indeed, less attention has been given to the applicability of SERVQUAL in non-profit and public sector settings, and with some exceptions, to the measurement of service quality provided to internal customers (cf. Pitt, Watson and Kavan, 1995). The relevance of internal marketing has been a question confronting both managers and academics alike, since it was first alluded to by Sasser and Arbeit [1980] and the term coined by Berry [1980]. One major marketing text [Kotler 1992: 20] asserted that the organization "must carry out internal marketing", as well as external marketing, defining internal marketing as "the task of successfully hiring, training, and motivating able employees to serve the customer well" emphasising that internal marketing must indeed precede external

marketing, as it makes no sense to promise excellent service before the company staff is ready to provide it. More recently Fisk, Brown and Bitner [1993] have identified internal marketing as a specific topic of importance in the services marketing literature. They state that two basic ideas underlie the concept: namely that everyone in the organisation has a customer; and that internal customers must be sold on the service and happy in their jobs, before they can effectively serve the final customer. Essentially therefore, marketing tools and concepts might be used just as effectively with employees as internal customers.

From the 1980s and onward much attention has been given to the application of marketing principles in non-business organizations (see for example Kotler, 1982; Lovelock and Weinberg, 1984). Some of the variables in the marketing mix have been very easily adapted to the nonprofit organization. Promotion is the most obvious example, with Rothschild referring to its applicability as far back as 1978 (Rothschild, 1978: 63-67). The product decision area has been relatively adaptable, particularly when the nonprofit organization is viewed as having much in common with service industries (Thomas, 1978). The areas of distribution and pricing however are somewhat more abstract, particularly in their applicability to the nonprofit organization. Management of marketing in nonprofit organizations is aggravated further by the dual-market phenomenon in nonprofit marketing, which may require entirely different approaches to pricing in donor and user markets. Most nonprofit organizations direct marketing to at least two different publics - those involved with resource attraction (donors) and those involved with resource allocation (users) (Shapiro, 1973).

It is therefore proposed that a psychometric approach be applied to the use of the SERVQUAL instrument in an internal market setting within a nonprofit organization. This will determine the extent to which SERVQUAL maintains the reliability and various validities claimed for it by its developers, and subsequently demonstrated with various degrees of success by researchers in a wide range of settings, within the confines of employees serving other employees in a nonprofit context.

1.1 MAIN RESEARCH PROBLEM

Currently there is little evidence for the psychometric properties of SERVQUAL within an internal market in a nonprofit environment. There is a need to determine whether the instrument can be used reliably and validly for the measurement of service quality under these circumstances.

1.1.1 Sub-Problems

The following sub-problems are identified:

- Whether the SERVQUAL instrument is internally consistent and reliable in measuring service quality in an internal market within a nonprofit organization. That is to say, can one assume that it could be used again within the same context within a short time to yield essentially similar results under the assumption that no major contextual changes had occurred in the interim.
- Whether the SERVQUAL instrument would provide a valid measure of service quality in an internal market within a nonprofit organization. Simply phrased, is SERVQUAL measuring what one believes and hopes it to be measuring? Is it measuring service quality, or is it tapping into some other, less well-defined construct?

More specifically with regard to validity, there would be concern about:

- Content validity - Does the SERVQUAL scale appear to measure what it is supposed to?
- Convergent validity - Does a measure of service quality determined by SERVQUAL correspond with other measures of service quality?
- Nomological validity - do the items purporting to measure a dimension of a construct adequately tap into that dimension? Nomological validity in the case of the SERVQUAL scale is indicated if, in a factor analysis, items expected to load together, actually do so.

- Discriminant validity - are the dimensions supposedly contained within a construct really different from each other or are they merely part of a broader whole? This has to do with the extent to which the measurement scale is novel, and not simply a reflection of some other variable. Discriminant validity in the case of the SERVQUAL scale is indicated in a factor analysis, if the factors, and their items, are truly different from one another.

1.2 HYPOTHESES

While more specific hypotheses will be developed within the study itself, broadly speaking the hypotheses are that SERVQUAL is a reliable and valid instrument for the measurement of service quality in an internal market within a nonprofit organization.

1.3 DELIMITATIONS OF THE RESEARCH STUDY

Due to logistical constraints the study will be confined to the internal customers of the technology department of a major national police force. This internal technology department consists of more than 4000 employees, who serve the needs of more than 35000 individuals (mostly acting police officers) for technology (categorized within the organization into transport (police cars, vans, helicopters and marine craft); communication (telephony and radio); and information technology (computing).

1.4 OBJECTIVE OF THE STUDY

To test the reliability and validity of the SERVQUAL instrument for the measurement of service quality within an internal market in a nonprofit setting.

1.5 SIGNIFICANCE OF THE RESEARCH

Internal service departments are coming under increasing scrutiny within most organizations, who are investigating closely whether the services provided by these departments are optimal. In many cases the services provided by these departments can be, and is being outsourced. Many functions previously subsumed within the organization, such as catering, cleaning, security, training, and information technology have been turned over to external private companies to provide at profit. Internal departments are beginning to see the relevance of marketing to their own situations, and the more astute ones are applying tools of internal marketing to their "customers". This is not just being done because it is nice, or trendy, but in many cases because the internal departments see it as necessary for their survival. An important barometer for them to assess how well they are doing, and in order to make further improvements, is a measure of their internal customers' perceptions of the quality of service they provide. The scores ascertained by these measurement exercises can also be used as strong evidence for the maintenance of internal service provision in the face of threats of outsourcing.

1.6 OUTCOMES AND CONTRIBUTION OF THE RESEARCH

The outcome of this study will be thorough evidence concerning the reliability and validity of the SERVQUAL instrument for the measurement of service quality in an internal environment within a nonprofit setting. It will enable managers and researchers to decide whether SERVQUAL can be used confidently under similar circumstances or not. If changes in the measurement process should be made, this study will hopefully shed light on what changes need to be made and how.

1.7 GLOSSARY OF TERMS

CONTENT VALIDITY: An indication of the representativeness of the content of a measurement scale. It focuses on whether the scale items adequately cover the entire domain of the construct under study.

CONVERGENT VALIDITY: is based on the correlation between responses to maximally different measuring methods of measuring the same construct. Convergent validity should be answered by this question: *Does a measure of a construct correspond with other measures of the same construct?*

DISCRIMINANT VALIDITY: is an indication of the extent to which the measurement scale is novel, and not simply a reflection of some other variable.

INTERNAL MARKET: A market, consisting of employees within an organization which is served by one or more internal service providers within that organization.

INTERNAL MARKETING: Using the tools of external marketing, such as market segmentation, marketing research and the marketing mix, to market internally, that is, within an organization, and regarding some or all of the organization's employees as customers.

NOMOLOGICAL VALIDITY: Refers to an observed relationship between measures purported to assess different (but conceptually related) constructs. If two constructs (C_1 and C_2) are conceptually related evidence that purported measures of each (M_1 and M_2) are related, is usually accepted as empirical support for the conceptual relationship. Nomological validity in the case of the psychometric instruments is indicated if, *in a factor analysis, items expected to load together, actually do so.*

NONPROFIT ORGANIZATION: An organization for which the attainment of economic surplus (normally in the form of profit) is not the primary aim or objective, but rather the achievement of some other social objective, such as service to a community. Nonprofit organizations can be both public (i.e. governmental) or private.

RELIABILITY: Reliability indicates the precision of measurement scores, or how accurately such scores will be reproduced with repeated measurement. As such, reliability has to do with the extent to which measures are free from random error, and yield constant results.

SERVICE QUALITY: The difference or gap between what a customer expects from a service provider and what he or she perceives themselves to receive from a particular service provider.

SERVICE: As opposed to a good or product, is that which is purchased by a customer as a performance, effort or experience, and which is intangible.

SERVQUAL: A 22-item scale developed to measure customer perceptions of service quality. It conceptualises service quality as the gap between customer perceptions and expectations, and identifies five dimensions of service quality, namely, reliability, responsiveness, tangibles, assurance and empathy.

VALIDITY: Refers to the truth of measurement. With reference to a measuring instrument, does the instrument really measure what it purports to measure?

1.8 LITERATURE REVIEW

In particular in this section, the focus is on services marketing and service quality and the measurement of behavioural constructs in marketing with particular reference to the measurement of service quality. Attention will also be given to aspects of marketing within internal markets (internal marketing), and to a brief discussion of marketing within nonprofit organizations. The purpose is to provide background and context for the formulation of hypotheses that in turn build on the research propositions to be established.

1.8.1 The Distinctive Nature of Services and Services Marketing

Whereas it would have been justifiable fifteen years ago to talk of a dearth of material on services and services marketing, this would be deniable today. The late 1980s and particularly the 1990s have seen considerable theoretical and empirical developments in

the services marketing literature. This body of knowledge is characterized by certain basic assumptions (see, for example, the early work of Rathmell 1966; Berry 1980) concerning first, certain unique characteristics of services, and secondly, that these characteristics present bothersome difficulties, if not problems, to services marketers.

Service is very frequently referred to as the definitive competitive tool (Kyj 1987; Coppett 1988) and some writers (Quinn and Gagnon 1986) have warned that services, if not managed suitably could follow manufacturing into decline, as inattention to quality, emphasis on scale economies, and short-term orientation predominates. The importance of service is constantly increasing in most economies (Gronroos 1988), and service is becoming exceedingly vital to success for manufacturers of goods as well (Cravens, Holland, Lamb, and Moncrief 1988; Light 1986). Indeed, Levitt (1981) has questioned the services-goods dichotomy, and states that all products, whether they are services or goods, possess a certain amount of intangibility, perhaps the fundamental difference between the two referred to by most other writers. It is this intangibility that is seen as being the fundamental distinguishing characteristic of services. As Kotler (1988, p.267) defines a service it is: *"...any act or performance that one party can offer to another that is essentially intangible and does not result in the ownership of anything. Its production may or may not be tied to a physical product."*

As Zeithaml, Parasuraman and Berry (1985) have it, the rationale for treating services marketing differently centres on the existence of a number of characteristics of services that are consistently cited. These not only make the marketing of services seemingly more difficult for the practitioner, but more pertinently to this study, the measurement of service quality, a more formidable task.

1.8.2 The Distinctive Characteristics of Services

Services possess characteristics of intangibility, inseparability of production and consumption, heterogeneity, and perishability. It should be noted that a number of authors have disputed the need for a separate treatment of services in marketing. These

authors include Bonoma and Mills (1979), Enis and Roering (1981), and Wyckham, Fitzroy and Mandry (1975). However, most of the proposed difficulties in studying the quality of service result from the unique characteristics thereof. Therefore, these characteristics bear individual discussion.

Intangibility

Services are intangible, or impalpable. Whereas one can see, touch and hold a product, one can't do that with a service. One can't see it, hold it or drop it on one's toe, and even if one did it wouldn't hurt. This is probably the most fundamental difference between products and services. Whereas products are things, services are performances or experiences. Generally, this characteristic creates problems for services marketers that product marketers never experience, or even think about. Intangibility means that the firm has nothing really to show the customer, for them to feel the quality of, or to try out. For the customer, intangibility means that you can't see what it is you are buying, and will actually have nothing much to show for it once you've bought the service and used it.

Simultaneity

Imagine a customer drinking a can of soft drink. It was produced and canned in some factory somewhere, then probably stored, then transported somewhere else, stored again, then arrived in the store or restaurant where one purchased it, and now one is going to consume it. The point is, that production and consumption do not occur at the same time. Now in the case of a service, this is different: If someone wants their teeth fixed, they have to go to the dentist, and while the dentist is producing the service, they are consuming it. The dentist has to be there, and so does the patient, for the service to be produced and consumed. In this case, the production of the service and the consumption thereof are simultaneous. The customer didn't have to be present when the soft drink manufacturer produced the can of beverage, and the firm didn't have to be there when the customer drank it. With services this condition of "simultaneity" is generally true: producer and consumer both have to be present.

Heterogeneity

If one looks carefully at most products, such as cans of Cola drink, one will notice their “sameness”, the fact that each can is exactly the same as each other can, and would also taste the same. This is known as homogeneity, and is not achieved by accident. Rather, producers set up manufacturing lines in such a way that they produce homogenous products. Furthermore, good producers have procedures in place to test products as they come off the line, to ensure that defective products actually don’t reach the market. This is known as quality control, both before and after the fact.

Because services are intangible, and are mostly produced and consumed simultaneously by people, it means that one cannot set up production lines to deliver an identical service each time. Neither can one “control the quality out” - by the time the customer has received the poor service, it is already too late. Thus, services have the characteristic of heterogeneity - they vary in output. This creates a number of marketing challenges for the services marketer. First and foremost among these is service quality.

Perishability

Because products are produced before they are consumed, they can be stored, until needed. Services cannot, for they are produced and consumed simultaneously, as we know. This gives them the characteristic of perishability - services cannot be inventorised. Hotels and hospitals have rooms and beds that perish; car rental companies have un-rented vehicles that perish; consulting firms have consultants’ time that dies the moment it is not used; insurance companies have idle financial capacity. That is not to say that some products don’t perish - produce such as fish, meat, vegetables and fruit do deteriorate. However, the deterioration is never immediate, and nowadays sophisticated technology such as airtight warehousing, freezing and cold storage, and rapid delivery systems have made the problem far less serious than it used to be.

1.8.3 Service Quality: Strategic Implications

The evidence in management is that quality equals profit (Peters, 1988). Until 1985 the PIMS (See Buzzell and Gale 1987; PIMSLETTER no. 4; PIMSLETTER no. 31), or Profit Impact of Market Strategy research program had proposed that share of the served market was the most significant factor impacting on return on investment and other measures of profit. Re-analysis of the data has led to a more compelling reasoning: While high market share may result in higher returns, sustainable market share comes through enhanced quality of product and service compared to competitors, as perceived by the customer. The PIMS researchers (1985) now refer to (relative) quality of product and service as “the most important single factor affecting a business unit’s long-term performance.”

Service quality has thus been shown to have a profound and substantial impact on the financial and strategic performance of organizations. It is essential for organizations to develop and build adequate measures of service quality, and to implement these. For by doing this they will be ensuring that they come to grips with one of the fundamental predictors of performance.

1.8.4 The Construct of Service Quality:

What is quality? It is often mistaken for imprecise adjectives like ‘goodness, or luxury, or shininess, or weight’ (Crosby 1979). Customers therefore cannot easily describe it. Various writers have tried to define it – for example, Crosby (1979) refers to “conformance to requirements”, to David Garvin (1983) sees it as being both internal (eliminating faults before the product leaves the factory) and external (eliminating failures after the product leaves the factory). Service quality began to receive attention in the late 1970s, and in the early 1980s, in the marketing literature (cf. Gronroos 1982; Lewis and Booms 1983; Sasser, Olsen and Wyckoff 1978; Martin 1986a; 1986b).

Parasuraman, Zeithaml, and Berry (1985) identify three themes relevant to service quality:

- *Service quality is more difficult for the consumer to evaluate than goods quality.*

- *Service quality perceptions result from a comparison of consumer expectations with actual service performance.*
- *Quality evaluations are not made solely on the outcome of a service; they also involve evaluations of the process of service delivery.*

Service quality essentially involves a comparison by the customer of expectations with performance, and that obviously no one but the customer/consumer/client/user is able to make this definition (Boothe 1990). Therefore delivering service quality means conforming to customers' expectations on a consistent basis. Gronroos (1982) contends that consumers compare the service they expect with their perceptions of the service they receive in their evaluation of service quality. Satisfaction with service can thus be related to the disconfirmation paradigm proposed by Churchill and Surprenant (1982).

- Disconfirmation theory has been discussed in the service quality literature, specifically, and in the customer satisfaction literature generally (cf. Assael and Kamins 1989; Bitner 1990; Cronin and Morris 1989; Kamins and Assael 1987; Oliver and Bearden 1985; Oliver and DeSarbo 1988; Oliver and Swan 1989; Swartz and Brown 1989; Tse and Wilton 1988; Wilton and Myers 1986).

1.8.5 The Parasuraman, Zeithaml and Berry (1985) "Gaps" Model of Service Quality

Parasuraman, Zeithaml, and Berry (1985) proposed a model of service quality that can be summarized as follows:

Service Quality as perceived by a consumer depends on the size and direction of the gap between expected service and perceived service, which, in turn, depends on the nature of the gaps on the service providers side, associated with the design, marketing, and delivery of services (page?).

Their work revealed that, regardless of the type of service, consumers used basically similar criteria in evaluating service quality. These criteria fell into 10 key categories, labelled 'service quality determinants' -

reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/ knowing the customer, and tangibles.

The “Gaps” model is one of the most researched models in the marketing literature. It has been expanded upon since its development in 1985, and is the focus of a publication by the same authors (Zeithaml, Parasuraman, and Berry 1990). The model is illustrated in Figure 2.3, and views service quality and service quality problems as existing between consumer (or customer) and marketer. From the consumer’s point of view, service quality is the difference between what he or she expects, and what he or she perceives himself or herself to be receiving from the service provider. If the expectation equals the perceptions, the consumer is technically satisfied. When the perception exceeds the expectations, the consumer is more than satisfied and can even be excited, delighted. When expectations exceed perceptions however, the consumer is dissatisfied, and there is a service quality problem.

1.8.6 Measuring Service Quality

If managers are to manage service quality, then it is equally important for them to measure it, for without measurement, there can be no management. Parasuraman, Zeithaml, and Berry (1988) provide an approach for the measurement of service quality, a 22-item instrument that they called SERVQUAL, for assessing customer perceptions of service quality in service and retailing organizations. Underlying the 22 items are five dimensions that the authors claim are used by customers when evaluating service quality, regardless of the type of service. These dimensions are:

- ◆ *TANGIBLES - Physical facilities, equipment, and appearance of personnel.*
- ◆ *RELIABILITY - Ability to perform the promised service dependably and accurately.*
- ◆ *RESPONSIVENESS - Willingness to help customers and provide prompt service.*
- ◆ *ASSURANCE - Knowledge and courtesy of employees and their ability to inspire trust and confidence.*
- ◆ *EMPATHY - Caring, individualized attention the firm provides its customers.*

The authors concede that items that may be relevant to the discussion of service quality for one particular industry/firm may not be reflected in their generalized instrument. The instrument may, therefore, need to be reworded or augmented when applied in specific applications.

1.8.7 The SERVQUAL Instrument

Parasuraman, Zeithaml and Berry (1988) introduced SERVQUAL, a questionnaire for the measurement of service quality, which followed the process suggested by Churchill (1979). Exploratory research (Parasuraman, Zeithaml and Berry 1985) had revealed that the criteria used by customers to evaluate service quality fit 10 possibly overlapping dimensions, namely tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, knowing/understanding the customer, and access. These 10 dimensions and their descriptions served as the basic structure of the service quality domain, from which the developers then derived items for the SERVQUAL scale. The questionnaire used a 7-point Likert-type attitude measurement scale anchored on the parameters of "Strongly disagree" (1) through to "Strongly agree" (7), with half the statements positively, and half negatively worded. Service quality was defined as the discrepancy between the customer's perceptions of the actual quality of service received, and his or her expectations of that service.

1.8.8 Criticism of SERVQUAL in the Marketing Literature

The difficulties with the SERVQUAL instrument identified in the literature can be grouped into two main categories: (1) conceptual and (2) empirical; although, the boundary between them blurs because they are closely inter-related. The conceptual problems centre on (references to support statement?):

- (a) the use of two separate instruments to measure perceptions and expectations in order to operationalize a third conceptually distinct construct of service quality, as a "gap"
- (b) the ambiguity of the expectations construct; and

(c) the suitability of using a single instrument to measure service quality across different industries, organizations and situations

1.8.9 Counter-Arguments to the Criticisms

The SERVQUAL debate has certainly not been one-sided. PZB have responded in full, with sound and solid arguments regarding the conceptual and empirical aspects of their conceptualization of service quality:

1.8.10 Internal Marketing

The ideas that internal marketing (IM) has most relevance to service firms, and that all employees are internal customers who must deliver excellent service to external customers to support overall strategy, are the most prominent views on IM. Yet they are somewhat limiting. First, for the concept to be truly useful to marketers, it should find application beyond the borders of service firms, and into manufacturing as well - there is evidence that this has occurred [cf. Gummesson 1987; Harrell and Fors 1992]. Second, the topic has also had broader application and attention in the management literature - IM is not only seen as something that the firm (in totality) does to its employees (in totality). There is much evidence that IM is frequently not performed by the whole firm, but by departments, groups or functions within it. Similarly, the majority of employees are frequently not the targets of IM efforts - rather, only one department, group or function might be focused on and marketed to. An examination of the literature on IM over the past fifteen years supports this view.

This perspective also enabled the construction of a simple grid (Pitt and Foreman, 1997) that both allows a more detailed examination of IM and suggests the need for more precise definition. There are two axes, which answer two broad questions. Firstly, who is the internal marketer? (the entire organization or a department within it). Secondly, who is the IM effort aimed at? (all employees; or, a specific group, function or department within the organization). If internal marketers and the employer-employee transaction are viewed in this way, then four different types of IM can be identified; for the sake of convenience

these are labelled Type I, Type II, Type III and Type IV. Furthermore, the extant literature on the subject reveals the construct of IM viewed as each of these, depending on the author(s), and the situation. In the figure discussed in the next chapter (figure 2.5), perspectives on each of the four types of IM provided by the literature are also illustrated. Type I and III internal marketing is of most relevance to the research to be conducted here, and so therefore merit most discussion.

1.8.11 Marketing and Nonprofit Organizations

From the 1980's and onward much attention has been given to the application of marketing principles in non-business organizations (see for example Kotler, 1982; Lovelock and Weinberg, 1984). Some of the variables in the marketing mix have been very easily adapted to the nonprofit organization.

The old adage of there being no such thing as a free lunch holds in the area of nonprofit pricing as well. The products or services received by clients of nonprofit organizations are rarely "free" - even though no monetary charge may be made for them. Clients inevitably pay in some way - in terms of travel, time, trouble or embarrassment. Children wearing the 'hand-me-downs' donated "free" by some charity may have to "pay" the ridicule of their classmates. The professional having a "free" heart check-up may have to pay the additional price of fear. Some nonprofit organizations do face the general pricing problems experienced by business firms. Blood banks sell blood, universities charge for tuition and museums charge entrance fees. The organizations also have to decide on the role of price in the marketing mix.

1.9 RESEARCH DESIGN

1.9.1 Research Methodology

The survey method was used in this research. Questionnaires consisting of a suitably amended version of the SERVQUAL instrument and additional descriptive items were used to determine respondents' perceptions and expectations of the quality of service

provided by the organization. While limitations of the survey approach include imprecision and lack of context, an acknowledged advantage is its ability to generalise.

1.9.2 Target Population

The target population was all users of the services of the Department of Technology (DoT) of a large national police force, namely police officers and administrators who use transportation facilities, communication devices or information technology provided by the DoT.

1.9.3 Sample Size

Owing to logistical constraints a sample of around 1000 was used. Individuals were chosen randomly using a random number generator on the payroll database.

1.9.4 Data Collection Techniques

Questionnaires were mailed to the respondents using the organization's internal mailing system.

1.9.5 Data Collection Instruments

As already averred to, structured questionnaires consisting of an amended version of the SERVQUAL instrument and other descriptive items were used to gather the data.

1.9.6 Data Processing, Analysis and Interpretation

The statistical package SPSS for Windows95 was used to manage the collected data, to summarise it, and also to calculate reliability alphas. Convergent validity was determined by process of multiple regression, and nomological and discriminant validity by various factor analysis procedures.

1.10 PROPOSED CHAPTER OUTLINE

Chapter 1: Introduction, Objectives and Research Work plan

Chapter 2: Literature Review

Chapter 3: Applicability of the Servqual Instrument in an Internal Market within a Nonprofit Organization

Chapter 4: Research Study Objectives, Design and Methodology

Chapter 5: Research Results, Data Analysis and Interpretation

Chapter 6: Conclusions, Discussion of Results, Limitations, Implications for Management, and Future Research Directions

1.11 SUMMARY

This section has reviewed the relevant literature concerning the main issues of this study. "Service" was defined and it was also suggested that researchers and practitioners in the future might wish to consider goods and services as existing along a spectrum, rather than in a dichotomy. The distinctive nature of services was considered, and the implications these have for the measurement of service quality in organizations. These unique characteristics are intangibility, inseparability, heterogeneity and perishability. The strategic implications of service quality were discussed, and service quality shown to be a strong driving force of differentiation, and measures of financial performance in most organizations.

The construct of service quality was further refined, and two well-known models of service quality presented, namely the Gronroos (1978) model (see figure 2.2), and the Parasuraman, Zeithaml and Berry "Gaps" model (1985) (see figure 2.3). The measurement of service quality also received some attention, and in this instance, SERVQUAL, an instrument which measures Gap 5 in the Parasuraman, Zeithaml and Berry (1985) model was expounded upon. The instrument measures five dimensions of service quality, from

the vantage of the consumer's perceptions, namely, tangibles, reliability, responsiveness, assurance and empathy.

CHAPTER 2

A REVIEW OF THE LITERATURE

2.0 INTRODUCTION

This study is grounded in theory concerning four areas, namely services marketing, with particular reference to the issues of measuring and managing service quality; the development and use of valid, reliable instruments for measurement in marketing research; and, to a lesser extent nonprofit organizations; and internal marketing. This chapter will provide the theoretical foundations for the development of the hypotheses to be tested in the study, and also review the relevant literature surrounding these issues. Research propositions will be developed based on the relevant literature and these will be used to form more specific hypotheses in Chapter 3.

2.1 THE MARKETING OF SERVICES AND SERVICE QUALITY

The 1980's and beyond have seen a significant increase in interest in the marketing of services. The transaction, episode, or experience that the consumer has of the service supplier has generally been referred to as the service encounter or experience (Langeard, Bateson, Lovelock, & Eiglier, 1981). This experience has been the focus of much attention in the academic (Leonard and Sasser 1982; Quinn and Gagnon 1986; Berry, Conant and Parasuraman 1991; Boulding, Kalra, Staelin, and Zeithaml, 1993), and the popular literature (Russell, Grant and Szonskl 1987; Peters and Waterman 1982; Carlzon 1987) for some time.

For the customer, the simple and fundamental, but also pressing issues are:

- Is the service good or bad?
- How do I evaluate the service I have received?

For the manager, the issues of concern are:

- How do I measure the customer's level of satisfaction with service?
- How do I translate this into a conceptualisation of service quality?

- How do I manage things within the organization to deliver service quality?
- Even more fundamentally, will giving attention to service quality make a difference to the performance of the organization?

One concept on which there is much concurrence in the literature is that excellent service quality is where most organizations in recent times and in the future have and will gain a competitive advantage in the business environment.

In the case of goods manufacturing firms, the technical quality of a product is also not always easy for a customer to evaluate. In these instances, customers frequently depend on complimentary, peripheral, and supporting services that accompany the purchase of this product, to evaluate the overall purchase. According to Collier (1990) most customers can't and don't evaluate the technical quality of the physical product but focus most of their attention on the facility, the people, and the service delivery process associated with the purchase. According to the same author, service quality is where a competitive advantage is gained in the market place. There is considerable evidence that service quality is directly related to a firm's profitability. For service quality to be a key differentiation tool, it has to be measured.

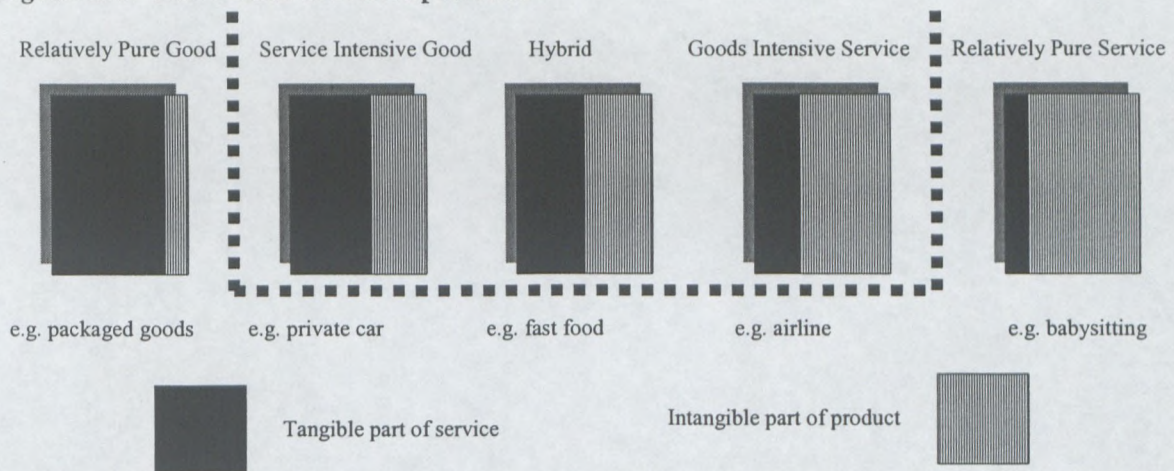
Nowadays services marketing features prominently in the marketing and management literature. There have been considerable theoretical and empirical developments in the services marketing literature. Certain basic assumptions characterize this body of knowledge (see for example the early work of Rathmell 1966; Berry 1980). First, there are certain unique characteristics of services; second, that these characteristics present bothersome difficulties, if not problems, to services marketers.

Writers such as Kyj (1987) and Coppett (1988) refer to service as the definitive competitive tool. Quinn and Gagnon (1986) have warned that services, if not managed suitably could follow manufacturing into decline, as inattention to quality, emphasis on scale economies, and short-term orientation predominates. Indeed, service is becoming vital to success for

manufacturers of goods as well (Cravens, Holland, Lamb, and Moncrief 1988; Light 1986). Levitt (1981) has questioned the services-goods dichotomy, and states that all products, whether they are services or goods, possess a certain amount of intangibility, perhaps the fundamental difference between the two referred to by most other writers. It is this intangibility that is seen as being the fundamental distinguishing characteristic of services. As Kotler (1988, pp.477-8) defines a service it is: *"...any act or performance that one party can offer to another that is essentially intangible and does not result in the ownership of anything. Its production may or may not be tied to a physical product."*

Is there such a thing as a pure service? Or for that matter a pure product? Taking Levitt's (1981) argument a little further, Shostack (1977) argues for a goods-services continuum. This is illustrated in Figure 2.1. As is postulated in Figure 2.1, a pure "good" or a pure "service" does not really exist. Any product or service can be placed on this spectrum, as is shown with the five basic categories in the diagram. At the extreme left side, there are "relatively pure products". These products are almost entirely tangible, with virtually no service attached to them whatsoever. Many of the products purchased in supermarkets fit this category - cans of beans, frozen peas, cartons of milk. There is very little service attached to this type of products. At the other end of the spectrum, there are the most intangible "products" - services which have almost nothing tangible about them whatsoever. Nowadays, surprisingly, very few services fit this category - a simple example might be baby-sitting. In the middle of the spectrum is that 50-50 mix of product and service, the "hybrid". This category contains almost equal amounts of tangibility and intangibility. The best examples are restaurants, especially fast food restaurants. Shostack (1977) suggests that strategies should be formulated to continually attempt to move from beyond the "boundaries of pureness" in Figure 2.1 to within, in order to make marketing more effective. Thus packaged goods manufacturers can add more service to (or "servitise") such products as frozen foods, by offering a toll-free information service, and recipe booklets. Baby-sitting services can "tangibilise" the service by providing new toys for children on loan every time the baby-sitter visits them.

Figure 2.1: The Goods-Service Spectrum



Source: Adapted from G. Lynn Shostack, (1977) *Breaking Free From Product Marketing*, *Journal of Marketing*, April, 73-80

Zeithaml, Parasuraman and Berry (1985) rationalise that the need for treating services marketing differently centres on the existence of a number of characteristics of services that are consistently cited. These not only make the marketing of services seemingly more difficult for the practitioner, but more pertinently to this study, the measurement of service quality, a more formidable task.

2.1.1 The Distinctive Characteristics of Services

The existence of a number of characteristics of services consistently cited in the literature (Bateson 1977; Berry 1980; Lovelock 1981; Rathmell 1966, 1974; Shostack 1977) provides the rationale for a separate treatment of services marketing. These characteristics are intangibility, inseparability of production and consumption, heterogeneity, and perishability. It should be noted that a number of authors have disputed the need for a separate treatment of services in marketing. These authors include Bonoma and Mills (1979), Enis and Roering (1981), and Wyckham, Fitzroy and Mandry (1975). However, most of the proposed difficulties in studying the quality of service result from the unique characteristics thereof. Therefore, these characteristics bear discussion.

2.1.1.1 Intangibility

Intangibility stems from the fact that services are performances that cannot be seen, touched, tasted or smelled. Neither can they be possessed. Intangibility relates to the difficulty that consumers may have in understanding the service offering. While services may have a few tangible attributes, typically called search qualities that can be viewed prior to purchases up to purchase, the resulting marketing problems of intangibility are significant. Services cannot be stored, protected through patents, readily displayed or communicated, or the quality thereof assessed effectively. When consumers cannot view a product in advance and examine its properties, they may not understand exactly what it is that they are being offered. Even when consumers gain sufficient knowledge about service offerings, they may not be able to evaluate the possible alternatives. On the other hand, services are rich in experience and credence qualities (Zeithaml 1981).

Experience qualities are those qualities of service that can be assessed only after purchase and consumption thereof. Credence qualities are those qualities of service that cannot even be assessed after purchase and consumption - for example, a heart operation is a service high in credence quality, for, even after the operation, most consumers are not knowledgeable enough to assess the quality thereof.

2.1.1.2 Inseparability

Inseparability of production and consumption involves the simultaneous production and consumption that characterises most services. This is related to intangibility. Whereas goods are first produced, then sold, then consumed, services are first sold and then produced and consumed simultaneously (Regan 1963). A medical examination is an example of simultaneous production and consumption. The practitioner cannot perform this service without the patient's presence, and the consumer is actually involved in the production process (Carman and Langeard 1980). This inseparability means that the producer and the seller are the same entity, which makes direct distribution the only

possibility in most cases (Upah 1980). Marketing and production, typically separated in most manufacturing organizations, need therefore to be highly interactive in service organizations (Gronroos 1978). Because of high consumer involvement in the production and consumption of most services, the standardization and control thereof are difficult to maintain. The implications for service quality and the measurement and management thereof are thus obvious.

2.1.1.3 Heterogeneity

Because most services are labour intensive, they are susceptible to heterogeneity. People perform most services, and people do not always perform consistently. There may be variation from one service to another within the same organization, variation in the service a single individual provides from day to day, and from customer to customer. Thus standardization and quality of service are extremely difficult to control. However, this also leads to large opportunities for the customisation of services in order to meet customers' specific needs. Because of these factors, service marketers often face the dilemma of providing efficient standardized service at some acceptable level of quality, while simultaneously attempting to treat each customer as a unique individual. Giving good service is a major concern of all service organizations and this is often translated into a more personalized service (Surprenant and Solomon 1987).

2.1.1.4 Perishability

Because production and consumption of services are simultaneous, services are also characterized by perishability. Perishability means that services cannot be saved (Bessom and Jackson 1975). Capacity, unused in one time period, cannot be stockpiled or inventoried for future time-periods. Airlines flying with empty seats cannot store them for busy periods. Hotels with empty rooms during the week cannot keep them for busy weekend or holiday periods. Service perishability, therefore, presents problems very different from the supply and demand problems typically encountered in the manufacturing and marketing of goods (Berry, Zeithaml and Parasuraman 1984).

2.1.2 Issues in Services Marketing

The marketing concept is equally applicable to goods and services, so services marketers, therefore, must strive to provide bundles of benefits that satisfy the needs of consumers (Enis and Roering 1981). Services marketers need to define target markets and develop marketing mixes, the basic requirements of any marketing strategy.

Delivering superior service quality appears to be a prerequisite for success (Parasuraman, Zeithaml and Berry 1988; Berry and Parasuraman, 1991). The intensification of competition, and the rapid deregulation occurring in most industries will lead companies to seek profitable ways of differentiating themselves. The delivery of high service quality will be a key differentiation strategy for most organizations (Rudie and Wansley 1985; Thompson, De Souza and Gale 1985). Mechanisms must therefore be found for the definition and measurement of service quality, for it to be managed toward the achievement of competitive advantage and effective differentiation. Recently there has been considerable debate on the measurement and management of internal service quality (e.g. Kettinger & Lee, 1994; Pitt, Watson & Kavan, 1995), so that equally, it has been argued, the performance of an internal services provider is largely determined by service and service quality. It is just as important to serve the internal customer well, and the issues surrounding this are not that different from serving the external customer. This leads to the first research proposition.

Research Proposition 1:

That, despite features and characteristics that make the particular business situations unique, service quality is of no lesser importance to an internal services provider. Therefore, instruments used to assess and manage service quality to external customers should also be applicable to the internal services provider.

2.2 THE NEED TO DEVELOP A CONSTRUCT OF SERVICE QUALITY

Active researcher interest and work in the identification and measurement of service quality and its dimensions have paralleled practitioner interest in service quality, its definition and application, since the early 1980s. As authorities in the area of goods quality

(Crosby 1979; Garvin 1983) have suggested, the quality of manufactured products can be measured in a (relatively) more objective way by such indicators as durability, reliability, aesthetics, and the number of defects. Service quality is a much more abstract and elusive construct because of the features unique to service, namely intangibility, heterogeneity, and the inseparability of production and consumption. As Parasuraman, Zeithaml and Berry (1985) point out, the measurement of service quality is far less objective from a quantitative point of view. In the absence of objective measures, an appropriate approach for assessing the quality of a firm's service is therefore to measure consumers' *perceptions* of quality.

2.2.1 Customer Satisfaction and Service Quality - Theoretical Aspects

Researchers such as Holbrook and Corfman (1985), and Olshavsky (1985) distinguished between customers' satisfaction with respect to a specific transaction and their overall, or global evaluation of a service. It may be easiest, and make most sense, to conceptualise service quality as an attitude. Satisfaction is characterised by the surprise a customer experiences after a purchase (service encounter), which eventually becomes an input, to a less dynamic "attitude" (Oliver, 1981). Satisfaction can, therefore, be considered to influence the customer's evaluation of service quality, purchase intentions and behaviour (La Barbera and Mazursky 1983), because it ultimately forms service quality as an attitude.

Of great importance here is the so-called "disconfirmation" paradigm. Customer satisfaction or dissatisfaction according to the disconfirmation literature (Cardozo 1965; Oliver 1980; Olshavsky and Miller 1972; Olsen and Dover 1976), is a function of the *disconfirmation* arising from discrepancies between prior expectations by a service provider, and the service provider's actual performance. It has been demonstrated that expectations and perceptions of performance levels affect customer satisfaction directly, as well as indirectly via disconfirmation. Tse and Wilton's (1988) experimentation showed that perceived performance exerts a direct influence on customer satisfaction or dissatisfaction, in addition to the influences from disconfirmation or expectations.

Churchill and Surprenant (1982) demonstrated that consumer satisfaction or dissatisfaction with a non-durable good is a function of all three constructs of expectations, performance evaluations and disconfirmation. However, consumer satisfaction or dissatisfaction with a durable good is thoroughly a function of performance evaluations. Thus, expectations, performance evaluations, and disconfirmation do not necessarily have independent and additive effects for every product or service. Expectations, performance evaluations and disconfirmation are therefore potential antecedents of consumer satisfaction or dissatisfaction with a service (Bolton and Drew 1991b). Oliver (1989) suggests that customer responses concerning continuously provided services, or long lasting durables, are marked by passive expectations and, therefore, that disconfirmation will not operate unless performance is outside the range of experience-based norms. Hence, customers' assessments of continuously provided services, such as public utilities or cable television, may depend on performance evaluations only (Bolton and Drew 1991a).

The work of Parasuraman and his colleagues (Parasuraman, Zeithaml and Berry 1985; 1988; 1993; 1994) suggests that quality of service from the customer's point of view can be quantified by obtaining measures of expectations and perceptions of performance levels for service attributes. Then the difference between expectations and perceptions of actual performance can be calculated and averaged across attributes. They also propose that expectations are influenced by such factors as personal needs, word of mouth communication, last experiences, and communication by the marketer. To this, researchers in the case of the information systems department as an internal services provider have added the independent variable of vendor communications (Watson, Pitt, Cunningham, and Nel, 1993). As yet, what the determinants of perceptions in the model are, has not been discussed. Certainly and obviously, aspects of the service delivery process would influence them.

Consumer satisfaction or dissatisfaction, and perceived service quality, have been postulated by Bolton and Drew (1991a), to be influenced by the gap between expectations and perceptions of performance (that is, disconfirmation). As they point out, however, the

consumer satisfaction/dissatisfaction literature suggests a more complex model in which disconfirmation, expectations, and actual service performance levels affect customer satisfaction, which in turn becomes an input to the customer's perception of service quality. The implication is that customers' perceptions of service quality are directly affected by disconfirmation and indirectly affected by disconfirmation, expectations and actual performance levels (via customer satisfaction or dissatisfaction). This means that the customers' levels of satisfaction or dissatisfaction, and indeed the customers' perceptions of service quality will be dependent not only on the actual service quality but on the organization providing the service. More specifically one would be concerned with the nature or typology of the organization providing the service. Is it a for-profit or nonprofit organization? Is the service provider offering services to external ("paying") customers, or to employees of the organization itself ("internal customers")? It would seem imperative to consider organization typologies in any subsequent measure of service quality.

A perhaps unexpected concept in current quality-related literature is that high quality does not necessarily mean more cost to a company (Luchs 1986; Martin 1987). Proponents of this idea argue that a company incurs many hidden costs as a result of not doing things right the first time. Further support for the desirability of quality goods and services comes from a study of employee perceptions on the performance of retail stores. Weitzel, Scharzkopf, and Peach (1989) found in their study that, after store size, employees perceptions of quality of service to customers was the major predictor of sales. This finding emphasises the all-encompassing nature of quality.

Porter (1985) asserts that an organization can attain a position of advantage in two ways: through lowest delivered cost; or, through differentiation. Only one organization in any industry or market can attain the lowest delivered cost position, so for all the others effective differentiation will be the only means of ensuring survival. This differentiation occurs when some value-adding activities are performed in a way that leads to perceived superiority along dimensions that are coveted by customers. For many - perhaps too many - organizations, the chosen differentiation route is that of superior service (see for example,

Kyj 1987; Heil and Tate 1990; Holpp 1990; Kasper and Lemmink 1989; O'Connor, Powers, and Bowers 1988; Quinn and Gagnon 1986; Ribourdale, Matteis and Helgesen, 1989; Sherden 1988; Shetty and Ross 1985; Sonnenberg 1989; Wellins 1989). For this strategy to be profitable, customers must be willing to pay a price premium for the benefits (superior service), and this must exceed the added costs of providing the superior service. Davidow and Uttal (1989) also identified customer service as the critical issue of the Nineties in their comprehensive work on service in the United States. Customer service therefore represents a significant part of industry's offerings in the market place, and, due to the nature of these offerings, the concept of quality has complexities that are not frequently encountered in the traditional goods market.

Service quality has thus been shown to have a profound and substantial impact on the financial and strategic performance of organizations. It is essential for organizations to develop and build adequate measures of service quality, and to implement these. For by doing this they will be ensuring that they come to grips with one of the fundamental predictors of performance.

2.2.2 Service Quality: The Construct

Quality is an elusive and indistinct construct, which is often mistaken for imprecise adjectives like '*goodness, or luxury, or shininess, or weight*' (Crosby 1979). Customers therefore do not easily articulate quality and its requirements. Until the early 1980s most successful efforts in defining quality have come from the manufacturing sector, ranging from Japanese views such as "zero defects" and doing things right first time, through Crosby's (1979) "conformance to requirements", to David Garvin's (1983) views of quality as being both internal (eliminating faults before the product leaves the factory) and external (eliminating failures after the product leaves the factory). In the late 1970s, and in the early 1980s, however, service quality also began to receive attention in the marketing literature (cf. Gronroos 1982; Lewis and Booms 1983; Sasser, Olsen and Wyckoff 1978; Martin 1986a;

1986b). Cravens et al. (1988) provide an excellent overview of some attempts to come to grips with the definitions of both product and service quality.

As early as the 1970s, authors such as Nelson (1974), and Darby and Karni (1973) proposed frameworks for isolating differences in the evaluation of quality for goods and services. These authors distinguished between three categories of properties of goods that would influence the consumers' evaluation process:

Search properties: attributes that a consumer can determine prior to purchasing a product.

Experience properties: these attributes can only be discerned after purchase or during consumption.

Credence properties: characteristics that the consumer may find impossible to evaluate even after purchase and consumption.

In general, offerings high in search properties are easiest to evaluate, those high in experience properties more difficult to evaluate, and those high in credence properties hardest to evaluate (Parasuraman, Zeithaml, and Berry 1985). Most services contain few search properties and are high in experience and credence properties, making their quality more difficult to evaluate (Zeithaml 1981). Of course, this is exacerbated by the service characteristics already referred to - intangibility, heterogeneity and inseparability

Most researchers and practitioners would now concur that service quality involves a comparison by the customer of expectations with performance, and that obviously no one but the customer/consumer/client/user is able to make this definition (Boothe 1990). According to Lewis and Booms (1983), service quality is a measure of how well the service level delivered matches customers' expectations. Therefore delivering service quality means conforming to customers' expectations on a consistent basis. Gronroos (1982) contends that consumers compare the service they expect with their perceptions of the service they receive in their evaluation of service quality. Satisfaction with service can thus be related to the disconfirmation paradigm proposed by Churchill and Surprenant (1982). This posits

that satisfaction is related to the magnitude and path of the disconfirmation experience, where disconfirmation is related to the individual's initial expectations.

Since that time, disconfirmation theory has received much attention in the service quality literature, specifically, and in the customer satisfaction literature generally (cf. Assael and Kamins 1989; Bitner 1990; Cronin and Morris 1989; Kamins and Assael 1987; Oliver and Bearden 1985; Oliver and DeSarbo 1988; Oliver and Swan 1989; Swartz and Brown 1989; Tse and Wilton 1988; Wilton and Myers 1986). Before discussing the "quality as perception" approach which forms the base of the propositions to be researched in this study (Parasuraman, Zeithaml and Berry 1988) it is therefore useful to consider the relationships between service quality, attitudes and satisfaction. Researchers have generally distinguished between two constructs:

customer satisfaction and attitude.

- Customer satisfaction is the customer's post-purchase evaluation of a product/service offering (Hunt 1977). The customer is satisfied when the offering exceeds expectations, and is dissatisfied when the product/service does not perform as expected. Customer satisfaction or dissatisfaction is typically modeled as a function of disconfirmation, arising from discrepancies between prior expectations and actual performance (Cardozo 1965; Olshavsky and Miller 1972; Olsen and Dover 1979).
- Customer attitude, in contrast, alludes to an overall evaluation of the product/service, rather than to a global evaluation of a specific transaction (Holbrook and Corfman 1985; Olshavsky 1985).

It can thus be argued that satisfaction eventually becomes an input to a less dynamic attitude, although the distinction between the two can become somewhat confused for frequently provided services (Bolton and Drew 1991b). Attitude is the customer's global evaluation of the product/service offering, and recent research in services marketing has centred on the customer's evaluation of the overall excellence or superiority of the service.

This has culminated in the work of Parasuraman, Zeithaml and Berry (1985; 1988). There are thus two sides to the service quality equation - namely expectations (Cadotte, Woodruff, and Jenkins 1987; Cronin and Morris 1989; Swartz and Brown 1989), and perceptions (Becker and Wellins 1990; Bertrand 1989; Hensel and Baumgarten 1988; LeBlanc and Nguyen 1988; Tabacchi and Marshall 1988).

2.2.3 Models of Service Quality

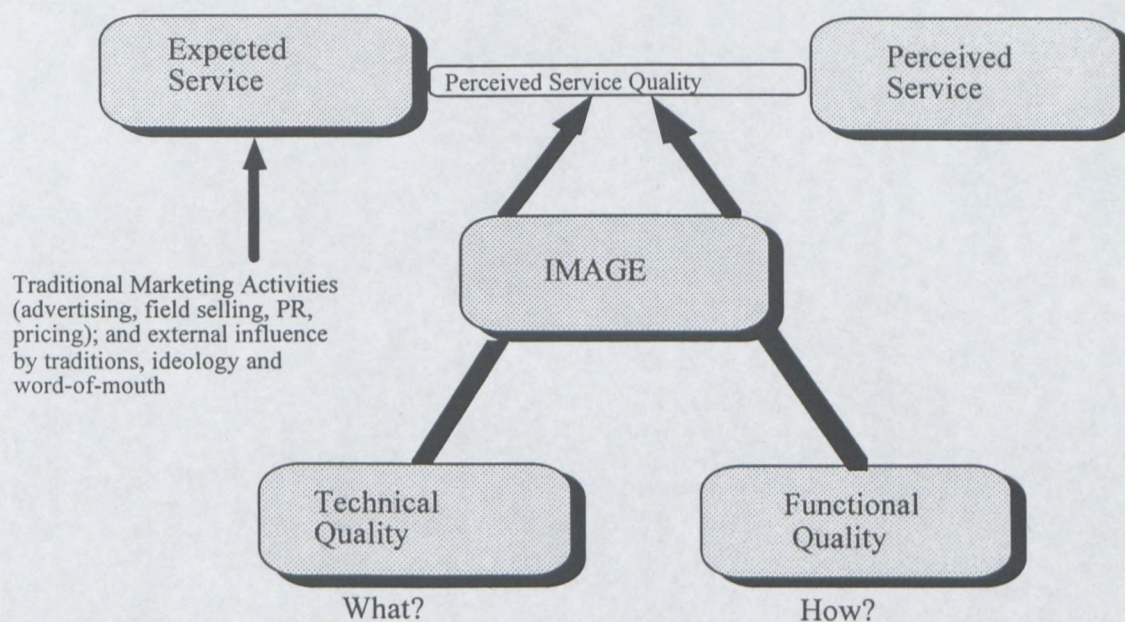
Models of complicated phenomena make latter explication thereof simpler for both researchers and practitioners. While there have been a number of conceptualizations of the construct (see for example Haywood-Farmer 1988), two of the best-known "models" of service quality are considered briefly here. They are Gronroos's (1984) model of service quality, and the so-called "gaps" model of service quality of Parasuraman, Zeithaml and Berry (1985).

2.2.3.1 Gronroos's (1984) Service Quality Model

While most of the significant work on service quality has been conducted by researchers in the USA, and published in the North American literature, a notable exception is the work of the Finnish researcher Christian Gronroos. Gronroos's model of service quality theorises that the perceived service is the result of a consumer's view of a bundle of service dimensions, some of which are technical and some of which are functional in nature. When this perceived service is compared with the expected service, the customer's perceptions of service quality result, as illustrated in Gronroos's model in Figure 2.2. In this sense Gronroos's propositions do not differ significantly from other service quality literature, neither from the disconfirmation theory referred to, nor from the "gaps" model of Parasuraman, Zeithaml and Berry (1985). An interesting aspect to Gronroos's model, however, which is not generally alluded to in the North American literature, is what he refers to as the "third quality dimension", namely image. He asserts that service firms cannot hide behind brand names or distributors - that the customer will always perceive and internalise the image in service encounters, and that *corporate image* is of utmost

importance to service firms (see also Bessom and Jackson 1975 in this regard). The expectations of customers are influenced, according to Gronroos, by their view of the company - in other words, its image. And, in turn, image, is the result of how customers perceive the firm.

Figure 2.2 Gronroos's Service Quality Model



2.2.3.2 The Parasuraman, Zeithaml and Berry (1985) "Gaps" Model of Service Quality

Parasuraman, Zeithaml, and Berry (1985) proposed a model of service quality that can be summarized as follows:

Service Quality as perceived by a consumer depends on the size and direction of the gap between expected service and perceived service, which, in turn, depends on the nature of the gaps on the service providers side, associated with the design, marketing, and delivery of services.

Parasuraman, Zeithaml, and Berry (1988) clarify the term 'expectations' by noting that it differs from the consumer satisfaction literature definition of expectations. The latter views expectations as predictions made by consumers about what is likely to happen during an

impending transaction or exchange, while the former views expectations as desires or wants of the customer, i.e., what they feel a service provider should offer rather than would offer.

Finally, their work revealed that, regardless of the type of service, consumers used basically similar criteria in evaluating service quality. These criteria fell into 10 key categories, labelled 'service quality determinants' -

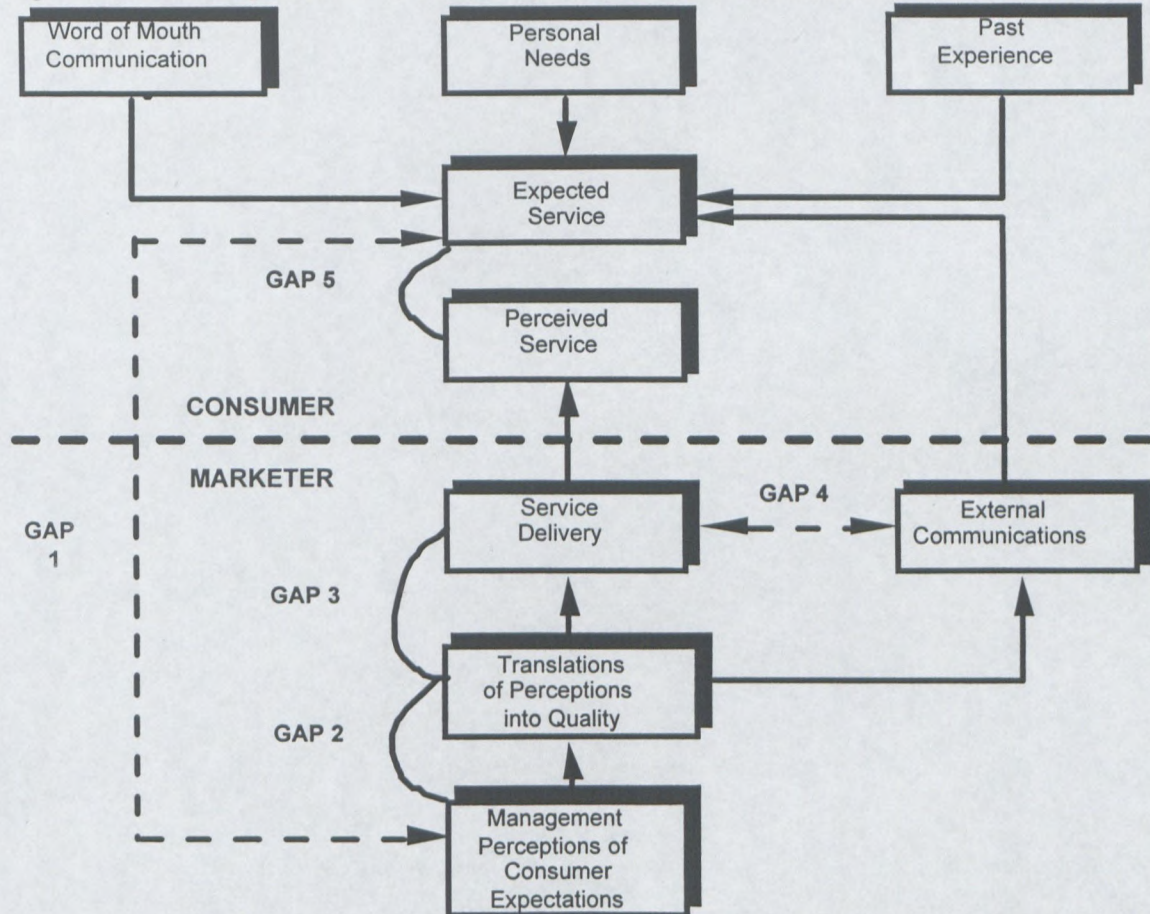
reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, and tangibles.

The "Gaps" model has received much attention of late. It has been expanded upon since then, and is the focus of a book by the same authors (Zeithaml, Parasuraman, and Berry 1990). The model is illustrated in Figure 2.3, and views service quality and service quality problems as existing between consumer (or customer) and marketer. From the consumer's point of view, service quality is the difference between what he or she expects, and what he or she perceives himself or herself to be receiving from the service provider. If the expectation equals the perceptions, the consumer is technically satisfied. When the perception exceeds the expectations, the consumer is more than satisfied and can even be excited, delighted. When expectations exceed perceptions however, the consumer is dissatisfied, and there is a service quality problem.

The consumer's gap between expectations and perceptions - Gap 5 in the model - is caused by four other gaps, which are internal to the marketer's organization. *Gap 1* is a gap between managers' perceptions of expectations and the consumer's actual expectations - quite simply managers don't always understand what consumers expect. *Gap 2* is a gap between managers' perceptions of consumer expectations and their ability to translate these into service quality standards. In other words managers might know what consumers expect, but are unable to set quality standards. *Gap 3* is a gap between the service quality standards that are set, and the service quality that is actually delivered. The organization does not deliver according to the standards it has set for itself. Finally, *Gap 4* is a gap

between service delivery and external communications - the service that is actually delivered might not live up to promises made by the provider's advertising and selling strategies. These gaps are now expanded upon in more detail. This discussion is based on Zeithaml, Parasuraman and Berry (1990).

Figure 2.3 The Gaps Model of Service Quality (Parasuraman, Zeithaml and Berry 1985)



- *Gap 1 - Managers Not Understanding What Customers Expect*

Understanding what customers expect is a critical pre-requisite for delivering quality service. Being able to deliver what customers will perceive as excellent service requires that management know what customers expect. Being wrong about this means that companies lose out to those service providers who do understand what customers expect. It also often means expending substantial sums of money, time and effort on things that probably don't make that much impression on customers.

- *Gap 2 - Setting the Wrong Standards*

Understanding what customers expect from service quality is not enough to ensure it. This intelligence must be converted into meaningful service quality standards for the organization. There are four chief causes of gap 2 - or, why, despite the fact that they may know what customers expect, managers don't set acceptable appropriate service quality standards. Despite the lip service paid to it, in many organizations there is *no commitment by management* to service quality. Short-term objectives such as cost reduction, market share and profitability are far easier to assess, and therefore seem to merit focus. Frequently, service quality is defined from the company's point of view, and not the customer's. Middle management and contact employees cannot be expected to commit to quality if senior levels in the organization are not. In many organizations there is *a perception of infeasibility* - "It can't be done". This is generally articulated in the form of statements such as, "We don't have the people/the skilled people/the committed skilled people" - or the money, or the time, or the equipment. *Inadequate task standardization* as a cause of gap 2 has to do with the extent to which hard and soft technology are used to standardize service tasks. Here managers must ask the questions: Is automation used to achieve consistency in serving customers? Are programmes in place to improve operating procedures so that consistent service is provided? If service quality goals are based on company standards rather than on customer standards and expectations, then there really is an *absence of goal setting*.

- *Gap 3 - The Service Performance Gap*

Gap 3 in the model - the gap between service standards and service delivery - is probably the most serious from the manager's point of view. Yet it is also the gap which is easiest to identify, rectify, and manage. The causes of Gap 3 include:

- ◆ *Role ambiguity*, which exists whenever employees do not possess the information or training necessary to perform their jobs adequately.

- ◆ *Role conflict*, which occurs when employees perceive that they cannot satisfy all the demands of the individuals they must serve.
- ◆ *Poor fit between employee and job*
- ◆ *Poor fit between technology and job.*

These two causes can be cured by giving adequate attention to the type of people put into jobs, and making sure that the appropriate technology needed is available to ensure the customer's expectations are met.

- ◆ *Inadequate supervisory control systems*, for example, supervisors who act either as policemen, believing it is their job to "catch out" subordinates, or as army sergeants, maintaining that they should "tell" subordinates what to do.
- ◆ *Lack of perceived control* has to do with two things. First, it has to do with the extent to which employees believe the organization can actually control the standards that have been set. The finest standards will not be met if employees believe that the company cannot actually measure performance against them. Second, perceived control involves the ability to make responses that influence threatening situations and the ability to choose outcomes or goals. The employee who has no choice but to refuse a customer a justified refund when the supervisor is on lunch perceives him- or herself to have little control over the situation.
- ◆ *Teamwork - or lack thereof -* is probably one of the commonest problems facing all organizations. One of the most important aspects of teamwork is the extent to which employees view other employees as customers. Teamwork is the heart of service quality initiatives - if employees can't work together, then service can't come together for customers.

- *Gap 4 - Service Delivery and Broken Promises*

The fourth gap in the service quality model is that between what a firm promises about a service and what it actually delivers. An enormous amount of advertising money is spent on creating expectations in the minds of customers. When what is delivered does not match these expectations the customer is often dissatisfied to an extent that the organization

would have been far better off had it said nothing. The same can be said for promises made by people in sales, people in operations, and other functional areas of the organization. The major causes of gap 4 are *inadequate horizontal communication*, and a *propensity to overpromise*. Communications between various functional areas in the organization, such as marketing and operations, and also between different branches or regions, are necessary to achieve the common goals of the organization.

2.3 MEASURING SERVICE QUALITY

Literature on quality in general, as well as service specific, stresses the importance of measurement and monitoring of quality (Takeuchi and Quelch 1983; Martin 1987; De Souza 1989; Hensel and Baumgarten 1988; Davidow and Uttal 1989; Kierl and Mitchell 1990; Mangold and Babakus 1990). An early example of measurement of service quality was the experience of a British bank discussed by Buswell (1983), which considered such aspects as knowledge of staff, communications, expertise of staff, willingness to lend, and branch design. Likewise, Richardson and Robinson (1986) assessed the functional quality of service (Gronroos 1978) provided by bank staff, in South Africa. Tansuhaj, Wong and McCullough (1987) measured technical and functional items of quality of banks in Thailand.

Parasuraman, Zeithaml, and Berry (1988) operationalized their conceptual model of service quality by following the framework of Churchill (1979) for developing measures of marketing constructs. This resulted in a 22-item instrument that they called SERVQUAL, for assessing customer perceptions of service quality in service and retailing organizations. Underlying the 22 items are five dimensions that the authors claim are used by customers when evaluating service quality, regardless of the type of service. These dimensions are:

- ◆ *TANGIBLES* - Physical facilities, equipment, and appearance of personnel.
- ◆ *RELIABILITY* - Ability to perform the promised service dependably and accurately.
- ◆ *RESPONSIVENESS* - Willingness to help customers and provide prompt service.

- ◆ *ASSURANCE - Knowledge and courtesy of employees and their ability to inspire trust and confidence.*
- ◆ *EMPATHY - Caring, individualized attention the firm provides its customers.*

The authors concede that items that may be relevant to the discussion of service quality for one particular industry/firm may not be reflected in their generalized instrument. The instrument may, therefore, need to be reworded or augmented when applied in specific applications.

2.3.1 The SERVQUAL Instrument

Parasuraman, Zeithaml and Berry (1988) describe the development of the SERVQUAL instrument, a multi-dimensional questionnaire for the assessment of service quality. The development process closely followed that suggested by Churchill (1979). Their exploratory research (Parasuraman, Zeithaml and Berry 1985) had revealed that the criteria used by customers to evaluate service quality fit 10 possibly overlapping dimensions, namely tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, knowing/understanding the customer, and access. These 10 dimensions and their descriptions served as the basic structure of the service quality domain, from which the developers then derived items for the SERVQUAL scale. The questionnaire used a 7-point Likert-type scale anchored on "Strongly disagree" (1) through to "Strongly agree" (7), with half the statements positively, and half negatively worded. Service quality was defined as the discrepancy between the customer's perceptions of the actual quality of service received, and his or her expectations of that service.

The questionnaire was used to assess the service quality perceptions of customers who had recently used the services of 5 different types of service organizations (essentially following Lovelock's (1980) classification). The 97-item instrument was then purified and condensed by focusing firstly on the questions discriminating well between respondents having

different perceptions, and secondly, by focusing on the dimensionality of the scale and establishing the reliability of its components.

Ninety-seven items representing various facets of the 10 dimensions were generated to form the initial pool (approximately 10 items per dimension). Each item was recast into two statements: one to measure **expectations** about firms in general within the type of service under investigation, and the other to measure **perceptions** of the service quality of the particular organization within the category being measured. Service quality per item was captured by a difference score Q (representing perceived quality for that item), where

$$Q = P - E$$

and P and E are the ratings on the corresponding perception and expectation statements respectively.

The purification process, and subsequent analysis effectively resulted in four outcomes:

- elimination of 75 of the original 97 statements, leaving 22 items on the questionnaire.
- condensation of the number of dimensions, by a process of factor analysis, from the original 10, to 5. While the original dimensions tangibles, reliability and responsiveness remained intact, the process suggested consolidation of the last seven dimensions into two broader dimensions that were then labelled **assurance** and **empathy**. Figure 2.4 illustrates the correspondence between the original 10 dimensions and the 5 dimensions now contained in the SERVQUAL scale.

Figure 2.4 Distillation of Dimensions During the Development of the SERVQUAL Instrument (Source: Zeithaml, V.A., Parasuraman, A., and Berry, L.L. [1990] Delivering Quality Service).

	Tangibles	Reliability	Responsive -ness	Assurance	Empathy
Tangibles					
Reliability					
Responsive -ness					
Competence Courtesy Credibility Security					
Access Communication Understanding the Customer					

- Confirmation of the reliability of the SERVQUAL instrument, and the items within (total scale reliability in excess of 0.85, and coefficient alphas (Cronbach 1951) equal to or exceeding 0.70 for all dimensions except tangibles). Confirmation of the various facets of validity of the SERVQUAL instrument.

- Establishment of the relative importance of the 5 dimensions. While all dimensions of service quality are obviously important to customers, Parasuraman, Zeithaml and Berry (1988) established that some dimensions are relatively more important to customers than others. By regressing the overall quality perceptions on the SERVQUAL scores for the individual dimensions, it is possible to estimate (by using the standardised slope coefficient) the relative importance of the dimension. Generally Parasuraman, Zeithaml and Berry (1988, 1990, 1993) (and subsequent other research cf. Carman, 1990; Cronin and Taylor,

1992; Pitt, Watson and Kavan, 1995) have found the order of importance by dimension to be as follows:

1. Reliability
2. Responsiveness
3. Assurance
4. Empathy
5. Tangibles.

Since 1990 (see Zeithaml, Parasuraman and Berry 1990), the SERVQUAL instrument has been changed in one important way: All items are positively stated and scored. In the original SERVQUAL, some items were negatively phrased, as a check on respondent thoroughness. However, this was felt by the developers to be cumbersome and confusing. There has been some informal criticism that the current phrasing of statements on expectations especially, leads to a "halo-effect", of respondents rating every expectation "7". In practice results do not generally support this. Indeed, it may be the case with some respondents. As damaging to data integrity however, could be the careless/disinterested respondent who indicates a "7" on a negatively phrased expectation statement. It should also be noted that since the development of SERVQUAL to measure Gap 5 in the "Gaps" model (Parasuraman, Zeithaml and Berry 1985), the authors have designed instruments to measure gaps 1 through 4 (see Zeithaml, Parasuraman and Berry 1990).

SERVQUAL has been designed to be applicable across a broad spectrum of services. If necessary it can be adjusted or adapted to fit the characteristics or specific research needs of a wide range of organizations. It can be used to track service trends, and it can be used to assess the organization's service quality along the five dimensions, for the relative importance of the dimensions to the customer can be determined. SERVQUAL also has significant potential as a market segmentation tool - different customer groups may seek or regard different dimensions of service quality as more desirable or more important. The dimensions can indeed be regarded as benefits from a benefit segmentation (cf Haley 1963) perspective. Benefits (dimensions) sought can also be identified by other categorization

included in the SERVQUAL questionnaire use, such as demographics, and psychographics. Frequently, organizations need to consider the service quality provided by branches, departments, regions or depots, in order to evaluate, motivate and control them. SERVQUAL offers a reliable, valid and fair way of doing this, and scores can also be broken down by dimension. Finally, organizations can use SERVQUAL studies to compare themselves to close competitors. In this case the expectations statements do not need to be repeated for each firm - they should be standard across a range of competing firms. All that is required is that perceptions data be gathered for each specific firm in the study.

2.3.2 Criticism of SERVQUAL in the Literature

The SERVQUAL instrument has ignited a substantial stream of research in the marketing literature specifically, and in the management literature in general. A rewrite of p.16 The difficulties with the SERVQUAL instrument identified in the literature can be grouped into two main categories: (1) conceptual and (2) empirical; although, the boundary between them blurs because they are closely inter-related. The conceptual problems centre around:

- (a) the use of two separate instruments to measure perceptions and expectations in order to operationalize a third conceptually distinct construct of service quality
- (b) the ambiguity of the expectations construct; and
- (c) the suitability of using a single instrument to measure service quality across different industries, organizations and situations

The empirical problems are, by and large, the result of these conceptual difficulties, most notably the use of difference scores. The empirical difficulties most often attributed to the SERVQUAL instrument include low reliability, unstable dimensionality and poor convergent validity. In what follows these are discussed in more detail.

2.3.2.1 Conceptual Difficulties with SERVQUAL

The Use of Difference Scores

Many of the difficulties associated with the SERVQUAL instrument stem from the operationalization of a service quality construct that is theoretically grounded in a discrepancy or gap model. In conceptualizing service quality, Parasuraman, Zeithaml, and

Berry (1985, 1988, 1991, 1994B) use Grönroos's (1984) "service quality model" which posits that one's perception of service quality is the result of an evaluation process whereby "the customer compares the perceived service against the expected service".

Three sets of scores are commonly referred to as expectation (E), perception (P), and SERVQUAL, or Q (whereby, $SERVQUAL = P - E$). The implicit assumption that subtraction accurately portrays this cognitive process has been criticised as being overly simplistic. Some have suggested that a direct measurement of one's perception of service quality, that is the outcome of a cognitive evaluation process, seems more likely to yield a valid and reliable outcome.

Ambiguity of the "Expectations" Construct

Teas (1994) criticises the SERVQUAL expectations that are variously defined as desires, wants, what a service provider should possess, normative expectations, ideal standards, desired service, and the level of service a customer hopes to receive (e.g., Parasuraman, Zeithaml, & Berry, 1985, 1988, 1991; Zeithaml, Berry, & Parasuraman, 1993). He says that these multiple definitions and corresponding operationalizations of "expectations" in the SERVQUAL literature result in a concept that is loosely defined and open to multiple interpretations. Various interpretations of the expectations construct can result in potentially serious measurement validity problems.

The conceptualization of "expectations" consistent with the SERVQUAL model is the vector attribute interpretation ~ "that is one on which a customer's ideal point is at an infinite level" (Parasuraman, Zeithaml, & Berry, 1994, p. 116). A problem however, might be that as the proportion of extreme responses (e.g., 7 on a 7 point scale) increases, the expectation scores become less useful as an increasing proportion of the variation in difference-based SERVQUAL scores is due only to changes in perception scores.

Teas (1993) found three different interpretations of "expectations" derived from an analysis of follow-up questions to an administration of the SERVQUAL questionnaire. One

interpretation of expectations is as a forecast or prediction. The forecast interpretation of expectations cannot be discriminated from Oliver's (1980) disconfirmed expectations model of consumer satisfaction. This interpretation is inconsistent with Parasuraman, Zeithaml, and Berry's (1988) definition of service quality and results in a discriminant validity problem with respect to consumer satisfaction. A second interpretation of expectations is as a measure of attribute importance. When respondents use this interpretation, the resulting perception-minus-expectation scores exhibit an inverse relationship between attribute importance and perceived service quality, all other things being equal.

The third interpretation identified by Teas (1993) is the "classic ideal point" concept. Parasuraman, Zeithaml, and Berry (1994) describe this when they note that "the P-E (i.e., perceptions-minus-expectations) specification could be problematic when a service attribute is a classic ideal point attribute ~ that is one on which a customer's ideal point is at a finite level and therefore, performance beyond which will displease the customer (e.g., friendliness of a salesperson in a retail store)" (p. 116). This interpretation of expectations results in an inverse of the relationship between the SERVQUAL score, calculated as perception minus expectation ($P - E$), and actual service quality for all values when perception scores are greater than expectation scores (i.e., $P > E$). The findings of Teas (1993) suggest that a considerable portion of the variance in the SERVQUAL instrument is the result of measurement error induced by respondent's varying interpretations of the "expectations" construct.

Boulding, Kalra, Staelin and Zeithaml (1993) describe three separate types of expectations; the "will" expectation, what the customer believes will happen in their next service encounter; the "should" expectation, what the customer believes should happen in the next service encounter; and an "ideal" expectation, what a customer wants in an ideal sense. The ideal interpretation of expectation is often used in the SERVQUAL literature (Boulding et al. 1993). Boulding et al. (1993) differentiate between should and ideal expectations by stating that what customers think should happen may change as a result of what they have

been told to expect by the service provider, as well as what the consumer views as reasonable and feasible based on what they have been told and their experience with the firm or a competitor's service. In contrast, an ideal expectation may "be unrelated to what is reasonable/feasible and/or what the service provider tells the customer to expect" (Boulding et al. 1993 p.9).

Applicability of SERVQUAL Across Industries

Rewrite of p.16 - rephrase, etc. please. Another often mentioned conceptual problem with SERVQUAL concerns the applicability of a single instrument for measuring service quality across different industries. Several researchers have articulated their concerns on this issue. Carman (1990) in a study of SERVQUAL across four different industries, found it necessary to add items to the instrument in order to adequately capture the service quality construct in various settings. Brown, Churchill and Peter (1993) concluded that it takes more than simple adaptation of the SERVQUAL items to effectively address service quality across diverse settings, a conclusion also reached by Dabholkar, Thorpe and Rentz (1996).

2.3.2.2 The SERVQUAL Instrument - Empirical Difficulties

A difference score is created by subtracting the measure of one construct from the measure of another in an attempt to create a measure of a third distinct construct thus, an expectation score is subtracted from a perception score to create such a "gap" measure of service quality. The important question is: Can calculated difference scores operationalize the outcome of a cognitive discrepancy? Some researchers point to problems with the use of difference scores (e.g., Lord, 1958; Wall & Payne, 1973; Johns, 1981; Peter, Churchill & Brown, 1993; Edwards, 1995). Among the difficulties related to the use of difference measures discussed in the literature are low reliability, unstable dimensionality, and poor predictive and convergent validities.

Reliability Problems With Difference Scores

Many studies contend that Cronbach's (1951) alpha is inappropriate for difference scores (e.g., Lord, 1958; Cronbach & Furby, 1970; Wall & Payne, 1973; Johns, 1981; Prakash & Lounsbury, 1983; Peter, Churchill & Brown, 1993). This is because the reliability of a difference score is dependent on the reliability of the component scores and the correlation between them. This school of thought argues that the correct formula for calculating the reliability of a difference score (r_D) is:

$$r_D = \frac{\sigma_1^2 r_{11} + \sigma_2^2 r_{22} - 2r_{12}\sigma_1\sigma_2}{\sigma_1^2 + \sigma_2^2 - 2r_{12}\sigma_1\sigma_2}$$

where r_{11} and r_{22} are the reliabilities of the two component scores, σ_1^2 and σ_2^2 are the variances of the component scores, and r_{12} is the correlation between the component scores (Johns, 1981).

Using this formula, as the correlation of the component scores increases, the reliability of the difference scores is decreased (Johns 1981). Thus, while the average reliability of the two components is .70, which is considered acceptable (cf., Nunnally, 1978), the correlation between the components reduces the reliability of the difference score to a level that most researchers would consider unacceptable (Peter, Churchill, & Brown, 1993).

Predictive and Convergent Validity Issues with Difference Scores

Other criticism of the SERVQUAL instrument has concerned the predictive and convergent validities of the measure. Convergent validity is concerned with the extent to which multiple measures of the same construct agree with each other (Cambell & Fiske, 1959). Predictive validity refers to the extent to which scores of one construct are

empirically related to scores of other conceptually-related constructs (Parasuraman, Zeithaml, & Berry, 1991; Bagozzi, Davis, & Warshaw, 1992; Kappelman, 1995).

Babakus and Boller (1992) reported that perceptions-only SERVQUAL scores had higher correlations with an overall service quality measure (i.e. convergent measure) and with complaint resolution scores (i.e. the predictive measure) than did the perception-minus-expectation difference scores used with SERVQUAL. Parasuraman, Zeithaml, and Berry (1991) performed regression analyses in which an overall single-question service quality rating was regressed separately on both difference scores (i.e., perception minus expectation) and perception-only scores. The perception-only SERVQUAL scores produced higher adjusted r-squared values (ranging from .72 to .81) compared to the SERVQUAL difference scores (ranging from .51 to .71).

Brown, Churchill and Peter (1993) compared the predictive validity of difference scores, a non-difference direct response score, and the perceptions only scores for SERVQUAL in the context of a financial institution. Correlation analysis was performed between the various scores and a 3-item behavioral intentions scale. The results of the study show that both the perceptions only (.31) and direct response (.32) formats demonstrated higher correlations with the behavioral intentions scale than did the traditional difference score (.26).

The superior predictive and convergent validity of perception-only scores was the major focus of work by Cronin and Taylor (1992). Their results indicated higher adjusted r-squared values for perception-only scores across four different industries. The perception component of the perception-minus-expectation score consistently performs better as a predictor of overall service quality than the difference score itself (Parasuraman, Zeithaml, & Berry, 1991; Cronin & Taylor, 1992; Babakus & Boller, 1992; Boulding, Kalra, Staelin, & Zeithaml, 1993).

Unstable Dimensionality of the SERVQUAL Instrument

The results of several studies have argued that the 5 dimensions claimed for the SERVQUAL instrument are unstable. Kettinger and Lee (1994) utilized LISREL confirmatory factor analysis on SERVQUAL data collected from users (i.e. students) of a college computing services department. Analysis of this data resulted in a four factor solution. The entire tangibles dimension was dropped. Kettinger and Lee (1995) used an IS version of SERVQUAL in a cross-national study. Results of exploratory common factor analysis with oblique rotation indicated a 3-factor model from a Korean sample and a 4-factor model was extracted from a Hong Kong data. The tangibles dimension was retained in the analysis of both of the Asian samples.

2.3.3 In Defence of SERVQUAL – Counter-Arguments to the Criticisms

The SERVQUAL debate has certainly not been one-sided. Parasuraman and his colleagues have responded in full, with sound and solid arguments regarding the conceptual and empirical aspects of their conceptualization of service quality. In this section, some of the responses to these difficulties are summarised.

2.3.3.1 Conceptual problems

Subtraction as simulation

Criticism of this conceptualisation seems to negate a very strong and recurring theme in the PZB research. The gap formulation was not merely suggested or implied as a convenient simplification, it was derived and conceptualized from extensive focus group research (PZB, 1985; ZPB, 1990); grounded in prior conceptual work, namely Gronroos (1982) and Sasser, Olsen and Wyckoff (1978); substantially supported by Bolton and Drew (1991a); and reaffirmed by the same authors (Bolton and Drew, 1991b, p. 383) as follows:

Consistent with prior exploratory research concerning service quality, a key determinant of overall service quality is the gap between performance and expectations (i.e., disconfirmation).

One might easily criticize this subtraction operationalization of the disconfirmation paradigm as being over-simplistic, without really offering feasible alternatives. Merely suggesting that direct measurement of perceptions is better, or that some kind of "direct measurement of the discrepancy " is more desirable does not leave us better off. These approaches are well known in the marketing literature (cf. Cronin and Taylor, 1992) and might result in marginally better predictive validity. One might question the diagnostic insights they provide to the manager.

Is the expectations construct ambiguous?

Teas' (1993) points that the SERVQUAL conceptualization of expectations is as a vector—in simple terms, more is always better. It could be asserted that this causes the problem of the expectation score becoming less useful in subsequent analysis as an increasing proportion of the variation in difference-based SERVQUAL is due only to changes in perceptions. However, it is worth noting: (same as p.18) First, PZB (1994) state that it is likely that customers consider most of the 22 items in the SERVQUAL instrument to be vector attributes (a point also acknowledged by Teas in footnote 16 of his article). Second, in their response to Brown, Churchill & Peter (1993), who also noted the variability problem in a similar fashion, PZB (1993) argue that this will only be really problematic when the SERVQUAL gaps are used as dependent variables in analysis.

Teas (1993) also reasons that an expectation can be interpreted as a classic ideal point rather than a vector. This point is conceded by PZB (1994) in their response to Teas. Although, as briefly discussed in the previous section, PZB believe that customers will see most of the 22 SERVQUAL items as vectors, there may be some environments, a few expectation items in SERVQUAL could be classic ideal points. Indeed this might in part account for the instability of the tangibles dimension, noted by a number of researchers (Kettinger and Lee, 1994; Pitt, Watson and Kavan, 1995)

Finally, it is possible that some commentators have misunderstood some of the implications of the work of Boulding et al (1993) - e.g., "Boulding et al's (1993) findings

'fail to support the (P-E) gap model'....." (page?) It is important to note that Boulding et al. did NOT test the gap formulation against their own formulation (i.e., E affecting P which, in turn, affects SQ). As such, just because their findings support links from E to P to SQ does not necessarily imply the P-E gap formulation is problematic.

Applicability of SERVQUAL across industries and settings

The arguments of Carman (1990), Brown, Churchill & Peter (1993) and Dabholkar, Thorpe and Rentz (1996), might lead one to question the universal applicability of SERVQUAL as a service quality measure. Balancing the argument is possible.

PBZ (1991) assert that the SERVQUAL items represent core evaluation criteria that transcend specific companies and industries, providing a basic skeleton underlying service quality that can be supplemented with context-specific items when necessary (and they provide instructions for doing so). They go on to point out that items seen as different or missing by Brown et al.'s work (convenient operating hours) are in fact contained in SERVQUAL, in item 19.

It is also possible to provide three reasons meriting the use of a generic measure:

- ◆ First, few service organizations have truly unique features that make the standard SERVQUAL dimensions inappropriate. It is unlikely that there will be organizations who do not wish to strive to: provide service that is right the first time, keep their promises (reliability), be prompt and willing help (responsiveness), be courteous, competent and offer security (assurance), treat customers as individuals (empathy), and have equipment, facilities, printed materials, and people of appropriate appearance (tangibles).
- ◆ Second, it is difficult to discern any unique features in a domain that have been excluded from SERVQUAL, although that does not mean this is impossible. Many of the issues that both managers and researchers raise, can with some consideration be reassorted under a SERVQUAL dimension.

- ◆ Third, there is a good diagnostic reason for using a generic measure of service quality. While managers may want to know how they compare to other similar organizations, nowadays many want to compare themselves to other excellent service providers.

2.3.3.2 Empirical problems

The three main points of debate that have occurred in the marketing literature may be reiterated as follows: the reliability issues associated with the use of difference scores in measurement; whether a difference score results in lower predictive and convergent validities than would a performance based measure; and, the unstable dimensionality of SERVQUAL.

Reliability of difference scores

Two well conceptualized articles (Brown, Churchill and Peter, 1993; Peter, Churchill and Brown, 1993) highlight the problems associated with using a difference score to operationalize a construct. Simply, operationalization of a construct using a difference score means that the construct (for example, the service quality gap, Q) is calculated as the difference between one more construct (such as the perceptions of service quality, P), and another (the customer's expectations of service quality, E), i.e., $Q = P - E$. Peter et al. (1993) discuss the issues that this raises in detail, and this work merits the attention of researchers beyond the marketing community. Brown et al. (1994) focus particularly on the difference score conceptualization of SERVQUAL, and this piece was the subject of a well-considered response by PZB (1993).

Most researchers, including PZB, have used the standard formula for the calculation of coefficient alpha (Cronbach, 1951), to calculate the reliability coefficients for the SERVQUAL dimensions. Brown et al. (1993) (who in turn cite Johns (1981)), argue that this may be inappropriate. The real question is of course, whether the effect of this is serious?

Brown et al. (1993) correctly state that the reliability of a scale operationalized as the difference between two measures will be low to the extent that: (a) the correlation between the component measures is high (in this instance, perceptions and expectations) and (b) the reliabilities of the component measures (perceptions and expectations) is low. PZB (1993) argue strongly (and demonstrate with Brown et al.'s data) that these conditions (a) and (b) are not likely to be serious problems in the case of SERVQUAL however, where the construct G is operationalized as P-E.

Predictive and Convergent Validity of SERVQUAL

There has been prolific and ongoing debate (cf. Brown et al., 1993; Babakus and Boller, 1992; Cronin and Taylor, 1992; PBZ, 1991; PZB, 1993; 1994) concerning the predictive and convergent validities of SERVQUAL. The debate has not centred on the poor validity of SERVQUAL (for it is arguably not poor). Rather, it has concentrated on the fact that in the research, performance-based, or perceptions-only measures of service quality have (a) higher correlations with other measures of the same construct (convergent validity); and (b) higher correlations with other conceptually related constructs.

Perceptions-only measures of service quality generally have both higher convergent and predictive validities than SERVQUAL difference scores. Not only has this been widely established in the literature, it has also been conceded by PZB on a number of occasions (1993; 1994; PBZ, 1991).

PZB (1994), in their response to Cronin and Taylor (1992), make a convincing argument that service quality measurements that incorporate customer expectations provide richer diagnostic information than those that merely use perceptions. The perceptions-only measures may possess stronger statistical properties than do gaps measures. However it can be argued that managers find the concept of a gap most useful, for it indicates a shortfall, something that needs to be closed. Just as importantly, managers want to know and should know what their customers expect. Frequently, in discussions of service quality study results, a manager might say something like, "Customers expect too much." How would

they know this, or be able to test the assertion if expectations were not measured? Both academics (cf. Berry and Parasuraman, 1991) and practitioners are interested in the management of customer expectations. How could these be managed if they were not first measured? There might be important differences between various groups of customers with regard to their expectations of service quality, which might have customer relationship implications. These would not be detected if expectations were not measured. For example, in a similar information systems setting, Pitt, Oosthuizen & Morris (1992) found significant differences between the expectations of software experts (who emphasized reliability) and software users (who emphasized empathy) as customers of a mainframe software supplier in a SERVQUAL study, which would have been overlooked had a perceptions-only framework been used. Finally, measuring both expectations and perceptions over time gives a better indication of where changes have occurred (PBZ, 1993). This has been demonstrated in the case of an IS department where customer expectations had risen over time, but the overall gap had decreased because of an increase in customer perceptions of performance (Pitt and Watson, 1994). In summary, without wishing to sacrifice statistical rigor - managers benefit from the additional diagnostics which a gap measure and its components provide. While perceptions-only based measures of service quality may have superior statistical properties, the gaps measurement yields richer managerial insights that it would be a great pity to lose.

Dimensional Instability

It has been a source of ongoing concern, beginning with Carman (1990), and also in Pitt, Watson and Kavan (1995) and Kettinger and Lee, (1994), that the factor structure of SERVQUAL is unstable, and that the factors or dimensions defined by PZB (1988) do not generally emerge as such in subsequent research. PBZ (1991) discuss the issue comprehensively and offer a comparative discussion of their findings and those of other researchers. PBZ (1994) again acknowledge these issues and suggest that a customer based, sorting assessment of the dimensionality should offer intriguing insights.

2.3.4 The SERVQUAL Instrument: Reliability and Validity

In most marketing and marketing research studies, the researcher is compelled to work with abstracts of "real world" phenomena. These abstracts are typically referred to as "constructs", so that a construct is the name given to characteristics that require measurement. In other words, a construct is an abstraction formed for a specific research purpose. So, for example, to talk in general terms of service quality, might mean that it has to do with how the consumer feels about the service he or she receives(d), or about whether it was more or less what he or she expected. However, when used in a research setting, service quality becomes a construct that must be specifically defined and measured by the researcher. As already mentioned, Parasuraman, Zeithaml and Berry (1988) defined the service quality construct as the discrepancy, or gap, between the consumer's expectations of a service, and his or her perceptions of the service received. They also proposed a 22 item instrument, a questionnaire called SERVQUAL, as being suitable for measuring the construct of service quality.

To summarise and reiterate the discussion so far, after the construct has been constitutively defined, its measurement definition determines the specific questions to be asked, and how numbers are to be assigned. Because the conclusions drawn about the construct are ultimately determined by the responses to the questions asked, it is necessary to consider the properties of the measurement instrument itself. There are two standard measurement criteria: *reliability* and *validity*:

Reliability indicates *the precision of measurement scores, or how accurately such scores will be reproduced with repeated measurement*. As such, reliability has to do with the extent to which measures are free from random error, and yield constant results.

Coefficient alpha (α) (Cronbach 1951) is the most commonly accepted formula for assessing the internal consistency of a multi-item measurement scale. Computationally, α is given by:

$$\alpha = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum_{i=1}^k \sigma_i^2}{\sigma_T^2} \right)$$

where

k = the number of items in the measurement scale

σ_i^2 = variance of the *i* th item

σ_T^2 = variance of the entire measurement scale

This leads to a second research proposition:

Research Proposition 2:

That, despite features and characteristics that make the particular business' situations unique, instruments with demonstrated reliability used to assess and manage service quality to external customers, should, maintain their reliability in the case of the internal services provider.

Researchers are also interested in the “truthfulness” of their measurements, that is, to what extent is what they “think” they are measuring, “really” what they are measuring. Broadly speaking:

Validity refers to the extent to which differences in observed measurement scores reflect true differences in the characteristic being measured, although, as will be indicated, there are a number of other important facets of validity that bear discussion.

Peter (1981) argues that construct validity is a necessary condition for theory development and testing because construct validity pertains to the degree of correspondence between constructs and their measures. His overview (and the procedure suggested by Churchill, 1979) of construct validity and construct validation have been followed by most marketing researchers in recent years in the development of instruments for the measurement of marketing constructs. Peter indeed argues that reliability is also an operational issue in the

validation of constructs, and along with convergent validity, discriminant validity, and nomological validity are components of what he calls trait validity. Dillon, Madden and Firtle (1987) also suggest that content validity be considered. Any serious attempts at determining and testing the reliability and validity of measuring instruments in marketing should therefore assess these components. These additional validity considerations are described briefly as follows, with particular reference to the subject of this study:

- Content validity is an indication of the representativeness of the content of a measurement scale. It focuses on whether the scale items adequately cover the entire domain of the construct under study. Content validity of the SERVQUAL instrument, for example, should be satisfied by this question: *Does the SERVQUAL scale appear to measure what it is supposed to?*
- Convergent validity, is for purposes of this study a similar component, and is based on the correlation between responses to maximally different measuring methods of measuring the same construct. Convergent validity should be answered by this question: *Does a measure of service quality determined by SERVQUAL correspond with other measures of service quality?*
- Nomological validity refers to an observed relationship between measures purported to assess different (but conceptually related) constructs. If two constructs (C_1 and C_2) are conceptually related evidence that purported measures of each (M_1 and M_2) are related, is usually accepted as empirical support for the conceptual relationship. Nomological validity in the case of the SERVQUAL scale is indicated if, *in a factor analysis, items expected to load together, actually do so.*
- Discriminant validity is an indication of the extent to which the measurement scale is novel, and not simply a reflection of some other variable. Discriminant validity in the case of the SERVQUAL scale is indicated *in a factor analysis, if the factors, and their items, are truly different from one another.*

These issues of validity in the case of the internal measurement of service quality lead us to the definition of the next series of research propositions:

Research Proposition 3:

That, despite features and characteristics that make the particular business situations unique, instruments with demonstrated content validity used to assess and manage service quality to external customers, should, maintain their content validity in the case of the internal services provider.

Research Proposition 4:

That, despite features and characteristics that make the particular business situations unique, instruments with demonstrated convergent validity used to assess and manage service quality to external customers, should, maintain their convergent validity in the case of the internal services provider.

Research Proposition 5:

That, despite features and characteristics that make the particular business situations unique, instruments with demonstrated nomological validity used to assess and manage service quality to external customers, should, maintain their nomological validity in the case of the internal services provider.

Research Proposition 6:

That, despite features and characteristics that make the particular business situations unique, instruments with demonstrated discriminant validity used to assess and manage service quality to external customers, should, maintain their discriminant validity in the case of the internal services provider.

In their rigorous development of the SERVQUAL scale, Parasuraman, Zeithaml and Berry (1988) subjected it to testing for reliability, and for the other dimensions of validity discussed above. In subsequent work in this regard, a number of authors in the major marketing literature (Carman 1990; Babakus and Boller 1991; Brensinger and Lambert 1990; Finn and Lamb 1991; Cronin & Taylor, 1992, 1994; Peter, Churchill & Brown, 1993; Brown, Churchill & Peter, 1993; Teas, 1993, 1993) have examined the reliability

and validity of SERVQUAL under a variety of situations and in a number of industries. This debate has been energetic and productive, leading to responses by Parasuraman, Zeithaml & Berry in the form of a refinement of the SERVQUAL approach (PZB, 1991), and rejoinders (PZB 1993; 1994). While there have been direct attempts to assess the reliability and validity of SERVQUAL both in the case of internal services providers (cf. Kettinger & Lee, 1994; Pitt, Watson and Kavan, 1995), and also in the case of the provision of services in nonprofit organizations (Rigotti and Pitt, 1992), as far as can be ascertained, there have been no attempts to assess these aspects in the case of an internal services provider in a nonprofit setting. Stated simply in other words: Is SERVQUAL a reliable and valid measure of service quality in the case of an internal services department (such as IS, training) within a nonprofit organization (a large charity, a government department, a university)? This is the central problem that this study will attempt to shed light on.

2.3.5 The Effect of Service Situation on the Measurement of Service Quality

Several characteristics of service organizations impact on the organization of work within those organizations. Among the frequently used attributes to characterize service organizations are the shape of the organization and the nature of internal communication, structuring of jobs, the emphasis on continuity in contact with customers, and the means of support for frontline service. Two issues are of interest and importance here. First, there is the fact that internal markets exist within organizations, and that much of what we * know concerning marketing to external customers is relevant to the internal customer. Second, not all organizations have economic profit as their primary objective. While they may strive for a surplus, and for efficiency in achieving this, this is not their ultimate goal - this will generally be found in service, and some notion of "greater good". These issues will be discussed in greater detail in Chapter 3. However, the question to be asked with regard to service quality, then is, "Does its measurement depend on the type of organization?"

In their development of the SERVQUAL instrument, Parasuraman, Zeithaml and Berry (1988) make mention of the fact that it is a generic instrument, as appropriate to the measurement of the service quality of a hotel (be it a 5 star or a 1 star), as to a bank, as to a motor dealer, airline, or primary school. While their original development testing of the instrument indicated it to be reliable and valid across five different kinds (narrow typologies) of organizations, it would seem appropriate to further test it, using another typology, and of course, across a new set of organizations. As will be seen in Chapter 3, this discussion is extended to include the internal service provision department within a large nonprofit organization. If SERVQUAL is truly reliable and valid, it should be reliable and valid for this situation. This leads to the development of the following research propositions:

Research Proposition 7:

That, despite features and characteristics that make the internal service provider within a nonprofit organization unique, service quality is of no lesser importance. Therefore, instruments used to assess and manage service quality should be applicable in all organization types.

Research Proposition 8:

That, despite features and characteristics that make the internal service provider within a nonprofit organization unique, instruments used to assess and manage service quality, and with demonstrated reliability, should maintain their reliability regardless of organization type.

Research Proposition 9:

That, despite features and characteristics that make the internal service provider within a nonprofit organization unique, instruments used to assess and manage service quality, and with construct validity, should maintain their construct validity regardless of organization type.

Research Proposition 10:

That, despite features and characteristics that make the internal service provider within a nonprofit organization unique, instruments used to assess and manage service quality, and with nomological validity, should maintain their nomological validity regardless of organization type.

Research Proposition 11:

That, despite features and characteristics that make the internal service provider within a nonprofit organization unique, instruments used to assess and manage service quality, and with discriminant validity, should maintain their discriminant validity regardless of organization type.

Research Proposition 12:

That, despite features and characteristics that make the internal service provider within a nonprofit organization unique, instruments used to assess and manage service quality, and with convergent validity, should maintain their convergent validity regardless of organization type.

2.4 INTERNAL MARKETS AND INTERNAL MARKETING

Much of the preceding discussion of service quality, and the measurement thereof has at least implied, if not focused on organizations serving external customers. With few exceptions (cf Pitt, Watson and Kavan, 1995; Kettinger and Lee 1994), there has been infrequent focus on the issues concerning service quality in internal markets, or on the measurement of service quality from the perspective of the internal customer - where one department within an organization serves members of another. That is the purpose of this section - to provide an overview of internal marketing.

The relevance of internal marketing (IM) has been a question confronting both managers and academics alike, since it was first alluded to by Sasser and Arbeit (1980) and the term coined by Berry (1980). One major marketing text (Kotler 1991, p.20 is there not a more recent edition of his to refer to?) now asserts that the organization "must carry out IM", as well as external marketing, defining IM as "the task of successfully hiring, training, and

motivating able employees to serve the customer well” emphasising that IM must indeed precede external marketing, as it makes no sense to promise excellent service before the company staff is ready to provide it. A more cynical examination of this perspective, however, might suggest that IM is merely a synonym for good human resources (HR) management: “At first sight this appears to be a massive invasion of the prerogative of the personnel function, and indeed, in many ways it is” (Bateson, 1991: p.270).

More recently Fisk, Brown and Bitner (1993) have identified IM as a specific topic of importance in the services marketing literature. They state that two basic ideas underlie the concept: namely that everyone in the organization has a customer; and that internal customers must be sold on the service and happy in their jobs, before they can effectively serve the final customer. Essentially therefore, marketing tools and concepts might be used just as effectively with employees as internal customers. They argue that IM is an area that has been discussed in the literature, but not one that has been given great research attention.

Surprisingly, extensive literature searches reveal that until recently nothing specific or substantial has been published on the subject of IM in the last twenty years in any of the major journals in the field of marketing. This includes the *Journal of Marketing*, the *Journal of Marketing Research*, and the *Journal of Consumer Research*, regarded by most students of marketing as leading publications of the discipline (Gordon and Heischmidt 1992).

Indeed, scholars outside of the marketing discipline than have given more attention to IM than those within it. Perhaps this is because marketing in its boundary spanning role is more externally focused - however, the fact remains that IM appears to be more of a reality for disciplines such as human resources (HR) and operations management (OM), which by definition need to concentrate more on internal issues. Much of the research attention given by scholars to the problem of ensuring that service employees devote attention to delivering service quality to customers has emerged from the HR literature. For example,

Komaki, Waddell and Pearce (1977) investigated service behaviours of grocery clerks and the impact on customer waiting time; Luthans, Paul and Baker (1981) examined the effects of positive rewards systems on the service provided by retail sales clerks; Dierks and McNally (1987) assessed the effects of reward systems on the service behaviour of frontline bank employees.

Similarly, the nature of customer-organization interface and its demands on the service employee has also received considerable attention in the OM literature, where the notion of an "internal customer" is well established. Thus, in the case of complex service delivery systems, care is taken to ensure not only clear routine within tasks, but also the smooth linking of tasks and/or departments (Riddle, 1990). This internal service orientation requires that employees and departments view each other as "customers" in order to enhance "integrative" service quality (Lehtinen and Lehtinen, 1982; Riddle, 1988). Because of the well-documented characteristic of services being produced and consumed simultaneously, it is also not possible to separate marketing cleanly from production. This facet has probably received more attention in the OM literature: the organization is frequently left with no alternative but to ration services, so that the customer must accommodate the service system (Mills and Moberg, 1982).

2.4.1 Internal Marketing - Some Perspectives

Many proponents of IM follow Berry's (1980) original viewpoint, firstly by emphasising its relevance to service firms in particular; and in general, by seeing the employee as an internal customer (see also Berry, 1981), who is an important party in delivering satisfaction to external customers, and whose support of overall marketing strategy is essential if this is to succeed (cf. Piercy and Morgan 1991). Much of the early empirical work in this regard did not have a specific marketing thrust - one study stressed behavioral management techniques in an effort to influence the conduct of employees towards customers - nevertheless, it relied on the development of cognitive skills and attempted to use surveys of both employees and customers to assess success (Cooper and Oddie, 1972). A similar approach was followed by Snyder and Luthans (1982) in their attempts to

measure, influence and modify service behavior of hospital personnel through performance feedback, recognition and praise to increase both the quantity and quality of targeted service behaviors. Nyquist, Bitner, and Booms (1985) and Gremler, Bitner and Evans (1994) particularly emphasise the role of front-line service personnel, while Vandermerwe and Gilbert (1991) identify the need-performance gap in the delivery of internal services and prescribe remedies for increasing effectiveness and reducing the gap. All of these arguments rest on the realistic assumptions and observations, that many organizations (especially service firms) interact with employees in a way similar to that in which they transact with external customers.

The nature of the interaction rests on a degree of participation by these employees in the management, operations, and delivery of the firm's activities and offerings - or else, how could firms function?

The ideas that IM has most relevance to service firms, and that all employees are internal customers who must deliver excellent service to external customers to support overall strategy, are the most prominent views on IM. Yet they are somewhat limiting. First, for the concept to be truly useful to marketers, it should find application beyond the borders of service firms, and into manufacturing as well - there is evidence that this has occurred (cf. Gummesson 1987; Harrell and Fors 1992). Second, the topic has also had broader application and attention in the management literature - IM is not only seen as something that the firm (in totality) does to its employees (in totality). There is much evidence that IM is frequently not performed by the whole firm, but by departments, groups or functions within it. Similarly, the majority of employees are frequently not the target of IM efforts - rather, only one department, group or function might be focused on and marketed to. An examination of the literature on IM over the past fifteen years supports this view.

This perspective also enabled the construction of a simple grid (Pitt and Foreman, 1999), shown in Figure 2.5 that both allows a more detailed examination of IM and suggests the need for more precise definition. There are two axes, which answer two broad questions.

Firstly, who is the internal marketer? (the entire organization or a department within it). Secondly, who is the IM effort aimed at? (all employees; or, a specific group, function or department within the organization). As can be seen from Figure 2.5, if internal marketers and the employer-employee transaction are viewed in this way, then four different types of IM can be identified; for the sake of convenience these are labelled Type I, Type II, Type III and Type IV. Furthermore, the extant literature on the subject reveals the construct of IM viewed as each of these, depending on the author(s), and the situation. In the figure, perspectives on each of the four types of IM provided by the literature are also illustrated.

Type I and III internal marketing is of most relevance to the research to be conducted here, and so therefore merit most discussion. This is because the IT department in organizations can serve another department or function specifically (e.g. marketing, perhaps in the form of a customer transaction database), or indeed, the whole organization (such as providing a PC helpdesk).

2.5 SUMMARY

This chapter has considered theory in three areas, namely services marketing, with particular reference to service quality as a major strategy for differentiation; service quality and its measurement, with particular reference to the development and use of valid, reliable instruments for measurement; and, the situation within internal markets in nonprofit organizations. Specifically, the literature review has concentrated on service quality and its importance, and on the measurement of service quality. The review has also considered the relevance of service quality measurement in an internal market, thus a review of the literature on internal marketing was conducted.

Figure 2.5 Perspectives on Internal Marketing

Who is the focus of IM? Who performs IM?	DEPARTMENT	ORGANIZATION
ORGANIZATION	<p>TYPE II IM</p> <ul style="list-style-type: none"> intention: that this group will engage in behavior that supports or enhances some organizational initiative. Bream et al (1992): IM by a group of hospitals, of a strong positive image of nursing to their nurses coupled with incentives, to lessen the organization's reliance on agency nurses. Female employees with young children may be targeted by organizations, who offer infant care services to them; one large insurance company has begun to offer frail care to elderly dependants of employees (Comm 1989). 	<p>TYPE IV IM</p> <ul style="list-style-type: none"> has received most attention in the literature (cf. Berry 1980) (employees as customers, jobs as products) Kotler (1991) (marketing concept requires IM for external marketing success). George (1990): IM is the best approach for establishing a service orientation as an organizational imperative. Tansuhaj et al. (1987); Richardson and Robinson (1986): significant empirical support for the strong relationship between IM and consumer satisfaction. IM used to develop and maintain a service culture, to introduce new products and new marketing activities (see also Lewis 1989; Tansuhaj et al. 1988; Hartley and Lee 1986). Grönroos (1990): the focus of IM should be on how to obtain and retain customer-conscious employees. tools of external marketing - marketing research (cf. Gelb and Gelb, 1991), market segmentation/targeting, the "four P's", are also relevant to the internal customers of organizations - employees. Berry et al. (1991): employees are one of the key respondent groups from whom data should be gathered in a services marketing audit; IM listed as a dimension of their framework.
DEPARTMENT	<p>TYPE I IM</p> <ul style="list-style-type: none"> Gombeski et al. (1992) describe peer reviews by hospital physicians within various medical disciplines. Intended originally as a quality improvement technique, it has become an IM tool for different specializations - e.g. anaesthesia to surgery, radiography to orthopaedics. Obenshain (1992): how the development of an IM plan enabled a MIS department to focus its efforts on the sales department in a large financial services organization. Stokes and Lawrimore (1990): the use of IM techniques by accountants to gain the support of top management for a new system. 	<p>TYPE III IM</p> <ul style="list-style-type: none"> typically practised by service/staff functions within organizations, such as HR and MIS. better marketing of information technology services by MIS departments to the rest of the organization (Burgetz 1991; Emmett 1991; Yates-Mercer and Steward 1991; Trumbly and Arnold 1989; Watson et al. 1993). HR has also started to adopt many of the tools of marketing to enhance relationships with the rest of the organization. IM by HR departments of direct deposit of payroll (Masonson 1992; to enhance the status and visibility of HR (Collins and Payne 1991; Schuler and Jackson 1988). IM by a legal firm's law library to the rest of the firm (Shimpock-Vieweg 1991).

A literature review should not merely “reiterate” what is in the literature. It should tell us what we know about a phenomenon, from previous research, and just as importantly, what we don’t know (Pitt, 1996). From this perspective, the literature confirms the importance

of service quality, and the general applicability of the SERVQUAL instrument in the measurement thereof. There is less evidence in the literature of the reliability and validity of the instrument in the measurement of service quality to internal customers, particularly in the setting of a nonprofit organization. It is this gap in the literature that this work seeks to address.

The chapter has provided the theoretical foundations for the development of the hypotheses to be tested in the study. Research propositions were developed based on the relevant literature, and these will be used to model and form more specific hypotheses in Chapter 3.

CHAPTER 3

APPLICABILITY OF THE SERVQUAL INSTRUMENT IN AN INTERNAL MARKET WITHIN A NONPROFIT ORGANIZATION

3.0 INTRODUCTION

This chapter focuses on a statement of the problem, and the subsequent formulation of the hypotheses to be tested in this study. The problem and hypotheses are [and will be] based in the literature, and a rationale for each will be given. Chapter 1 introduced the study and clarified key concepts, such as the characteristics of service, service quality, service quality measurement, internal marketing and nonprofit organization. Chapter 2 provided the theoretical foundations for the development of the hypotheses to be tested in the study, which is grounded in theory concerning four areas, namely services marketing, with particular reference to service quality as a major strategy for differentiation; service quality and its measurement, with particular reference to the development of valid, reliable instruments for measurement; internal markets; and, nonprofit organizations. Broad research propositions were also formulated, which will enable the formulation of specific research hypotheses in this chapter. Chapter 3 reviewed the applicable literature, with a focus on four areas: services marketing and service quality; the measurement of behavioural constructs in marketing and in particular, the measurement of service quality; internal markets and the need for internal marketing; and, a brief examination of the unique nature of nonprofit firms. The preceding chapters form the basis for problem formulation and the subsequent generation of hypotheses, which is the main objective of this chapter.

The development of the study up to this point, should, to a major extent, have answered the following questions, suggested as some to be addressed by Dillon, Madden and Firtle [1987]. *What has been learned of the situation?* The situation has been introduced, and grounded in appropriate theory. Furthermore, relevant literature regarding the situation has been reviewed and evaluated. *What assumptions are being used?* The major assumptions of the study are, first, that the SERVQUAL instrument [Parasuraman, Zeithaml and Berry 1988; 1991] is an appropriate instrument for the measurement of service quality, and moreover that it is a major development in the

field. Second, that the setting of internal markets within nonprofit organizations is an appropriate one, and deserving of further consideration. Thirdly, that it is possible to conduct service quality research under various conditions and circumstances. *Are the assumptions reasonable?* The first assumption is reasonable in that the instrument under examination has followed a rigorous process of development, as reported in reputable journals; has been widely cited; and, that it has formed the focus of other major research projects, as reported in the scholarly literature. Similarly the second assumption is deemed reasonable in that students of internal marketing and nonprofit organizations have examined preceding approaches, critically and in great detail, and have commented appropriately on the unique problems and assumptions. The third assumption has not received the same degree of scrutiny as the first two - unless this study shows otherwise it is therefore reasonable to assume that it is possible to conduct service quality research within internal markets in nonprofit organizations. *If the assumptions turn out to be unrealistic how does this affect what is to be expected?* If the first two assumptions turn out to be unrealistic (which, at the risk of pre-empting research, is unlikely) additional light may be thrown on current major theory. If the third assumption turns out to be unrealistic, major alterations will be needed to existing, internationally accepted approaches to the measurement of service quality if they are to be set appropriately within internal markets in nonprofit organizations. *How precise does the information need to be?* Obviously, a study of this nature requires a high degree of rigour in approach, data-gathering, data analysis, and presentation. However, it should be borne in mind that the nature of the research does not really permit, or warrant, perfectly precise measurement. The focus of analysis is the *expectations* and *perceptions* of many human beings, and the ultimate purpose is managerial insight. While analysis to six decimal places is perhaps appropriate in the physical sciences, it is possible, but not necessarily relevant, here.

3.1 FORMULATION OF HYPOTHESES

Based on the theoretical foundations presented in and substantiated by the literature review in Chapter 2, it is now possible to formulate specific null hypotheses to be tested in this study. These hypotheses are grounded in the research propositions developed in Chapter 2. The hypotheses to be addressed in this study can be broadly categorized into

two groups: First, those with specific reference to the application of the SERVQUAL instrument in internal markets; and, second, those pertaining to the application of the SERVQUAL instrument in nonprofit organizations.

3.1.1 Hypotheses regarding the applicability of the SERVQUAL instrument in internal markets

Five specific, and one general hypothesis regarding the applicability of the SERVQUAL instrument in an internal market are developed, following the research propositions generated in Chapter 2. These are summarised and schematised in the model presented in Figure 3.1. As will be seen in Figure 3.1, the specific hypotheses to be tested in this study are:

H₀₁: SERVQUAL will maintain its reliability in an internal market

H_{03.1}: SERVQUAL will maintain construct validity in an internal market

H_{04.1}: SERVQUAL will maintain convergent validity in an internal market

H_{05.1}: SERVQUAL will maintain nomological validity in an internal market

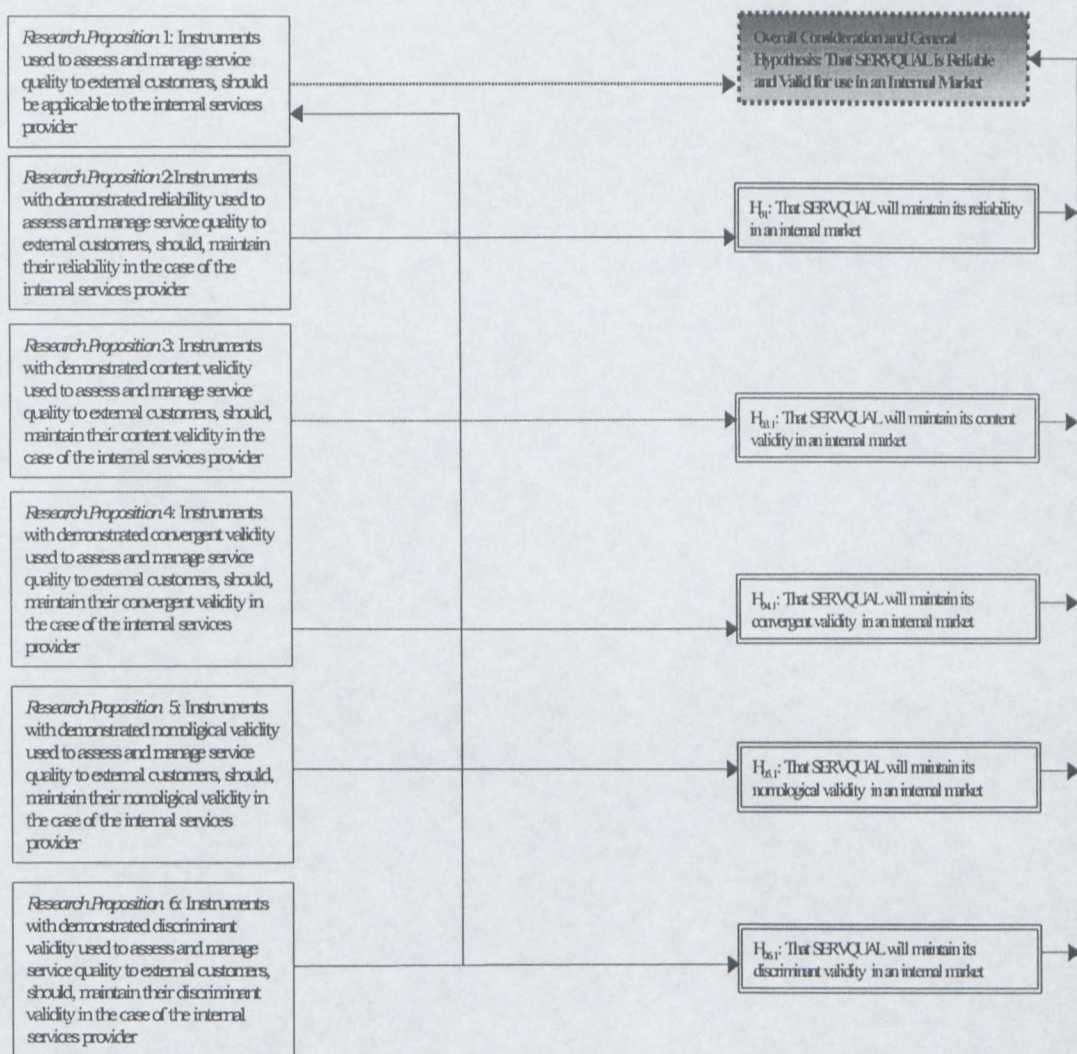
H_{06.1}: SERVQUAL will maintain discriminant validity in an internal market

Leading from hypotheses 01, 03.1, 04.1, 05.1, and 06.1 is the overall consideration and general hypothesis that the SERVQUAL instrument is reliable and valid for use in an internal market. Obviously this hypothesis is not as technically testable as are the other five, but is, rather, dependent on acceptance or rejection of the other hypotheses for its own acceptance or rejection. More subjective, rules-of-thumb might apply: if the SERVQUAL instrument is shown to be reliable (as evidenced by high coefficient alphas [Cronbach 1951], and valid in at least 3 of the 4 dimensions of validity, then it (the general hypothesis) can be accepted.

3.1.2. Hypotheses regarding the applicability of the SERVQUAL instrument in nonprofit organizations.

Five specific, and one general hypothesis regarding the applicability of the SERVQUAL instrument in internal markets in nonprofit organizations are developed, following the research propositions generated in Chapter 2. These are summarised and schematised in the model presented in Figure 3.2.

Figure 3.1 Research Propositions Leading to Hypotheses regarding the applicability of the SERVQUAL instrument in an Internal Market



As will be seen in Figure 3.2, the specific hypotheses to be tested in this study are:

H₀₂: SERVQUAL will maintain its reliability in internal markets within nonprofit organizations

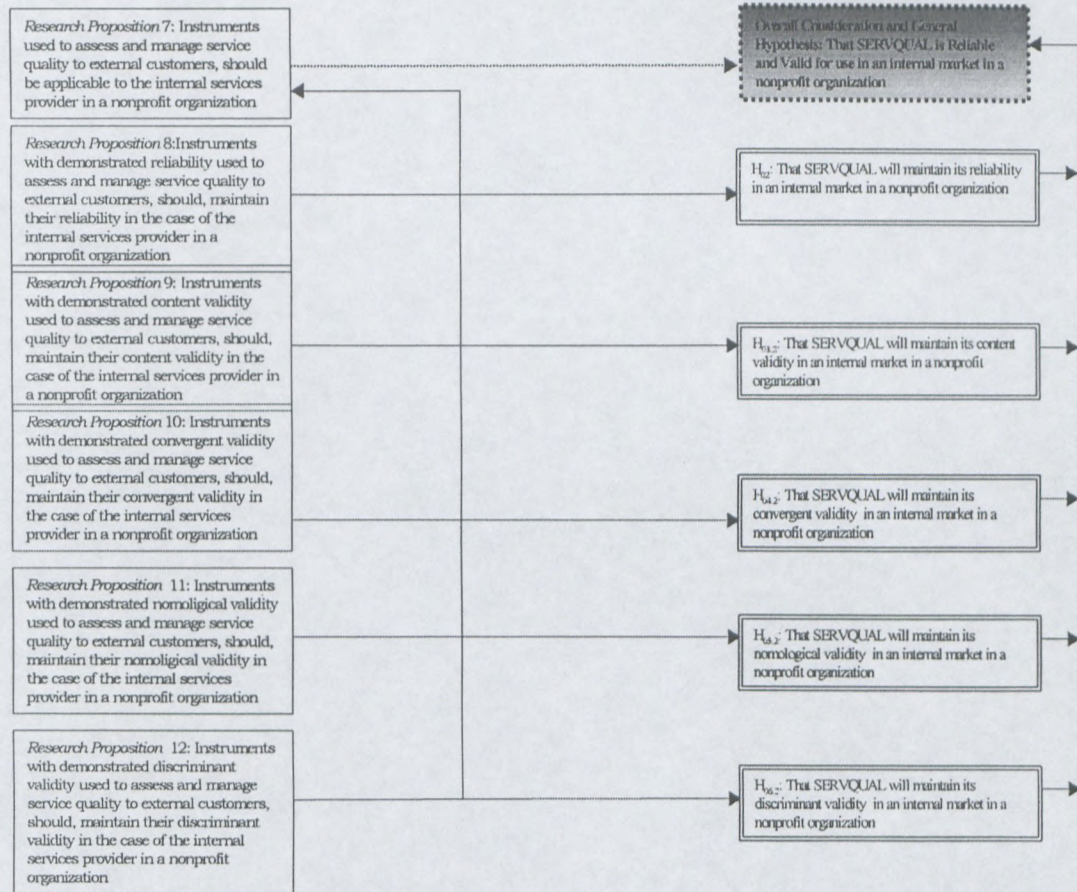
H_{03.2}: SERVQUAL will maintain construct validity in internal markets within nonprofit organizations

H_{04.2}: SERVQUAL will maintain convergent validity in internal markets within nonprofit organizations

H_{05.2}: SERVQUAL will maintain nomological validity in internal markets within nonprofit organizations

H_{06.2}: SERVQUAL will maintain discriminant validity in internal markets within nonprofit organizations

Figure 3.2: Research Propositions Leading to Hypotheses regarding the applicability of the SERVQUAL instrument in internal markets within nonprofit organizations.



Leading from hypotheses 02, 03.2, 04.2, 05.2, and 06.2 is the overall consideration and general hypothesis that the SERVQUAL instrument is reliable and valid for use in service organizations within internal markets in a nonprofit organization. Obviously this hypothesis is not as technically testable as are the other five, but is, rather, dependent on acceptance or rejection of the other hypotheses for its own acceptance or rejection. More subjective, rules-of-thumb might apply: if the SERVQUAL instrument is shown to be reliable (as evidenced by high coefficient alphas [Cronbach 1951], and valid in at least 3 of 4 dimensions of validity, then it (the general hypothesis) can be accepted.

3.2 SUMMARY

In this chapter problem formulation in general, and more specifically, the generation of hypotheses, have been addressed. These hypotheses have been developed from the research propositions formulated in Chapter 2. They cover specifically, aspects of the reliability; and, construct, nomological, discriminant and convergent validity of the SERVQUAL instrument. The hypotheses address the two broad areas of the study, namely the SERVQUAL instrument in internal markets, and its applicability specifically in nonprofit organizations.

CHAPTER 4

RESEARCH STUDY OBJECTIVES, DESIGN AND METHODOLOGY

4.0 INTRODUCTION

This chapter will describe the research design, approach and methodology used in the study and the rationale(s) behind it. It gives a detailed exposition of the sampling approach used and the justification for this. It also describes the use of the SERVQUAL instrument in the study, and the changes made to the original instrument for application under the particular conditions of the study. A brief description of the relevant statistical techniques used in the study, such as reliability computation using coefficient alpha (Cronbach 1951), multiple regression, and factor analysis is provided, and the rudiments behind their application in the study provided.

4.1 OBJECTIVES OF THE STUDY

The objectives of this study, derived from the hypotheses formulated in Chapter 3, are broadly two-fold:

- ◆ First, this study has the objective of determining the applicability, reliability and validity of the SERVQUAL (Parasuraman, Zeithaml and Berry 1988) instrument for the measurement of service quality in internal markets.
- ◆ Second, this study has the objective of determining the applicability, reliability and validity of the SERVQUAL (Parasuraman, Zeithaml and Berry 1988) instrument for the measurement of service quality within internal markets in nonprofit organisations. Within the context of validity of the instrument, the study also has the objectives of assessing the construct, nomological, convergent and discriminant validities of the SERVQUAL instrument under these conditions.

4.1.1 Selection of an Internal Market within a Nonprofit Organisation

The setting chosen for this study is the internal department that satisfies the needs for various types of technology within a large national Police Force. This research environment was chosen for a number of good academic and practical reasons: First, the organization

relies heavily on information technology to support its work, so the services of the internal marketer are well-known to all customers. Second, these customers rely not only on the products of the internal marketer to do their work, but in many cases to save lives, including their own. Third, the government is now beginning to mandate market testing, so that the services of an organization such as this internal marketer are under scrutiny and are evaluated for possible outsourcing. Fourth, a national police force is an excellent example of a nonprofit organization, as it is one of the few government activities that cannot be easily privatised. Fifth, the organization wished to conduct the research as it was deemed important and the organization was willing to help conduct it and fund it. This department, known within the organisation as the Department of Technology (henceforth to be referred to as DoT), staffed by nearly 3000 individuals, supplies technology to the rest of the organization, including general and specialised vehicles, radio and telecommunications equipment, and information systems technology of all types. It serves the needs of both active police officers and general administrative staff. Its operating budget in 1998 exceeded £4.8Bn (Sterling), and its "customer" base exceeded 13000 users. In recent years government has intimated market testing, and has suggested that many of the functions currently performed by the DoT may in future be outsourced. There is therefore a strong incentive to provide service of a nature that is highly regarded by customers, as this may prove to be the only sustainable advantage in a competitive market situation. □

4.2 GENERAL AND SPECIFIC RESEARCH METHODOLOGY

One of the most fundamental requirements of good science is that the results of scientific endeavour should be replicable. In simple terms, it should be possible for the results of a particular piece of scientific research to be replicated under similar or controllably different circumstances. Yet, the field of marketing is not replete with examples of replication. For example Hubbard and Armstrong (1994) found that from 1,120 papers sampled from three major marketing journals, none were replications. This is somewhat surprising given that Rosenthal and Rosnow (1984) argue that replicability is almost universally accepted as the most important criterion of genuine scientific knowledge. Their view is widely echoed (e.g. Epstein, 1980; Collins, 1985; Ehrenberg, 1990; Barwise, 1995). As Easley, Madden

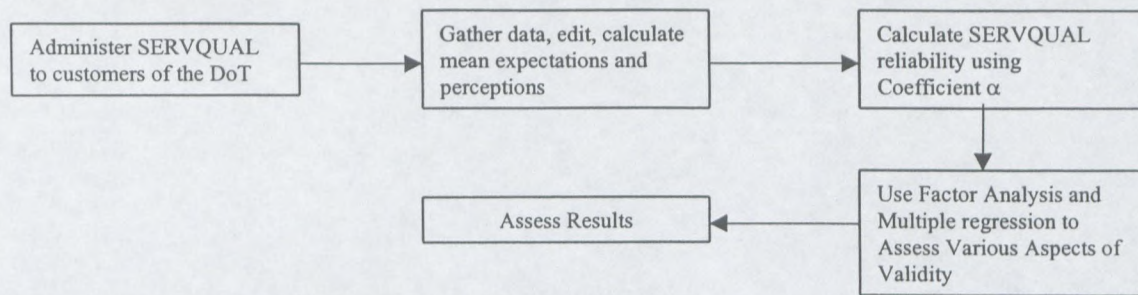
and Dunn (1994, 432) put it, "Research is not only a creative process, it is a discipline. Some concertos are best understood by being played more than once".

Replications of original studies are acceptable vehicles for the establishment of reliability and validity of instruments - that is essentially what this study is about. In generally similar ways, it replicates the original development process of the SERVQUAL questionnaire (Parasuraman, Zeithaml and Berry 1988), by testing the SERVQUAL instrument within an internal market in a nonprofit organization. Although this study essentially replicates the development of the SERVQUAL questionnaire, it should be noted that this study was not conducted in exactly the same way, nor is the data analysed, or presented, in exactly the same way as the original SERVQUAL work. As Brown and Gaulden (1984) point out, this is indeed acceptable practice in research, and frequently adds valuable insights if replication is to add to the development of theory. It is not absolutely essential that replications of studies be clones of those studies. Furthermore, presenting intrinsically equivalent results in different ways hopefully adds richness both to discussion and future developments in the particular research field.

The general methodology employed in this study is presented in Figure 4.1. Essentially the study required the administration of the SERVQUAL instrument, suitably amended, to customers of the internal services marketer within the organization identified in 4.1.1 above. The amendments were relatively minor, and simply revolved around the changes to the name of the organization, as is done in most SERVQUAL studies.

Data was gathered, edited, and the appropriate descriptive statistics calculated. Reliability was ascertained using the coefficient alpha (Cronbach 1951), and also by means of the approaches suggested by Brown et al (1993). Then factor analysis and multiple regression was used to assess various aspects of validity.

Figure 4.1 Schematic Representation of General Research Methodology



4.2.1 The Research Methodology Approach

Suitably amended SERVQUAL questionnaires were distributed to a sample of various users of the services of DoT, with amendments as appropriate to the particular kind of service business - as previously mentioned, mainly with regard to wording of the perceptions statements. The SERVQUAL questionnaire used is shown as Appendix 2 at the end of this document, and follows the suggestions for the use of the SERVQUAL instrument in an IS setting by Pitt, Watson and Kavan (1995) Respondents were also required to rate the overall quality of service on a four-point scale (poor, fair, good, excellent) - an approach which has been followed in all the published SERVQUAL work.

Questionnaires were accompanied by a letter from the Director of the DoT, explaining the purpose of the research, assuring respondents of anonymity, and thanking them in advance for their co-operation. This letter is shown as Appendix 1 at the end of this dissertation (for purposes of security requested by the research sponsor, the letterhead has been omitted.) The research contact method employed was therefor a self-administered mail survey.

Questionnaires with instructions on their completion were distributed by means of the internal mailing system to a suitable sample selected at random by using all surnames beginning with C from the computerised list of all users. The letter "C" was itself chosen by means of a completely random computerised selection procedure, which *a priori* eliminated surnames beginning with the letters Q, U, X, Y and Z because so few surnames in English speaking countries begin with these letters. Respondents were requested to complete the questionnaires, and to return them using the internal mailing system. There were 869

surnames beginning with C on the internal mailing list, and to achieve blanket coverage, all these were mailed. A total of 356 questionnaires were returned, for an overall response rate of 40.96%. Editing resulted in the elimination of 27 questionnaires, either for incompleteness, or because respondents indicated that they did not use any computing services from the DoT, or that they were too new to have enough experience of the service. This left 329 usable questionnaires, for an effective response rate of 37.85% and a sampling error margin of just below 4%. This compares favourably with one of the three studies by Pitt, Watson and Kavan (1995), but less favourably with two of the others.

4.3 STATISTICAL METHODS USED

The assessment of reliability and validity of an instrument such as the SERVQUAL questionnaire requires the use of a number of statistical techniques apart from the simple calculation of means, and gap scores. Typically, in any study that is replicative in nature, such as this one, extensive use is made of the same techniques employed by the developers of the instrument in their original work. Thus, it is necessary to utilise calculations of coefficient Alpha (Cronbach 1951); multiple regression and factor analysis, all of which are standard procedures under the SPSS for Windows 95 package) (SPSS 1996) computer package which was used to process the data gathered in this study. Also, in order to illustrate the descriptive statistics, the statistical package JMP for Windows 95 was used. These techniques are explained briefly.

4.3.1 Coefficient Alpha (Cronbach 1951)

Most approaches towards the assessment of reliability of instruments involve the determination of systematic variation in measurement scales. These methods involve a determination of the association between scores obtained from two scales, where one is a similar replicated version of the other. If the association between the scores derived from the two scales is high, the scales are consistent in yielding the same results, and are therefore reliable. In modern social sciences research, most emphasis has been placed on the assessment of internal consistency reliability, where item scores obtained from administering the scale are in some way split in half and the resulting half scores are

correlated. Large correlations between split-halves indicate high internal consistency. Coefficient Alpha (α) was originally proposed by the psychometrician Lee Cronbach (1951), and is today the most commonly used approach for assessing the internal consistency of multi-item measurement scales. Cronbach's alpha is a mean reliability coefficient calculated from all possible split-half partitions of a measurement scale (Dillon, Maddon and Firtle 1987). Some of the relevant theory behind coefficient alpha has already been referred to in Chapter 2. Again, the formula is:

$$\alpha = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum_i^k \sigma_i^2}{\sigma_T^2} \right)$$

where

k = the number of items in the measurement scale

σ_i^2 = variance of the i th item

σ_T^2 = variance of the entire measurement scale

Coefficient alpha is calculated as part of the scale routines under SPSS for Windows 95. In this study the primary purpose of the calculation of the coefficient Alpha is to determine the internal consistency of the SERVQUAL questionnaire overall, by dimension, and by individual item.

Most researchers have used the standard formula for the calculation of coefficient alpha (Cronbach, 1951), to calculate the reliability coefficients for the SERVQUAL dimensions. However, Brown et al. (1993), who in turn cite Johns (1981), argue that this may be inappropriate. The real question is of course, whether the effect of this is serious?

Brown et al. correctly state that the reliability of a scale operationalized as the difference between two measures will be low to the extent that: (a) the correlation between the component measures is high (in this instance, perceptions and expectations) and (b) the

reliabilities of the component measures (perceptions and expectations) is low. PZB (1993) argue strongly (and demonstrate with Brown et al.'s data) that these conditions (a) and (b) are not likely to be serious problems in the case of SERVQUAL however, where the construct G is operationalized as P-E. Nevertheless, it was deemed appropriate for this research to determine whether there would be an effect.

According to Johns (1981), the correct formula for calculating the reliability of a difference score (r_D) is:

$$r_D = \frac{-1^2 r_{11} + -2^2 r_{22} - 2r_{12-1-2}}{-1^2 + -2^2 - 2r_{12-1-2}}$$

where r_{11} and r_{22} are the reliabilities of the two component scores, -1^2 and -2^2 are the variances of the component scores, and r_{12} is the correlation between the component scores. As an alternative, this approach was also followed.

4.3.2 Multiple Regression

Although some methods in statistics concern a single variable, problems involving several variables often occur. The terms correlation and regression refer to relationships among several variables. Both terms, but especially regression, also describe the statistical methods used to study such relationships. When two social, physical, or biological phenomena increase or decrease proportionately and simultaneously because of identical external factors, the phenomena are said to be positively correlated. If one increases in the same proportion that the other decreases, the two phenomena are negatively correlated. Investigators calculate the degree of correlation by applying a coefficient of correlation to data concerning the two phenomena.

A perfect positive correlation between the two variables results in a coefficient of +1, a perfect negative correlation in a coefficient of -1, and a total absence of correlation in a coefficient of 0. Thus, for example 0.89 indicates high positive correlation, -0.76 high negative correlation, and .013 low positive correlation. A multiple correlation is a

correlation between one variable and a set of other variables. The technique for investigating such a relationship is called multiple regression analysis.

Regression analysis is a statistical technique for investigating the relationship between a response variable (the dependent variable) and one or more explanatory, or independent, variables. Used to predict the behaviour of the dependent variable from given values of the independent variables, it proceeds by (1) stating the form of a model linking the variables, (2) fitting this model to the data, (3) assessing whether the model fits well enough to be useful, and, if it does, (4) using the fitted model for prediction and other purposes (see Draper and Smith, 1977; Ezekiel 1988; Neter and Wasserman 1983).

Frequently the researcher needs to establish the extent of association between two variables. In many marketing studies today, the emphasis is on the extent to which variation in one variable (the dependent, or criterion variable) is caused by the variation in one or more independent, or predictor variables. In cases where the criterion variable is at least ordinally scaled, one or other multiple regression technique is used to establish the association. Typically multiple regression formulae are written in the following form:

$$y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_r X_{ri} + \varepsilon_i$$

Where

y_i = i th response for the criterion variable

X_{1i} = i th response for the first independent variable

X_{2i} = i th response for the second independent variable

X_{ri} = i th response for the independent variable

β_0 = model intercept

β_1 = regression intercept coefficient for variable 1

β_2 = regression intercept coefficient for variable 2

β_r = regression coefficient for variable r

ε_i = i th residual

The coefficient of multiple determination, R^2 reported by most computerised statistical packages represents the proportion of variation in the dependent variable explained by the set of independent variables.

In the study presented here, multiple regression analysis was undertaken, where necessary, by using the SPSS for Windows 95 package, and in some instances, in order to illustrate the results graphically, using JMP for Windows 95. The primary purpose of multiple regression analysis was to assess aspects of validity of the SERVQUAL questionnaire overall, by dimension, and by individual item, within the appropriate service organization, using the overall assessment of service quality required of respondents in each case as the criterion variable.

4.3.3 Factor Analysis

Factor analysis is a statistical method that attempts to explain the interdependence among a set of response variables in terms of the common dependence of these variables on a smaller number of unobservable common factors. Since the number of common factors needed to account for the dependence observed in the response variables is rarely known in advance, it is usual first to assume the existence of a small number of factors, gradually increasing the number of factors assumed until the data are adequately explained. Unfortunately, it is then difficult to give clear interpretations to the resulting common factors. For these and other reasons, the results of factor analysis are rarely more than suggestive.

Factor Analysis is a linear reduction technique that assumes a specified model that implies a reduced form of the input matrix. In other words, the factor analytic model presumes the existence of a smaller set of factors that can produce exactly the correlation in the larger set of variables. The basic model in factor analysis is expressed by

$$X = \Lambda f + E$$

where

X = p -dimensional vector of observed responses

Λ = $p \times q$ matrix of unknown constants called factor loadings

f = q -dimensional vector of unobservable variables called common factors

E = p -dimensional vector of unobservable variables called unique factors

The assumption is that the variance-covariance matrix of E is a diagonal matrix Φ with entries Φ_{ii}^2 ; and that all the covariances between E and f are zero. Another assumption of factor analysis is that alternative solutions are possible and may be just as valid. The rotational analysis of factors allows the researcher a degree of flexibility by presenting a multiplicity of views of the same data set in order to aid interpretation. Various computer packages for factor analysis provide a range of rotational procedures. Factor analysis is used frequently to assess the various aspects of validity of measurement instruments in the social sciences. The primary purpose of factor analysis in this study will be to assess aspects of validity of the SERVQUAL questionnaire overall, by dimension, and by individual item.

One of the issues facing the researcher using factor analysis is that of how many factors to extract. There are a number of rules of thumb for this. A commonly used rule of thumb is to extract all factors with an Eigenvalue of at least 1 - this is also known as the "MINEIGEN" criterion. This was the rule used for factor extraction in the original SERVQUAL development study (Parasuraman, Zeithaml and Berry 1988), and consequently obviously it will be the rule used in the study under discussion.

4.4 SUMMARY

This chapter has presented the research objectives, design and, methodology followed in the empirical study. The objectives of the study were essentially to assess the reliability of the SERVQUAL questionnaire in the case of an internal market, specifically in a nonprofit

organization. The general methodology was extensively outlined. Finally, brief descriptions of the three main statistical techniques used in this study, namely coefficient Alpha (Cronbach 1951), multiple regression, and factor analysis, have also been given. The conclusion was made that testing the internal validity of the SERVQUAL questionnaire in a study of replicative nature such as this, is of critical importance.

CHAPTER 5

RESEARCH RESULTS, DATA ANALYSIS AND INTERPRETATION

5.0 INTRODUCTION

In this chapter, the results of the empirical study are presented, the data is analysed and presented, and the hypotheses tested and either confirmed or rejected. First, the descriptive data regarding expectations, perceptions and the service quality gap is presented in descriptive form. Then the reliability of the items in the SERVQUAL scale is determined and reported on. Next, the hypotheses regarding the construct, convergent, nomological and discriminant validities of SERVQUAL are tested using multiple regression and factor analysis procedures. Finally the chapter concludes with a summary of the major empirical findings of the study.

5.1 DESCRIPTIVE STATISTICS

In this section the descriptive statistics in terms of mean and standard deviation for the expectations, perceptions and gaps items in the SERVQUAL instrument will be presented, and the mean values for the service quality dimensions and the overall service quality index are presented.

5.1.1 Expectation Items

The mean and standard deviations of the expectations items are presented in Table 5.1. As can be seen from the table, the highest expectations are on items capturing the dimensions of responsiveness (particularly items 1 and 2), and reliability (particularly items 6 and 8). The lowest expectations are on items capturing the tangibles dimension -, items 10 through 13. When it is remembered that SERVQUAL in the research utilized a 9-point scale, it can be seen that the expectations on the reliability items (5 to 9) are generally high (at times exceeding 8), while those on the tangibles dimension (10 to 13) are generally lower. This is generally in line with the research of PZB (cf. 1993), and other reported research both in the IS literature (e.g. Pitt, Watson and Kavan, 1995) and in the general management literature (e.g., Nel and Pitt, 1993)

Table 5.1 Expectations Items – Means and Standard Deviations

Item	Mean	Standard Deviation
1. The excellent IS department tells users exactly when services will be performed	8.0183	1.5483
2. The excellent IS department's employees give prompt service to users	8.0488	1.4263
3. The excellent IS department's employees are always willing to help users	7.7927	1.5304
4. The excellent IS department's employees are never too busy to respond to users' requests	7.1311	1.8369
5. When an excellent IS department promises to do something by a certain time, it does so	7.7073	1.7399
6. When users have a problem, an excellent IS department shows a sincere interest in solving it	7.8689	1.5713
7. An excellent IS department is dependable	7.3598	1.7571
8. An excellent IS department provides its services at the times it promises to do so	7.7835	1.5774
9. An excellent IS department insists on error-free records	7.4421	1.5630
10. An excellent IS department has up-to-date hardware and software	6.0335	1.9017
11. An excellent IS department's physical facilities are visually appealing	7.0488	1.7724
12. A excellent IS department's employees are well dressed and neat in appearance	6.6585	1.7185
13. The appearance of the physical facilities of an excellent IS department is in keeping with the kind of services provided	6.5152	1.7609
14. The behavior of an excellent IS department's employees instills confidence in users	7.7561	1.3529
15. Users will feel safe in their transactions with an excellent IS department's employees	7.7317	1.3091
16. An excellent IS department's employees are consistently courteous with users	7.6921	1.4672
17. An excellent IS department's employees have the knowledge to do their job well	7.7896	1.4319
18. An excellent IS department gives users individual attention	7.3902	1.5504
19. An excellent IS department has operating hours convenient to all its users	7.5976	1.7231
20. An excellent IS department has employees who give users personal attention	7.3079	1.5738

21. An excellent IS department has the users' best interests at heart	7.7561	1.5528
22. Employees of an excellent IS department understand the specific needs of its users	7.7104	1.5018

5.1.2 Perception Items

The mean and standard deviations of the perceptions items are presented in Table 5.2. In this case the lowest perceptions are on items capturing the dimensions of reliability (particularly item 7 - "the IS department is dependable"), and the highest perceptions tend to be on items capturing the dimension of assurance (items 14 through 17). In contrast to the expectations items, where the respondents generally used "less" of the scale, here they tend to use more of it (viz. the generally higher standard deviations), and they also tend to have lower perceptions. Again, this is generally in line with the research of PZB (1993), and other reported research both in the IS literature (e.g. Pitt, Watson and Kavan, 1995) and in the general management literature (e.g., Nel and Pitt, 1993)

Table 5.2 Perceptions Items – Means and Standard Deviations

Item	Mean	Standard Deviation
1. The DOT's IS department tells users exactly when services will be performed	6.1176	1.6205
2. The DOT's IS department's employees give prompt service to users	5.8328	1.7631
3. The DOT's IS department's employees are always willing to help users	5.1858	1.8657
4. The DOT's IS department's employees are never too busy to respond to users' requests	5.2291	1.8458
5. When the DOT's IS department promises to do something by a certain time, it does so	5.1548	2.0002
6. When users have a problem, the DOT's IS department shows a sincere interest in solving it	5.6966	2.0417
7. The DOT's IS department is dependable	4.9659	1.9723
8. The DOT's IS department provides its services at the times it promises to do so	5.1703	1.9841
9. The DOT's IS department insists on error-free records	5.4799	1.8063
10. The DOT's IS department has up-to-date hardware and software	5.4056	1.4890

11. The DOT's IS department's physical facilities are visually appealing	5.7585	1.5950
12. The DOT's IS department's employees are well dressed and neat in appearance	5.6904	1.5434
13. The appearance of the physical facilities of the DOT's IS department is in keeping with the kind of services provided	5.2508	1.6743
14. The behavior of the DOT's IS department's employees instills confidence in users	5.6842	1.8329
15. Users will feel safe in their transactions with the DOT's IS department's employees	5.6192	1.8383
16. The DOT's IS department's employees are consistently courteous with users	6.2693	1.7335
17. The DOT's IS department's employees have the knowledge to do their job well	6.1115	1.7658
18. The DOT's IS department gives users individual attention	5.9009	1.7399
19. The DOT's IS department has operating hours convenient to all its users	4.9226	2.1243
20. The DOT's IS department has employees who give users personal attention	5.5480	1.7868
21. The DOT's IS department has the users' best interests at heart	5.6316	2.0393
22. Employees of the DOT's IS department understand the specific needs of its users	5.3870	2.0767

5.1.3 Gaps by Item

The mean and standard deviations of the gaps by item are presented in Table 5.3. The gaps are determined by subtracting the mean expectation score on the item from the mean perception score on the item. The largest gaps (in order of magnitude) are on an assurance item (item 19 = -2.6930, having hours convenient to customers), a reliability item (8 = -2.6231, providing services at the time they are promised), and a responsiveness item (3 = -2.6049, always willing to help customers). Perhaps more significantly, all the gaps are negative, indicating that on no item in the SERVQUAL questionnaire does the IS department concerned come close to meeting or exceeding the expectations of its customers. This is true even on the item where the gap is smallest (item 10 = -0.6444, a tangibles item assessing up-to-date hardware and software). One of the challenges to the organization studied here would be how to narrow these gaps. For example, Watson, Pitt

and Kavan (1998) report the results of continuous improvement programs in the IS departments that they studied. Where conscious efforts are made to narrow gaps, there does seem to be an effect. However, unless these efforts are maintained, the gaps seem to revert to their previous low levels, sometimes worse than before. This would seem to accentuate the fact that some of the gaps may never be eliminated, as customer expectations rise. However, it would also underscore the fact that service quality is a continuous journey, not a destination.

Table 5.3 Gaps by Item – Means and Standard Deviations

Item	Mean	Standard Deviation
1. The DOT's IS department tells users exactly when services will be performed	-1.9007	1.9450
2. The DOT's IS department's employees give prompt service to users	-2.216	2.0527
3. The DOT's IS department's employees are always willing to help users	-2.6069	2.2474
4. The DOT's IS department's employees are never too busy to respond to users' requests	-1.902	2.2543
5. When the DOT's IS department promises to do something by a certain time, it does so	-2.5525	2.4273
6. When users have a problem, the DOT's IS department shows a sincere interest in solving it	-2.1723	2.2409
7. The DOT's IS department is dependable	-2.3939	2.4509
8. The DOT's IS department provides its services at the times it promises to do so	-2.6132	2.2961
9. The DOT's IS department insists on error-free records	-1.9622	2.1868
10. The DOT's IS department has up-to-date hardware and software	-0.6279	2.1860
11. The DOT's IS department's physical facilities are visually appealing	-1.2903	2.1391
12. The DOT's IS department's employees are well dressed and neat in appearance	-0.9681	2.0166
13. The appearance of the physical facilities of the DOT's IS department is in keeping with the kind of services provided	-1.2644	2.1252
14. The behavior of the DOT's IS department's employees instills confidence in users	-2.0719	2.0827

15. Users will feel safe in their transactions with the DOT's IS department's employees	-2.1125	2.0471
16. The DOT's IS department's employees are consistently courteous with users	-1.4228	1.8755
17. The DOT's IS department's employees have the knowledge to do their job well	-1.6781	1.8960
18. The DOT's IS department gives users individual attention	-1.4893	2.0558
19. The DOT's IS department has operating hours convenient to all its users	-2.675	2.6457
20. The DOT's IS department has employees who give users personal attention	-1.7599	2.0657
21. The DOT's IS department has the users' best interests at heart	-2.1245	2.1881
22. Employees of the DOT's IS department understand the specific needs of its users	-2.3234	2.2920

5.1.4 Gaps Summary By Dimension

The extent of the service quality gaps by service quality dimension, and also by the overall service quality index (SQI) is summarized in Table 5.4. The Service Quality Index (SQI) is a simple index of overall service quality obtained by summing the gaps by dimension and dividing by 5. It gives a good overall picture of the service quality situation in the organization concerned. The service quality index (SQI) is -1.8904 , which means that the IS department concerned is far from meeting the expectations of its customers. The gap on the reliability dimension is largest at -2.3453 , and that for tangibles smallest at -1.0479 . This should be of particular concern to the IS department given that most research (e.g. Berry and Parasuraman, 1991; Carman, 1990; Pitt, Watson and Kavan, 1995) has shown the reliability dimension to be most important to customers of service organizations, and that of tangibles least important. Gaps on the dimensions of responsiveness and assurance also exceed -2 .

From the perspective of consumer behavior, it should be remembered that attitudes could be conceptualized as possessing three components, namely the affective (or "feeling") component, the conative (or "doing") component and the cognitive (or thinking) component (cf. du Plessis, Rousseau, and Blem). Since service quality has been defined as

an attitude, and since an attitude is a learned predisposition to respond either positively or negatively toward an object or an idea, then theoretically at least it should be possible to change the attitudes to service quality as perceived by the respondents to this study by addressing one or more of the components of their attitudes. While it is beyond the scope of this study to do this in detail, this means that service quality attitudes could be addressed either by changing the way customers feel (e.g. by internal advertising that let them understand the pressures and problems faced by the internal service provider; they way the think (understand the technical and other aspects of IT service delivery), or what they do (get involved more deeply with the service providers as they do their work).

Table 5.4 Summary of Service Quality Gaps by Dimension, and Overall Service Quality Index (SQI)

Service Quality Dimension	Extent of Gap
Responsiveness	-2.1695
Reliability	-2.3453
Tangibles	-1.0479
Assurance	-1.8207
Empathy	-2.0687
Service Quality Index (SQI)	-1.8904

5.2 RELIABILITY ANALYSIS

In this section, the results of a reliability analysis to determine coefficient alpha (Cronbach, 1954) are reported. Each table reports, for the Expectations items, the Perceptions items, and the Gaps items in SERVQUAL, the following statistics: the Scale Mean if the Item were to be Deleted; the Scale Variance if the Item were to be Deleted; the Corrected Item-Total Correlation; the Squared Multiple Correlation; and the Alpha if the Item were to be Deleted. The latter is standard output of the SPSS for Windows package and allows the researcher to eliminate items that detract too much from the overall alpha. In this way eliminating difficult items that detract from overall reliability can purify the scale. As will be seen, this was not necessary in the analysis of the SERVQUAL results in this study.

5.2.1 Reliability analysis – Expectations Items

The reliability analysis for the Expectations items is reported in Table 5.5, where E1 through E22 refer to the expectations items in the SERVQUAL questionnaire. Coefficient alphas were calculated utilizing the reliability procedures under SPSS for Windows 95 (essentially this procedure uses the same formula as discussed in Chapter 4). The Alpha for the expectations component of the SERVQUAL scale is .9538, and the standardized item alpha is .9564. From the table it is evident that all the items contribute to the internal consistency of the expectations scale, and from the Alpha if Item to be Deleted column it can be seen that even if any one item were to be deleted the Alpha for the scale would still remain at more than .95. Thus, it would not be necessary to eliminate any of the expectations items to improve the reliability of the scale.

Table 5.5 Reliability Analysis – Expectations Items

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
E1	156.1220	579.9117	.6854	.7910	.9516
E2	156.0915	579.2026	.7601	.8415	.9508
E3	156.3476	581.1204	.6770	.6068	.9517
E4	157.0091	568.9816	.6968	.5951	.9515
E5	156.4329	568.4236	.7469	.7674	.9508
E6	156.2713	571.4827	.7915	.8119	.9503
E7	156.7805	575.6153	.6490	.6220	.9521
E8	156.3567	573.2638	.7634	.8057	.9506
E9	156.6982	581.4040	.6576	.5371	.9519
E10	158.1067	593.0497	.3968	.5336	.9559
E11	157.0915	585.1659	.5261	.4519	.9538
E12	157.4817	578.7091	.6259	.6262	.9524
E13	157.6250	586.0638	.5191	.5979	.9539
E14	156.3841	578.5003	.8157	.7776	.9503
E15	156.4085	581.0008	.8034	.7764	.9506
E16	156.4482	577.7037	.7594	.6753	.9508
E17	156.3506	581.6963	.7191	.6299	.9513
E18	156.7500	576.6040	.7307	.7303	.9511
E19	156.5427	578.9462	.6211	.5390	.9525
E20	156.8323	576.7394	.7170	.7230	.9512
E21	156.3841	575.3443	.7472	.6965	.9509
E22	156.4299	576.1602	.7629	.7076	.9507

Reliability Coefficients for 22 items: Alpha = .9538 Standardized item alpha = .9564

The above (and what follows below), is standard procedure in determining the reliability of any scale and is well supported in the marketing literature (e.g. Churchill, 1979; Peter, 1981)

5.2.2 Reliability analysis – Perceptions Items

The reliability analysis for the Perceptions items is reported in Table 5.6, where P1 through P22 refer to the perceptions items in the SERVQUAL questionnaire. The Alpha for the perceptions component of the SERVQUAL scale is 0.9662, and the standardized item alpha = 0.9659.

Table 5.6 Reliability Analysis – Perceptions Items

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
P1	115.8947	881.1876	.6950	.6860	.9651
P2	116.1796	868.1043	.7648	.7481	.9644
P3	116.8266	868.4730	.7159	.6322	.9649
P4	116.7833	861.5492	.7911	.6897	.9641
P5	116.8576	853.6443	.7960	.7474	.9640
P6	116.3158	851.1484	.8005	.7374	.9640
P7	117.0464	858.0631	.7678	.7541	.9643
P8	116.8421	856.8663	.7737	.8027	.9643
P9	116.5325	875.1690	.6760	.5696	.9653
P10	116.6068	902.8418	.5098	.5125	.9666
P11	116.2539	893.6434	.5714	.5560	.9662
P12	116.3220	889.0264	.6440	.5975	.9655
P13	116.7616	884.4244	.6371	.5349	.9656
P14	116.3282	859.1342	.8207	.7665	.9638
P15	116.3932	855.8853	.8499	.8048	.9635
P16	115.7430	871.9866	.7393	.6596	.9646
P17	115.9009	867.6051	.7686	.6831	.9643
P18	116.1115	864.9441	.8081	.7421	.9640
P19	117.0898	858.7093	.7025	.6072	.9652
P20	116.4644	863.4296	.8005	.7327	.9640
P21	116.3808	853.0253	.7848	.7471	.9642
P22	116.6254	848.5704	.8083	.7940	.9639

Reliability Coefficients: 22 items Alpha = .9662

Standardized item alpha = .9659

From the table it is evident that all the items contribute to the internal consistency of the perceptions scale, and from the Alpha if Item to be Deleted column it can be seen that

even if any one item were to be deleted the Alpha for the scale would still remain at more than .96. Again, this means that all the items in the scale contribute to its reliability are necessary and valuable and should be maintained.

5.2.3 Reliability analysis – Gaps Items

The reliability analysis for the Gaps items is reported in Table 5.7, where G1 through G22 refer to the gaps on the items in the SERVQUAL questionnaire. The Alpha for the gaps component of the SERVQUAL scale is Alpha = .9477, and the standardized item alpha = .9482. From the table it is evident that all the items contribute to the internal consistency of the gaps scale, and from the Alpha if Item to be Deleted column it can be seen that even if any one item were to be deleted the Alpha for the scale would still remain at more than .94.

Table 5.7 Reliability Analysis – Gaps Items

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
G1	-40.3191	1012.0289	.6191	.6481	.9458
G2	-39.9696	1000.2796	.6773	.7186	.9450
G3	-39.6170	994.3773	.6562	.5665	.9453
G4	-40.3040	984.9378	.7238	.5939	.9443
G5	-39.6505	977.3378	.7195	.6929	.9444
G6	-40.0395	979.4222	.7699	.7028	.9437
G7	-39.8328	977.4872	.7108	.6434	.9445
G8	-39.5988	981.8751	.7316	.7430	.9442
G9	-40.2614	1009.0046	.5661	.4751	.9465
G10	-41.5775	1037.3972	.3569	.3748	.9494
G11	-40.9240	1023.9424	.4669	.3894	.9478
G12	-41.2462	1020.6557	.5255	.4972	.9470
G13	-40.9483	1021.8235	.4864	.4131	.9476
G14	-40.1398	986.2487	.7785	.6839	.9437
G15	-40.1185	984.0560	.8112	.7531	.9433
G16	-40.8085	1012.0029	.6445	.5365	.9455
G17	-40.5380	1004.9871	.6975	.5510	.9449
G18	-40.7264	995.8152	.7121	.6222	.9446
G19	-39.5289	981.9755	.6239	.5386	.9460
G20	-40.4711	992.9146	.7317	.6599	.9443
G21	-40.1337	993.2382	.6845	.6194	.9449
G22	-39.9058	980.9941	.7395	.7080	.9441

Reliability Coefficients: 22 items Alpha = .9477 Standardized item alpha = .9482

Thus,

H₀₁: That SERVQUAL will maintain its reliability in an internal market is accepted;

and

H₀₂: That SERVQUAL will maintain its reliability in internal markets within nonprofit organizations is accepted.

5.2.4 Reliability Analysis by Dimension

Alpha coefficients for the service quality dimensions are reported in Table 5.8 below. The tangibles dimension exhibits the lowest alpha coefficient at .7719, but even this is above the 'commercially' acceptable cutoff point of .7 (Carman, 1990). Tables 5.7 and 5.8 provide strong evidence for the internal consistency and reliability of SERVQUAL.

This then leads to the conclusion :

H₀₁: That SERVQUAL will maintain its reliability in an internal market, is thus accepted.

Similarly,

H₀₂: That SERVQUAL will maintain its reliability in internal markets within nonprofit organizations, is also accepted.

Table 5.8 Alpha coefficients for service quality dimensions

Service Quality Dimension	Alpha Coefficient
Responsiveness	.8678
Reliability	.8884
Tangibles	.7719
Assurance	.8639
Empathy	.8833

Most researchers, including PZB (1988; 1991), have used the standard formula for the calculation of coefficient alpha (Cronbach, 1951), to calculate the reliability coefficients for the SERVQUAL dimensions. According to Brown et al. (1993, who in turn cite Johns (1981), this may be inappropriate. The real question is of course, whether the effect of this is serious?

Two well conceptualized articles (Brown, Churchill and Peter, 1993; Peter, Churchill and Brown, 1993) highlight the problems associated with using a difference score to

operationalize a construct. Simply, operationalization of a construct using a difference score means that the construct (for example, the service quality gap, G) is calculated as the difference between one more construct (such as the perceptions of service quality, P), and another (the customer's expectations of service quality, E), i.e., $G = P - E$. Brown et al. (1993) focus particularly on the difference score conceptualization of SERVQUAL, and this piece was the subject of a well-considered response by PBZ (1993).

Most researchers, and specifically Parasuraman, Zeithaml and Berry (1988), have used the standard formula for the calculation of coefficient alpha (Cronbach, 1951), to calculate the reliability coefficients for the SERVQUAL dimensions. Brown et al. (1993, who in turn cite Johns (1981), argue that this may be inappropriate. The real question is of course, whether the effect of this is serious?

Brown et al. (1993) correctly state that the reliability of a scale operationalized as the difference between two measures will be low to the extent that: (a) the correlation between the component measures is high (in this instance, perceptions and expectations) and (b) the reliabilities of the component measures (perceptions and expectations) is low. Parasuraman, Zeithaml and Berry (1993) argue strongly (and demonstrate with Brown et al.'s 1993 data) that these conditions (a) and (b) are not likely to be serious problems in the case of SERVQUAL however, where the construct G is operationalized as P-E.

If this argument is pursued in the context of service quality measurement in an internal market within a nonprofit organization, there is really no good conceptual reason why expectations of IS service and perceptions thereof should be highly correlated. A user having higher expectations than another of the IS department's knowledge to do the job well, does not by definition therefore also have higher perceptions of the IS department's knowledge to do the job well. Brown et al.'s (1993) data does not show high correlation between expectations and perceptions (.34), neither does their data according to PBZ (1993), and the correlation between expectations and perceptions was only 0.26 in this

study. Furthermore, condition (b) above does not seem to generally hold in the case of SERVQUAL—Brown et al. (1993) report high reliabilities for the expectations (.94) and perceptions (.96) components of the measure, an observation confirmed by PZB (1993) from their work. The reliabilities for the expectations and the perceptions components of SERVQUAL as used in this study are similarly high - exceeding 0.9 in both cases. Certainly in the case of SERVQUAL then, in an internal market within a nonprofit organization, the method of calculating coefficient alpha does not have a major impact on the reliability of the instrument.

Brown et al. (1993) correctly state that the reliability of a scale operationalized as the difference between two measures will be low to the extent that: (a) the correlation between the component measures is high (in this instance, perceptions and expectations) and (b) the reliabilities of the component measures (perceptions and expectations) is low. PZB (1993) argue strongly (and demonstrate with Brown et al.'s data) that these conditions (a) and (b) are not likely to be serious problems in the case of SERVQUAL however, where the construct G is operationalized as P-E.

If this argument is pursued in an internal market context, there is really no good conceptual reason why expectations of IS service and perceptions thereof should be highly correlated. A user having higher expectations than another of the IS department's knowledge to do the job well, does not by definition therefore also have higher perceptions of the IS department's knowledge to do the job well. Brown et al.'s (1993) data does not show high correlation between expectations and perceptions (.34), neither does their data according to PZB (1993). The correlation between expectations and perceptions in this study was .26. Furthermore, condition (b) above does not seem to generally hold in the case of SERVQUAL—Brown et al. (1993) report high reliabilities for the expectations (.94) and perceptions (.96) components of the measure, an observation confirmed by PZB (1993) from their work. The reliabilities for the components in this study give relatively high reliabilities for expectations (exceeding .9) and perceptions (exceeding .9). The

reliabilities were recalculated using the formula from Brown et al.(1993), who in turn rely on that of Johns (1981 as follows:

$$r_D = \frac{\sigma_1^2 r_{11} + \sigma_2^2 r_{22} - 2r_{12}\sigma_1\sigma_2}{\sigma_1^2 + \sigma_2^2 - 2r_{12}\sigma_1\sigma_2}$$

where r_{11} and r_{22} are the reliabilities of the first and second component scores, respectively, σ_1^2 and σ_2^2 are the variances of these component scores, and r_{12} is the correlation between the component scores. The results obtained are as illustrated in table 5.9 below:

Table 5.9: Reliability Analysis of Difference Scores

Dimension	Gap	Difference
Responsiveness	.8678	.8934
Reliability	.8884	.8788
Tangibles	.7719	.7502
Assurance	.8639	.8732
Empathy	.8833	.8752

The above analysis demonstrates that the method of calculating reliability does not make a significant difference in the case of the SERVQUAL scale, and gives further evidence of the reliability of the gaps component of the scale.

5.3 DETERMINATION OF VALIDITY

In this section, four aspects of the validity of SERVQUAL are considered. These are construct, convergent, nomological and discriminant validity specifically, and they will be considered in that order.

5.3.1 Construct Validity

Construct validity refers to the extent to which an instrument covers the range of meanings included in the concept (Babbie, 1992; p. 133). Parasuraman et al. (1988) used focus groups to determine the dimensions of service quality and then a two-stage process was used to refine the instrument. Their thoroughness suggests that SERVQUAL does adequately measure the concept of service quality. It was not possible to discern any unique features of an internal market that would make the dimensions underlying SERVQUAL

(tangibles, reliability, responsiveness, assurance, and empathy) inappropriate for measuring service quality or excluding some meaning of service quality in this domain.

In simple terms an instrument possesses construct validity if the dimensions comprising that instrument appear to be obviously related to an independent assessment of the same construct (Peter, 1981). In an attempt to determine this, the dimensions of the SERVQUAL and the overall service quality index (SQI) established in the study were cross-tabulated by size of gap against the overall assessment of the internal IT department's service quality provision, rated on a four point scale, ranging from "poor", through "fair", and "good" to "excellent". The results of this tabulation procedure are shown in Table 5.10.

As can be seen from the table below, in the case of all the dimensions of service quality and of the SQI, the size of the gap appears to be closely related to the overall assessment of service quality of the internal service provider. In the case of "poor" assessments of overall service quality, the gaps are highly negative (SQI = -3.25), and in the case of "excellent" assessments of overall service quality, the SQI tends to zero (-0.13) and is indeed positive on the tangibles dimension.

Table 5.10 Service Quality Dimensions and SQI Against Overall Assessment of Quality of Service

Dimension	Overall Assessment of Service Quality (= number of respondents)			
	Poor = 68	Fair = 122	Good = 96	Excellent = 37
Responsiveness	-3.48	-2.14	-1.14	-0.40
Reliability	-3.87	-2.24	-1.26	-0.30
Tangibles	-2.11	-0.88	-0.38	+0.31
Assurance	-3.21	-1.73	-0.75	-0.04
Empathy	-3.25	-1.77	-0.99	-0.23
SQI	-3.25	-1.77	-0.90	-0.13

Thus,
H_{03.1}: That SERVQUAL will maintain construct validity in an internal market, is
accepted,

and

H_{03.2}: That SERVQUAL will maintain construct validity in internal markets within nonprofit organizations is accepted.

5.3.2 Convergent Validity

Convergent validity of an instrument is indicated if the measurement of the construct by the instrument correlates significantly with an independent measure of the construct. To assess convergent validity, a multiple regression of the five dimensions of service quality was conducted against the response (poor-fair-good-excellent) to a single question on the IS department's overall quality. The results of this procedure are reported in Table 5.11, and Figure 5.1, which is part of the table.

The R^2 in the multiple regression is .587 which is significant at $p < .05$. Furthermore, all the dimensions of service quality contribute significantly to the regression (all significant at $p < .05$). This is confirmed in the plot of the whole model test in Figure 5.1, which shows strong clustering of the overall evaluations at their expected points along the regression line. The SQI and the individual dimensions of SERVQUAL thus appear to be significantly correlated with an independent assessment of overall customer satisfaction with the service delivery of the internal IS service provider.

Therefore,

H_{04.1}: That SERVQUAL will maintain convergent validity in an internal market is accepted, and

H_{04.2}: That SERVQUAL will maintain convergent validity in internal markets within nonprofit organizations is accepted.

Table 5.11 Multiple Regression - Dimensions of Service Quality against an Overall Assessment of Service Quality

Response: OVERALL EVALUATION

Summary of Fit

Rsquare	0.586767
RSquare Adj	0.580371
Root Mean Square Error	0.712759
Mean of Response	2.155015
Observations (or Sum Wgts)	323

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	3.2137414	0.065145	49.33	<.0001
Responsiveness	0.1189208	0.029289	4.06	<.0001
Reliability	0.1081247	0.035483	3.05	0.0025
Tangibles	0.0938113	0.03579	2.62	0.0092
Assurance	0.1552298	0.047817	3.25	0.0013
Empathy	0.0939664	0.03807	2.47	0.0141

Effect Test

Source	Nparm	DF	Sum of Squares	F Ratio	Prob>F
Responsiveness	1	1	8.3752686	16.4859	<.0001
Reliability	1	1	4.7173785	9.2857	0.0025
Responsiveness	1	1	3.4903392	6.8704	0.0092
Assurance	1	1	5.3538298	10.5385	0.0013
Empathy	1	1	3.0950773	6.0924	0.0141

Note: The abbreviations used in the above table are standard multivariate regression output from SPSS for Windows. For the sake of brevity they are expanded in this table but not in subsequent tables:

Std. Error = Standard Error

t-Ratio = t-Test Ratio

Prob>|t| = Probability of exceeding the t ratio (can be thought of as a % where 1 = 100%)

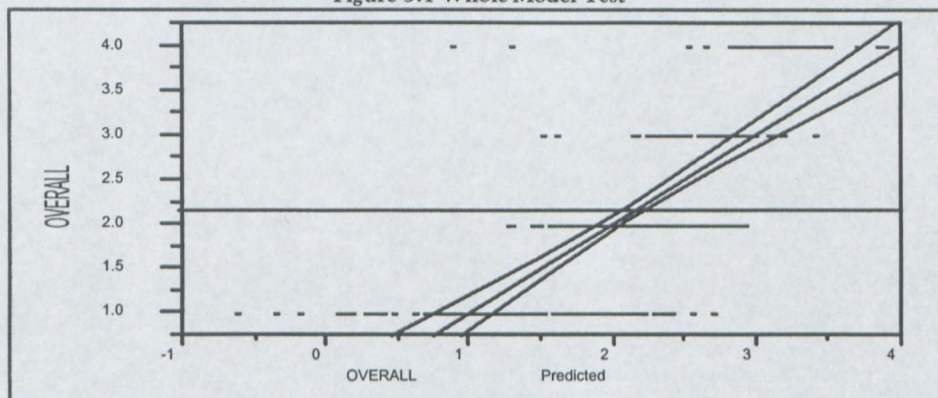
Nparm = Nonparametric

DF = Degrees of Freedom

F Ratio = F test ratio

Prob>|F| = Probability of exceeding the F ratio (can be thought of as a % where 1 = 100%)

Figure 5.1 Whole-Model Test



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	5	233.00192	46.6004	91.7284
Error	323	164.09230	0.5080	Prob>F
C Total	328	397.09422		<.0001

5.3.3 Nomological Validity

In order to determine nomological and discriminant validity, a series of factor analyses were run on the gaps items. The first of these was a principal components factor analysis using Varimax rotation was used because it achieves maximum orthogonality of factors, with factor extraction according to the MINEIGEN criterion (i.e. all factors with Eigenvalues greater than 1). The results of this procedure are reported in Table 5.12. Another rule of thumb for determining the number of factors to be extracted is to use a scree plot, and to extract the number of factors at which the plot (of Eigenvalues) begins to level off. The scree plot is shown in Figure 5.2 that is part of Table 5.12.

Nomological validity refers to an observed relationship between measures purported to assess different but conceptually related constructs. If two constructs (C1 and C2) are conceptually related, evidence that purported measures of each (M1 and M2) are related is usually accepted as empirical support for the conceptual relationship. Nomological validity is indicated if items expected to load together in a factor analysis, actually do so (Carman, 1990).

The data from the study were analyzed using the method suggested by Johnson and Wichern [1982] to determine the number of factors to extract. Essentially, principal components and maximum likelihood methods with varimax rotation were tried and compared for a range of models.

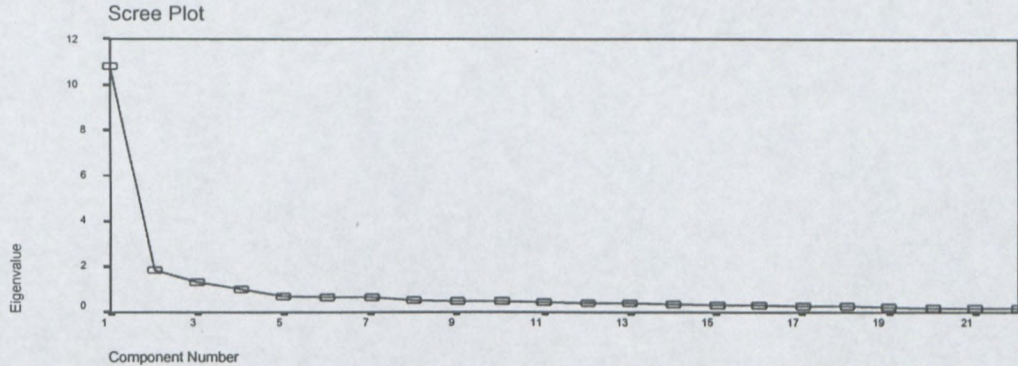
Table 5.12 Factor Analysis of Gaps Items; Varimax Rotation; MINEIGEN Criterion

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.792	49.057	49.057	10.792	49.057	49.057	5.425	24.660	24.660
2	1.847	8.395	57.452	1.847	8.395	57.452	3.948	17.946	42.606
3	1.323	6.014	63.466	1.323	6.014	63.466	2.851	12.960	55.566
4	1.030	4.681	68.147	1.030	4.681	68.147	2.768	12.581	68.147
5	.711	3.231	71.379						
6	.676	3.073	74.452						
7	.650	2.954	77.406						
8	.530	2.407	79.814						
9	.498	2.265	82.079						
10	.468	2.128	84.207						
11	.430	1.953	86.160						
12	.404	1.834	87.994						
13	.377	1.714	89.708						
14	.360	1.638	91.346						
15	.327	1.487	92.833						
16	.311	1.413	94.245						
17	.268	1.220	95.466						
18	.249	1.132	96.598						
19	.215	.979	97.577						
20	.194	.884	98.461						
21	.181	.825	99.285						
22	.157	.715	100.000						

Extraction Method: Principal Component Analysis.

Figure 5.2: Scree Plot of Factor Analysis Procedure



Rotated Component Matrix

Item	Component			
	1	2	3	4
G1	.197	.821	.213	.006
G2	.216	.831	.275	.008
G3	.249	.650	.401	.007
G4	.364	.614	.320	.192
G5	.304	.537	.596	.007
G6	.415	.641	.344	.158

G7	.411	.324	.630	.136
G8	.325	.359	.755	.134
G9	.194	.122	.776	.259
G10	.002	.006	.106	.813
G11	.188	.004	.232	.697
G12	.276	.138	.009	.739
G13	.300	.143	.004	.639
G14	.611	.387	.215	.337
G15	.680	.384	.250	.259
G16	.563	.413	.003	.331
G17	.670	.237	.231	.212
G18	.703	.268	.169	.222
G19	.711	.119	.253	.009
G20	.736	.231	.226	.196
G21	.761	.214	.136	.163
G22	.782	.220	.259	.116

The four factors extracted in Table 5.12 count for a cumulative 68.15% of the variation in the data. Similarly, the scree plot levels level off at around four factors in Figure 5.2. From the rotated component matrix in Table 5.12, it can be seen that all the assurance items (G14 through G17) load on to factor one, as do the empathy items (G18 though G22). All the tangibles items (G10 through G13) load on to factor 4. Likewise, all the responsiveness items (G1 through G4) load on to factor 2. The reliability dimension is less stable, with four items (G5 and G7 through G9) loading on to factor 3, and G6 loading on to factor 2.

A further principal component factor analysis procedure was conducted in order to impose a five factor solution on the results. The five factor solution was imposed in order to correspond to the five service quality dimensions. The results of this procedure are presented in Table 5.13.

This time, a 5-factor solution accounts for around 71% of the variation in the data. The responsiveness items (G1 through G4) load on to factor 2, and the tangibles items (G10 though G13) load on to factor 4. The assurance items (G14 through G17) and the empathy items all load onto factor 1. Again, the reliability items are less stable, with items

G5 and G6 loading onto factor 1, and items G7, G8 and G9 loading onto factor 3. The imposition of a fifth factor does not affect any loadings.

With the relatively minor exception of some reliability items it would seem that the factor structure of SERVQUAL in the case of the internal service provider in a nonprofit situation is relatively stable. Overall, items that are expected to load together in a factor analysis, do so, normally a strong indication of nomological validity. Therefore:

H_{05.1}: That SERVQUAL will maintain nomological validity in an internal market, is accepted.

and

H_{05.2}: That SERVQUAL will maintain nomological validity in internal markets within nonprofit organizations, is accepted.

Table 5.13 Factor Analysis of Gaps Items; Varimax Rotation; 5-Factor Solution Imposed

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.792	49.057	49.057	10.792	49.057	49.057	5.546	25.209	25.209
2	1.847	8.395	57.452	1.847	8.395	57.452	4.026	18.298	43.507
3	1.323	6.014	63.466	1.323	6.014	63.466	2.713	12.331	55.838
4	1.030	4.681	68.147	1.030	4.681	68.147	2.673	12.151	67.989
5	.711	3.231	71.379	.711	3.231	71.379	.746	3.390	71.379
6	.676	3.073	74.452						
7	.650	2.954	77.406						
8	.530	2.407	79.814						
9	.498	2.265	82.079						
10	.468	2.128	84.207						
11	.430	1.953	86.160						
12	.404	1.834	87.994						
13	.377	1.714	89.708						
14	.360	1.638	91.346						
15	.327	1.487	92.833						
16	.311	1.413	94.245						
17	.268	1.220	95.466						
18	.249	1.132	96.598						
19	.215	.979	97.577						
20	.194	.884	98.461						
21	.181	.825	99.285						
22	.157	.715	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix ^a

	Component				
	1	2	3	4	5
G1	.281	.833	1.420E-02	.106	-.103
G2	.224	.837	.254	7.528E-02	7.486E-04
G3	.254	.676	.345	5.561E-02	.262
G4	.371	.628	.285	.177	.139
G5	.307	.562	.558	6.373E-02	.193
G6	.423	.633	.356	.161	-.167
G7	.414	.331	.633	.133	-2.47E-02
G8	.328	.378	.741	.126	8.723E-02
G9	.189	.131	.793	.265	-6.63E-02
G10	4.429E-02	5.979E-02	.111	.815	-1.60E-02
G11	.201	5.155E-02	.229	.693	4.390E-02
G12	.291	.134	9.618E-02	.738	-3.50E-02
G13	.311	.180	-3.52E-02	.601	.524
G14	.620	.385	.212	.328	-2.13E-02
G15	.687	.381	.250	.250	-3.89E-02
G16	.575	.380	1.131E-02	.345	-.392
G17	.675	.237	.227	.200	1.090E-02
G18	.709	.275	.147	.202	.121
G19	.712	.141	.207	5.928E-02	.307
G20	.740	.240	.204	.175	.134
G21	.766	.205	.146	.153	-8.16E-02
G22	.786	.216	.265	.105	-4.49E-02

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

^a. Rotation converged in 9 iterations.

5.3.4 Discriminant Validity

Discriminant validity is evident if items underlying each dimension load as different factors. The dimensions are then measuring different concepts. Thus, in the ideal case, exact reproduction of the five factor model would indicate both nomological and discriminant validity. The requirements for discriminant validity are more stringent than for nomological validity. Thus, in the factor analyses above, ideally a five factor structure should have emerged, with the factors by definition (varimax rotation produces an orthogonal solution) distinct and uncorrelated. As can be seen from tables 5.12 and 5.13, dimensions such as assurance and empathy load on to the same factor, which suggests that they are highly correlated. Similarly, the reliability dimension's items not only do not load

together, but some load onto factors in common with the responsiveness dimension. The factors are therefore not always distinct, and may be tapping into the same sub-constructs. Therefore:

H_{06.1}: That SERVQUAL will maintain discriminant validity in an internal market, is rejected and

H_{06.2}: That SERVQUAL will maintain discriminant validity in internal markets within nonprofit organizations, is rejected.

5.4 SUMMARY AND CONCLUSIONS

In this chapter the hypotheses formulated concerning the applicability of SERVQUAL in an internal market within a nonprofit organization were tested. Firstly, the results of the empirical study were described in terms of expectations, perceptions and gaps, both by item and by dimension. The organization studied faces internal customers who generally have higher expectations than perceptions, which results in negative gaps on all items and all dimensions. In short, the organization is not meeting, on a single dimension, the service quality expectations of its customers. The dimension on which the gap is largest is also the most important, namely, reliability; the dimension on which the gap is smallest is also the dimension which the previous research studies have consistently found to be least important, namely, tangibles.

Next, the chapter went on to test the hypotheses formulated in terms of the psychometric properties of reliability and validity. Alpha coefficients for the expectations items, the perceptions items, the gaps by items, and the dimensions, as well as the overall alpha for the scale all comfortably exceeded the cutoff of .7, which resulted in the acceptance of the hypothesis that SERVQUAL is a reliable measure of service quality in an internal market within a nonprofit organization. This was not affected by the means of calculation of alpha – whether on gaps or differences. The SERVQUAL scale also demonstrated construct and convergent validity, with the measures of service quality obtained by the SERVQUAL instrument being strongly correlated with an independent measure of overall service

satisfaction. Thus the hypotheses regarding its construct and convergent validity were also accepted.

Nomological validity of an instrument is accepted if items that are expected to load together in a factor analysis, do so. Two factor analyses were conducted to explore this, and generally, the conclusion is that SERVQUAL exhibits nomological validity, with some minor concerns on the dimension of reliability. However, the hypothesis that it possesses nomological validity in the measurement of service quality in an internal market within a nonprofit organization is accepted. In the case of discriminant validity, the picture that emerged was far less clear. A clean, five-factor structure does not emerge from a factor analysis, and the factors that do emerge are not distinct. Assurance and empathy dimension items tend to load on to the same factor, and the reliability items tend to load across factors, which indicates strong correlation amongst dimensions, which are theoretically at least, different. Thus, the hypotheses concerning the discriminant validity of SERVQUAL in the measurement of service quality in an internal market within a nonprofit organization were rejected.

Overall, it can be concluded that SERVQUAL provides a reliable, valid instrument for the measurement of service quality in an internal market within a nonprofit organization. As stated in chapter 3, "the overall consideration and general hypothesis is that the SERVQUAL instrument is reliable and valid for use in service organizations within internal markets in a nonprofit organization. Obviously this hypothesis is not as technically testable as are the other five, but is, rather, dependent on acceptance or rejection of the other hypotheses for its own acceptance or rejection. More subjective, rules-of-thumb might apply: if the SERVQUAL instrument is shown to be reliable (as evidenced by high coefficient alphas [Cronbach 1951], and valid in at least 3 of 4 dimensions of validity, then it (the general hypothesis) can be accepted." The general hypothesis was thus accepted.

This chapter has described the data analysis procedures, and has tested the study's hypotheses. In the next and final chapter, the implications of the research will be discussed. The practical ramifications for managers within organizations will also be considered. The chapter will identify the limitations of the study, and will also suggest further research opportunities that will shed light on some of the questions the study has had to leave unanswered.

CHAPTER 6

CONCLUSIONS: DISCUSSION OF RESULTS; LIMITATIONS; IMPLICATIONS FOR MANAGEMENT, AND FUTURE RESEARCH DIRECTIONS

6.0 INTRODUCTION

This research study has considered the applicability of the SERVQUAL instrument to measure the quality of service delivered by an internal service provider in a nonprofit context. In the first chapter, the research agenda was outlined, and in the next, the relevant literature was reviewed. In chapter 3 the research propositions were outlined and hypotheses formulated, while in chapter 4 the relevant research methodologies, etc. were discussed. Finally, in the previous chapter, the results of the empirical study were presented.

In this final chapter the results are discussed in greater detail, and conclusions drawn. The limitations of the research are considered, and implications considered for the measurement and management of service quality in practitioner settings. Finally, directions are identified for future research.

6.1 THE RESULTS: A DISCUSSION

The results of the survey obtained in this research study were presented in the previous chapter. These results are now discussed in greater detail, and specifically in the order of (1) the extent of the SERVQUAL gaps in general; (2) the reliability of the SERVQUAL instrument in its application within an internal market in a nonprofit organization; and, (3) the validity of the SERVQUAL instrument for the measurement of service quality in an internal market in a nonprofit organization.

6.1.1 The SERVQUAL Gaps

With regard to SERVQUAL expectations, perceptions and gaps, the highest expectations tended to be on reliability items, and lowest expectations tended to be on tangibles items. Similarly, lowest perceptions tended to be on reliability and responsiveness items, and highest on tangibles items, which resulted in reliability and responsiveness being the

dimensions on which the SERVQUAL gaps were most negative. This is in line with most of the published research both in the marketing literature (e.g. Parasuraman, Zeithaml and Berry, 1988), and in the management information systems literature (e.g. Pitt, Watson and Kavan, 1995; Kettinger and Lee, 1994). Nevertheless it is disconcerting for the organization concerned, and suggests that it is falling short of meeting the expectations of its customers with regard to service quality, as evidenced by an overall service quality index of -1.89. It is not easy to make consistent comparisons of the gap across the literature that has studied SERVQUAL, because various researchers have used 7 point scales and 9 point scales. However, in its simplest terms this gap is quite large: If one notes that a 9-point scale is used, where 9 would be "technical perfection", then a gap of -1.89 would mean that the organization concerned falls short of perfection by over 20% ($1.89/9.00 = 21\%$). It also gives evidence to the fact that the expectations, perceptions and resulting service quality gaps of customers within an internal market in a nonprofit organization do not differ materially to those of customers in an external, for-profit market.

6.1.2 Reliability of the SERVQUAL instrument

Reliability of an instrument pertains to its capacity to give consistent results. To assess the reliability of SERVQUAL in this study, coefficient alpha (Cronbach, 1951) was computed for the scale as a whole, and also by dimension. Typically, an alpha coefficient exceeding a cutoff of 0.75 is regarded as evidence of a scale's reliability for commercial purposes (Carman, 1990).

The overall alpha for the expectations component of the SERVQUAL scale was 0.95, and that for the perceptions component 0.96. The alpha coefficient for the gaps items was 0.94. By dimension, all dimensions except tangibles exceed 0.8, with the latter achieving an alpha coefficient of 0.77, still above the cutoff point. Thus, it was accepted that SERVQUAL provides a reliable measure of service quality within an internal market in a nonprofit organization. The results are also in line with prior research, both in marketing (e.g. Carman 1990) and in the IS literature (Pitt, Watson and Kavan, 1995), which generally find in favour

of SERVQUAL's reliability with the proviso that the tangibles dimension tends to fall short of the others.

A point of contention both in the marketing literature (Brown et al., 1993) and in the IS literature (Van Dyke et al., 1997) has been the calculation of the reliability of an instrument which utilises gaps scores. These points were discussed in detail in Chapter 5.

6.1.3 Validity of the SERVQUAL instrument

Fundamentally, validity has to do with whether an instrument really measures what it purports to measure - that is, it pertains to the "truth" of a measurement. Four aspects of the validity of SERVQUAL were determined in this research, in accordance with the recommendations of Churchill (1979) in his work on the development of measures in marketing, and also with the approach to the evaluation of the psychometric properties of SERVQUAL followed by researchers such as Carman (1990) in marketing, and Pitt, Watson and Kavan (1995; 1997), and Kettinger and Lee (1994) in the management information systems literature. The facets of validity considered were construct validity, convergent validity, nomological validity and discriminant validity, and the findings of this research with regard to these are considered briefly below.

6.1.3.1 Construct Validity

Construct validity is indicated if the results obtained by a measure are reasonably similar to those obtained by independent other measures of the same construct. Another way of viewing the construct validity of an instrument would be to assess the extent to which the items contained in it cover the range of meanings included in the concept. In simple terms, it would be somewhat surprising, not to say disappointing, if respondents to a SERVQUAL study who had large negative gaps, nevertheless indicated high satisfaction with the quality of service provided. Likewise, if respondents had small negative or even positive SERVQUAL gaps, it would be counter-intuitive for the researcher to find that they nevertheless indicated

a dissatisfaction with overall service quality. Most likely, the researcher would doubt the findings, and cast aspersion on the instrument's ability to deliver a "true" measure.

In order to assess construct validity in this study, respondents were also required to indicate their overall level of satisfaction with the quality of service offered by the internal service provider, using a simple four-point satisfaction rating scale, ranging from "poor" through "fair", through "good" to "excellent". The results show a general concurrence between the SERVQUAL gaps both by dimension, and by overall SQI. Those respondents with large negative gaps tended to rate the overall quality of service as poor, and those with small negative, or even positive gaps tended to rate the quality of service as excellent, on the whole. The hypotheses regarding the construct validity of SERVQUAL were therefore accepted.

It is suggested that in the future additional checks on construct validity can be built into SERVQUAL studies, not only to gain further insight into validity issues but also to add to managerial acumen. For example, additional items could be added to determine customers' perceptions of relative value for money of the service, or whether the service rates worse or better than most other services they purchase for themselves. In an environment where there is much word and deed in internal markets about the outsourcing of activities, this could provide hard evidence for internal marketers. Particularly in nonprofit organizations, questions that address the hard issues of value can be especially important, given the tendency of many nonprofits not to consider issues such as price or cost.

6.1.3.2 Convergent Validity

Convergent validity has to do with the correlation between measures obtained on a scale, and those obtained on another, independent scale gauging the same, or very similar concepts. Typically this is done by using the dimensions of the scale as independent variables in a multivariate regression, with the independent scales as the dependent variable. The level and significance of the R^2 obtained in such a regression is generally accepted as evidence of the convergent validity (or lack thereof) of the scale.

The dimensions of service quality obtained in the research were regressed against the independent overall assessment of service quality, rated on a four-point poor-to-excellent scale. The R^2 obtained was 0.58, significant at $p < .05$, and the dimensions were all themselves significant in the equation. The hypotheses concerning the convergent validity of SERVQUAL were therefore accepted. Similar to findings in most of the reported work on the psychometric qualities of SERVQUAL, this research indicates that it possesses convergent validity in the measurement of service in an internal market in a nonprofit organization.

6.1.3.3 Nomological Validity

Nomological (literally “understanding the naming”) validity has to do with the appropriateness of the naming of dimensions that constitute a scale. In simple terms, if items in a scale purport to measure a particular dimension, then one would at least expect those items to be correlated in a piece of empirical research. Formally, nomological validity is indicated in a scale when items that are expected to load on to a factor in a factor analysis procedure, indeed do so.

Factor analysis was conducted on the data collected in this study and generally, items that were expected to load together, did so. The one exception was the reliability dimension, which was less stable. Given the unique importance of this dimension in service quality, this may occasion further research, and perhaps give rise for concern. However, in general terms the hypotheses concerning nomological validity of the SERVQUAL instrument in the measurement of service quality in an internal market within a nonprofit organization were accepted.

6.1.3.4 Discriminant Validity

Discriminant validity places a rather more extreme requirement on the dimensions of an instrument – it requires that concepts purported to be separate dimensions of a construct

should truly be different from one another. In the case of SERVQUAL, for example, the dimensions of responsiveness and reliability are claimed to be different from each other, tapping into different realms of the customer's evaluation of service quality. Formally, discriminant validity is evident if items underlying each dimension in a scale load as different factors in a factor analysis. The dimensions are then measuring different concepts.

Discriminant validity has proven to be a problem in many SERVQUAL studies reported in the literature (cf. Carman, 1990; Cronin and Taylor, 1992; Pitt, Watson and Kavan, 1995), and these issues have been acknowledged by Parasuraman and his colleagues (Parasuraman, Zeithaml and Berry, 1991; 1993; 1994). Similarly in this study, evidence could not be found for the discriminant validity of SERVQUAL. Dimensions such as assurance and empathy load on to the same factor, which suggests that they are highly correlated. In simple terms, customers might see these issues as quite similar, rather than as the distinct dimensions the scale alleges them to be. Similarly, the reliability dimension's items not only do not load together, but some load onto factors in common with the responsiveness dimension. The factors are therefore not always distinct, and may be tapping into the same sub-constructs.

As mentioned, discriminant validity problems regarding SERVQUAL have been reported consistently in the literature. Unlike the other hypotheses in this research, those regarding the discriminant validity of SERVQUAL in the measurement of service quality in an internal market within a nonprofit organization are rejected.

6.1.4 The Results: Conclusive Comments

Similar to the evidence found in much preceding research regarding the use of SERVQUAL, this study has concluded that SERVQUAL has high reliability in the measurement of service quality in an internal market within a nonprofit organization. Furthermore, the instrument has high validity, particularly in terms of the construct, convergence, and nomological validity. Like the other research, there is less evidence for SERVQUAL's discriminant validity.

In terms of the psychometric properties of the instrument, it would seem that SERVQUAL performs well regardless of the environment in which it was used. As far as could be ascertained, this is the first reported instance of SERVQUAL being used to measure the service quality of a service provider to an internal market within a nonprofit organization. While there have been reports of its being used to measure service within internal markets (cf. Kettinger and Lee, 1994; Pitt, Watson and Kavan, 1995; Watson, Pitt and Kavan, 1998), this study hopefully contributes to an understanding of its applicability within an internal market in a nonprofit organization.

6.2 LIMITATIONS OF THE RESEARCH FINDINGS

Like all research, the endeavors described in this study have their limitations. Primarily, the research is flawed by the design for as Runkel and McGrath (1972) point out, the business researcher is always sitting on a “three-horned dilemma”, and in their terminology, all research is therefore flawed. Put differently, they say, it is impossible to do perfect research. In this study the intention was an attempt at generalization and therefore a survey was chosen. By virtue of the size of the sample (n=329) one is able to assert with reasonable certainty that “this is how customers of an internal service provider within a large nonprofit organization perceive service quality.” However, in gaining generalizability, one loses both precision and context. Thus, one is not able to say with any certainty that “a causes b”, or what specific dimension of service quality in the controlled absence of other variables, causes the overall evaluation. In order to achieve precision, the researcher needs to maintain control, and this is generally done by experiment, not survey. Likewise, context or “richness” has not been achieved in this study – one is not able to say what individual customers feel or think about the quality of service provided by this internal marketer. There is no richness, qualitative perspectives nor deep insight – for that, one would have chosen a focus group, case study or depth interview approach. This was not the intention of this study. Again, it is not possible to do unflawed research – what the researcher can attempt to do is research that is as unflawed and scientific as possible, given the approach chosen. It is good to remember

that experiments suffer the problems of generalizability and context, and case studies, focus groups and in-depth interviews the flaws of generalizability and precision.

Further limitations of this study revolve around the sample, control for non-response bias, mail survey response bias, and the nature of the organization. First, as a sample study, this study did not poll the populations served by the internal service provider, and hence not all customers are represented. That is a general weakness of all sample surveys. Perhaps more significantly, this study did not attempt to control for non-response bias – were the individuals sampled in this study that did not respond in some way different from those who did? Third, there is a well-know problem of bias in mail surveys – they tend to be “biased towards the tails”. Those who respond tend to be disproportionately favorably or unfavorably disposed toward the topic of study, whereas those who are somewhat in-between tend not to respond. Fourth, this study only considered on internal service provider within one particular nonprofit organization, namely the IT department. To gain an overall view of the applicability of service quality measurement in this type of setting one would have to consider a number of different service provision situations, such as training, human resources and purchasing. Furthermore, one would have to consider a number of different nonprofit organizations to gain a truly generalizable picture – comparable nonprofit organizations such as charities, hospitals, schools, universities and other government departments.

In terms of the actual applicability of the instrument, potential users of SERVQUAL should be cautious. The reliability of the tangibles construct has been known to tend towards the lower end of the .7 cutoff point (Pitt, Watson and Kavan, 1995). Although this is also a problem with the original instrument, it cannot be ignored. Furthermore the instability of the reliability dimension identified in this study is cause for concern, particularly given the importance of this dimension in the customer’s evaluation of service quality.

The issues of discriminant validity are also of concern. SERVQUAL does not always clearly discriminate among the dimensions of service quality. Researchers who use SERVQUAL to discriminate the impact of service changes should be wary of using it to distinguish among the closely aligned concepts of responsiveness, assurance, and empathy. These concepts are not semantically distant, and there appear to be situations where customers perceive them very similarly.

6.3 DIRECTIONS FOR FUTURE RESEARCH

All research projects should uncover areas for potential study in the future. In this final section, some areas for future research with regard to the use of SERVQUAL in an internal nonprofit market are identified. A number of avenues of consideration for future research, which may be worthy of attention, are considered.

6.3.1 Are there areas of IS where expectations are not vectors?

While PZB (1994) assert that the SERVQUAL expectation items and indeed dimensions, all seem to be vectors and while it is difficult to conceive of them as otherwise, Teas (1994) makes the point that this may not always hold. It would therefore seem appropriate to investigate the possibility that some service quality concerns in an internal market within a nonprofit organization may be classic ideal-points, where the expectation peaks and then declines, so that doing too much of this particular kind of service may result in customer dissatisfaction (e.g., staff are too well-dressed and too friendly, communication is too on-going and too frequent, and the brochures, manuals and newsletters are too glossy and too expensive). If this were found to be the case then it raises both measurement and management issues: How does one manage service quality in an internal market within a nonprofit organization where doing too much for the customer will result in dissatisfaction?

6.3.2 How do managers in an internal market within a nonprofit organization interpret SERVQUAL data, and what do they find useful?

Most of the concerns regarding the measurement of service quality have focused on the customer side of the equation. This is understandable and obviously important, but it is at

this stage probably not enough. Marketing researchers such as Cronin and Taylor (1992), and Brown et al. (1993), assert that perceptions-only based measures of service quality demonstrate greater convergent and predictive validities, while PZB (1993; 1994) demonstrate that managers benefit more from the greater diagnostics of gap measurement. This does not resolve the issue of what managers really want. While it is likely that managers find the diagnostic power of expectations measurement to be more useful, this issue has not been the central focus of the research described here. It therefore seems appropriate to investigate what managers actually want with regard to service quality measurement in an internal market within a nonprofit organization.

6.3.3. IS Service quality measurement and the disconfirmation paradigm.

A number of researchers (e.g. Brown, Churchill and Peter, 1993) have voiced concerns regarding the conceptualization of service quality as a difference, or gap. Of course, PZB have counter-arguments in this regard, which are based in the disconfirmation literature (Oliver, 1980). The most insightful criticism of an overall applicability of disconfirmation, however, comes from work in consumer research by Deighton (1992). As Deighton points out, the expectancy-disconfirmation analysis of customer satisfaction (Oliver 1980) describes very well how judgments are formed of the quality of *contracted performance*—that is, performances in which the role of an actor is not salient. Thus when people use a particular brand of diskette and decide that it performs well, they do not usually think of the manufacturer, or of who procured it for them (such as a service providing department in an internal market within a nonprofit organization) or even of their own skill in using it. In Deighton's words, they simply credit the performance to the object and judge the performance's quality against an internalized standard for similar objects. "Expectations correspond to the imputed obligation to perform, and confirmation or disconfirmation corresponds to discharge of the obligation or the failure to do so." Similar evaluations could be made of the other functions performed in an internal market within a nonprofit organization.

When the customer recognizes that meeting the obligation toward them involves a person, performance becomes an enacted event (Weick 1979). Deighton believes that the

expectancy-disconfirmation model of customer satisfaction does not fit this case very well. This is because there is room for latitude in the way the customer allocates credit or blame for the performance between actor and object. The actor can be either the provider or the customer or both. This situation might be typical of much of the service a department in an internal market within a nonprofit organization produces. On the provider side, for example, satisfaction with the performance of a service might be the result of an appropriate system-related procedure (object) or an excellent execution of the procedure (actor). The marketing problem facing the department in an internal market within a nonprofit organization here would be to influence how the credit is allocated, and what devices of impression management to use to affect the allocation (Deighton, 1992). On the customer side, to take another example (Deighton's own), if a customer says that a computer software program performs poorly, perhaps she, as actor, has played some part in the poor outcome. If a novice computer user hears an expert praise a software product, he may well wonder if it will perform as well for him. Here too, the craft of performance marketing deals with how these attributions are influenced.

What Deighton (1992) alerts us to is not so much that industries or functions differ, but that the various services they deliver may differ in terms of the nature of their performance. The disconfirmation paradigm does not explain quality equally well across different kinds of performance, according to Deighton. If we accept this for the services provided by a department in an internal market within a nonprofit organization, then the research perspectives offered by Deighton are considerable. ZBP's (1993) work on expectations also has several concepts that may offer further support for some of the arguments advanced here. For instance, "Self-perceived service role" and "Situational factors" (two of the hypothesized determinants of customers' expectations) may be relevant for, and augment, the arguments about customer attributions in interpreting service quality. Another concept in ZBP (1993) that seems similar to Deighton's "imputed obligation" notion is "implied service promises."

6.3.4 Q-method

SERVQUAL, as with most questionnaires of this kind, does not require respondents to express a preference for one service characteristic over another (e.g., reliability over assurance). They can rate items comprising both dimensions at the high end of the scale. However, organizations frequently have to make a choice when allocating scarce resources. For example, managers need to know whether they should put more effort into reliability or empathy. This issue can be addressed by asking respondents to allocate relative dimension importance on a constant sum scale (e.g., 100 points). Zeithaml et al (1990) recommend this approach, which results in a 'weighted gap score' by dimension and in total. Another approach to identifying preferences is Q-method (Stephenson, 1953), which can identify a preference structure and indicate patterning within groups of users.

Future research could use Q-method to gain insights into customers' preference structure for the dimensions of service and to discover if there is a single uniform profile of service expectations or there are classes of users with different expectations. It is possible to use the questions from SERVQUAL and recast them for Q-method. Subjects can be asked to sort the items twice. First on the basis of an ideal service provider - their expectations. Second on the basis of the actual service provider - their perceptions. This is very similar to the technique described by Stephenson (1953), the father of Q-method, in his study of student achievement and motivation.

6.3.5 Customer service life cycle

The customer service life cycle, a variation on the customer resource life cycle (Ives and Learmonth, 1984; Ives and Mason, 1990), breaks down the service relationship with a customer into four major phases: requirements, acquisitions, stewardship, and retirement. It is highly likely that customers' expectations differ among these phases. Empathy might be the major need during requirements and reliability during stewardship. Thus, examining service quality by customer service life cycle phase is an opportunity for future research.

6.4 SUMMARY

In this chapter, the research results of the study were discussed. Essentially, it was found that SERVQUAL is a reliable and valid instrument in all facets for the measurement of service quality in an internal market within a nonprofit organization, with the exception of discriminant validity. The managerial implications of the results of the study were considered, and the limitations of the work identified. Finally, a number of possibilities for future research regarding the measurement of service quality in an internal market within a nonprofit organization were proposed.

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Appendix 1 Letter Which Accompanied Questionnaire

(Dated)

Dear Met Police Member

Service Quality Study: IT Services

Most of you will know the Department of Technology as that department within the Met responsible for the acquisition and implementation of technology for use in the work of the Met Police. As such, we are the department who acquires, installs and services vehicles, communication equipment, information technology and a range of other equipment.

Like all departments and organizations, we are aware that we serve customers, and hopefully do so to the best of our ability. On the other hand, without asking you our customer about the quality of our service, we won't really have an idea of how well or poorly we are performing. That is the purpose of this communication: It is to ask for your help in completing a questionnaire that assesses the quality of our service to you, specifically in the area of information technology services.

Your name has been selected at random from the salaries database, and your reply will be anonymous, treated in strictest confidence and used for statistical purposes only. There are no right or wrong answers, we simply want you to "tell it like it is". The questionnaire is quite a simple one to complete, and shouldn't take more than a few minutes of your time. When you have completed it, place it in the return envelope provided and pop it in the internal mail. It would really help us if this could be done by (two week deadline).

I thank you in anticipation of your cooperation.

Sincerely

Nic Boothman: Director, Department of Technology

13. The appearance of the physical facilities of an excellent IS department is in keeping with the kind of services provided	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td colspan="3">I disagree strongly</td><td colspan="3"></td><td colspan="3">I agree strongly</td></tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly						I agree strongly		
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14. The behavior of an excellent IS department's employees instills confidence in users	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td colspan="3">I disagree strongly</td><td colspan="3"></td><td colspan="3">I agree strongly</td></tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly						I agree strongly		
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15. Users will feel safe in their transactions with an excellent IS department's employees	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td colspan="3">I disagree strongly</td><td colspan="3"></td><td colspan="3">I agree strongly</td></tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly						I agree strongly		
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16. An excellent IS department's employees are consistently courteous with users	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td colspan="3">I disagree strongly</td><td colspan="3"></td><td colspan="3">I agree strongly</td></tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly						I agree strongly		
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17. An excellent IS department's employees have the knowledge to do their job well	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td colspan="3">I disagree strongly</td><td colspan="3"></td><td colspan="3">I agree strongly</td></tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly						I agree strongly		
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18. An excellent IS department gives users individual attention	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td colspan="3">I disagree strongly</td><td colspan="3"></td><td colspan="3">I agree strongly</td></tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly						I agree strongly		
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19. An excellent IS department has operating hours convenient to all its users	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td colspan="3">I disagree strongly</td><td colspan="3"></td><td colspan="3">I agree strongly</td></tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly						I agree strongly		
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20. An excellent IS department has employees who give users personal attention	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td colspan="3">I disagree strongly</td><td colspan="3"></td><td colspan="3">I agree strongly</td></tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly						I agree strongly		
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21. An excellent IS department has the users' best interests at heart	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td colspan="3">I disagree strongly</td><td colspan="3"></td><td colspan="3">I agree strongly</td></tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly						I agree strongly		
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22. Employees of an excellent IS department understand the specific needs of its users	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td colspan="3">I disagree strongly</td><td colspan="3"></td><td colspan="3">I agree strongly</td></tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly						I agree strongly		
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Service Quality Perceptions

Directions: The following set of statements relate to your feelings about the Department of Technology (DoT)'s IS department. For each statement, please show the extent to which you believe the DoT's IS department has the feature described by the statement. Once again, circling a 9 means that you strongly agree that the DoT's IS department has that feature, and circling 1 means that you strongly disagree. You may circle any of the numbers in the middle that show how strong your feelings are. There are no right or wrong answers – all we are interested in is a number that best shows your perceptions about the DoT's IS department.

Please respond to **ALL** the statements

1. The DOT's IS department tells users exactly when services will be performed	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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2. The DOT's IS department's employees give prompt service to users	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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3. The DOT's IS department's employees are always willing to help users	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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4. The DOT's IS department's employees are never too busy to respond to users' requests	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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5. When the DOT's IS department promises to do something by a certain time, it does so	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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6. When users have a problem, the DOT's IS department shows a sincere interest in solving it	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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7. The DOT's IS department is dependable	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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8. The DOT's IS department provides its services at the times it promises to do so	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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9. The DOT's IS department insists on error-free records	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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10. The DOT's IS department has up-to-date hardware and software	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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11. The DOT's IS department's physical facilities are visually appealing	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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12. The DOT's IS department's employees are well dressed and neat in appearance	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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13. The appearance of the physical facilities of the DOT's IS department is in keeping with the kind of services provided	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td colspan="4">I disagree strongly</td> <td colspan="5"></td> <td colspan="1">I agree strongly</td> </tr> </table>	1	2	3	4	5	6	7	8	9										I disagree strongly									I agree strongly
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