

**WHAT ARE THE LEVELS OF CUSTOMER
SATISFACTION WITHIN THE WASTE DISPOSAL
INDUSTRY**

by

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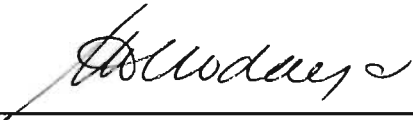
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DECLARATION

This dissertation represents original work by the author and where use was made of the work of others it has been duly acknowledged in the text.

This research has not been previously accepted and is not being currently submitted in candidature for any degree purposes at any other university

Signed 

Morganasundran Athimulam Nadasen Odayar

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ABSTRACT

South Africa's re-integration into the global economy and the international political arena has brought about an active growth of business locally and internationally. Local companies are expanding into new markets and regions which require them to follow internationally acceptable and approved waste disposal policies in their production of goods and services.

To achieve compliance, it is necessary that companies have the appropriate support and backup from waste disposal companies. Also, increasing pressure from environmental groups and government agencies makes it a prerequisite that a company's waste is properly disposed of in the most efficient, lawful and economical way.

This research dissertation is aimed at identifying the key factors that impact on the levels of service in the waste industry and an attempt at evaluating the effects of the service levels to determine what actions are necessary to improve the levels of service in the waste industry.

As a result, this research was carried out amongst producers of waste in certain areas of KwaZulu- Natal. Various techniques were evaluated in researching how to measure service quality. The most reliable measuring instrument to gauge service quality was found to be the SERVQUAL system. This measuring instrument was evaluated and then modified to suit the particular needs of the waste industry. The SERVQUAL system is a multi-item scale for measuring consumers perceptions of service quality. A sample of 75 companies was selected and senior management was interviewed.

Based on the statistical analysis, the discrepancy between service expectations and service delivery in the waste industry is wide. Urgent attention needs to be focused on service delivery, especially reliability, assurance and responsiveness by waste disposal companies.

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CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

Since our democratic elections in 1994 South Africa is fast becoming an active participant in the world markets. Globalisation and integration of world markets have brought about an active growth of business locally and internationally. This globalisation process in our local companies are expanding into new markets and regions and requires South African companies to follow internationally acceptable and approved waste disposal policies. Sound waste management, equivalent to best practices worldwide also implies that waste is safely and effectively disposed of. The question is, do these companies have the necessary support of waste disposal companies to carry out their waste disposal activities in accordance with environmentally acceptable regulations.

Increasing pressure by local and multinational companies that their service providers are ISO 9001 (Quality Management System) and ISO140001 (Environmental Management Standards) accredited or regulated in terms of ISO regulations is now being applied. It is now common practice for most companies to have ISO 9001 in order for them to do business with other companies. The ISO 9001 concerns maintaining a quality management system concerning itself primarily with customer satisfaction. The ISO 14001 standard is the cousin to the ISO 9001 where a company must provide evidence that the waste that they produce is disposed at a legally permitted landfill site.

To achieve compliance it is necessary that companies have the appropriate support and backup from waste disposal companies to carry out their waste disposal activities. Also increasing pressure from environmental groups and

government agencies makes it a prerequisite that a company's waste is properly disposed of in the most efficient and economical way.

The question is are the producers of waste in KZN Province receiving the necessary service they require in order to satisfy with their expectations.

1.2 BACKGROUND OF THE STUDY

The current status with the waste industry in the province of KwaZulu-Natal at the moment is that there are two major private waste companies operating province wide. Their focus cuts across all categories of waste namely:

- solid municipal waste
- industrial solid waste
- low hazardous waste - can only be disposed of at a permitted landfill site known as Big "H" , small "h" (H:h)
- and high hazardous waste- can only be disposed of at a permitted landfill site known as Big "H", Big "H" (H:H)

Their business is based on competitive marketing and tendering for waste removal and disposal contracts with private industry and municipalities. At this stage very few municipalities have privatised their waste collection and disposal sections. In the instances where municipalities have privatised it has only been a small section of the waste collection needs. Municipal solid waste collection is the responsibility of the municipalities and is collected by municipal fleets at present and disposed of at permitted Landfill Sites provided by the municipalities.

The current landfill status in KZN at the moment is that there are no High Hazardous landfill sites in the province. Any High Hazardous waste has to be transported out of the province to be disposed of at one of two High Hazardous, (Big H: Big H) sites in RSA. These two sites are located in Springs in Gauteng Province and the Western Cape. From this fact it is simple to see the potential hazards of transportation of these waste over long

distances. In March of 2000 the Town and Regional Planning Commission funded a study in the province entitled "The Need for and Location of One or More High Hazardous Landfill Sites in KZN". The findings were that there is a need for at least one High Hazardous Landfill Site in KZN, but the problem is in the costs of establishing a facility of this nature. There are, however, two privately owned Low hazardous sites within our province one owned and operated by the Waste man Group in Durban and the other owned and operated Enviroserv at Shongweni.

Since there are so few options for industry to dispose of their H:h (low hazardous) wastes there are many complaints with regard to disposal tariffs at these sites due to the lack of competition. The private landfill operators control who is allowed to utilise their sites because of the wastes that are allowed to be disposed and the their right of admission. There are also many industrial waste transporters commonly known in the waste industry as "hump and dump contractors" which are very competitive and utilise municipal solid waste disposal facilities.

The Constitution stipulates that every individual has a right to a clean and healthy environment. With this in mind the departments of Water Affairs, Environmental Affairs and Tourism and Health have promulgated legislation to control the adverse effects of the poor handling of waste on South African citizens. The National Environmental Management Act 89 of 1998 subscribes to the rule of law "The Polluter Pays Principle." This stipulates that the producer of the waste is solely responsible for the safe disposal of that product and is liable in a court of law should the waste be disposed of inappropriately. This means that even though a company has contracted a legally registered waste contractor to meet their disposal needs the responsibility does not lie with the waste contractor, it remains with the producer of the waste. This means that all companies need to audit their contractor to ensure that their wastes are disposed of responsibly. Further to this it goes with out saying that the producer of the waste must request safe disposal certificates from their contracted waste remover.

1.3 MOTIVATION OF THE RESEARCH

Of personal interest to the writer is the level of service provided by the waste disposal companies in KwaZulu Natal. There are many producers of waste that are obliged by law to ensure that all their wastes are properly disposed of into approved landfill sites. To ensure legal compliance the waste must be disposed off in legally acceptable standards. Are the waste disposal tariffs very high that producers of waste play scant regard to have the waste disposed of legally. On the other hand the companies may be under the impression that their waste is being disposed of legally by the contrary is true.

This research dissertation is aimed at identifying the key factors that impact on the levels of service in the waste industry and an attempt at evaluating the effects of the service levels to determine what actions are necessary to improve the levels of service in the waste industry. Based on the outcomes of the research, recommendations will be made for further investigation or actions.

1.4 IMPORTANCE OF THE STUDY

It was against the backdrop outlined above, that a study was imperative to conduct a customer satisfaction survey on the waste producing industry to establish the satisfaction of service that they receive from their waste contractors. Again the more salient points for doing this survey are summarised:

- 1 The waste industry has only two low hazardous sites in KwaZulu Natal that creates a monopolistic / possibly cartel driven industry which is unhealthy for the producers of waste.
- 2 Environmentally sensitive issues worldwide regarding ISO 14 001 standards create a climate that demands change in the industry to ensure customer retention. This change may be slow in coming due to only two major role players in this game

- 3 ISO 9001 (Quality Control) also needs waste disposal companies to adapt. This change maybe dragged out due to monopolistic factors in this industry.
- 4 It is simply good business practice to listen to your customers.
- 5 It is also felt that customers may have a lack of knowledge regarding the relevant legislation that are constantly changing.
- 6 It was also felt that if customer satisfaction was not kept to an all time high due to the Global Village concept this may encourage competitors with more financial strength in the medium term.

Therefore in line with what has been mentioned above, we shall conduct a study focusing on identifying and evaluating the levels of customer satisfaction with respect to the industrial and commercial waste disposal service provided to commerce and industry in KZN.

1.5 THE PROBLEM STATEMENT

What are customer satisfaction levels within the waste disposal industry ?

We will analyse this by conducting a survey in order to implement a quality assurance program towards improving the levels of service to the producers of waste.

1.6 THE OBJECTIVES OF THE STUDY

- To measure the levels of customer satisfaction within the waste disposal industry.
- To adopt the appropriate measurement scale to measure customer satisfaction within the waste disposal industry.
- To make recommendations towards improving the levels of service and ultimately begin implementing a quality assurance program within the waste disposal industry.

1.7 DELIMITATIONS

The study is delimited to the KZN area and is also delimited to producers of industrial and commercial waste only .

1.8 ASSUMPTIONS

We need to assume that the population statistics provided by the Waste Disposal Industry Association is accurate. We also need to assume that Measuring instrument is valid, that the interviewer is well trained, and that the respondents respond truthfully.

1.9 STRUCTURE OF THE RESEARCH

The study will be presented in following chapters:

1.9.1 Chapter Two – Review of the Related Literature

This chapter will comprise the review of literature on measuring service quality. Most of these studies are based on the notion that quality is perceived through a comparison between expectations and experiences over a number of quality attributes. The increasing importance of quality service as a means of gaining competitive advantage has seen the emergence of comprehensive programs to research customers expectations and perception of service quality. The most widely adopted approach thus far has been that suggested by Parasuraman , Zeithaml and Berry (1985) who have developed the Service Quality “Servqual “ methodology. The Servqual is a multi -item scale for measuring consumer perceptions of service quality.

Today numerous applied research companies use the “ Servqual “ instrument as an adapted measuring instrument to measure Customer Satisfaction within their industry. Although there are other measures of this abstract construct (Customer Satisfaction), the “ Servqual “ instrument is generally the most popular used instrument worldwide.

1.9.2 Chapter Three – The Research Design and Methodology

The type of research Design is a cross sectional analytical survey method.

A more dominant quantitative approach to our analysis has been chosen for this study, as in this type of research we can identify cause and effect relationships more easily and the research is more structured and more controlled

1.9.3 Chapter Four – The Data Design and Collection

The population of industrial waste disposal users will be identified and a stratified random sample of the players will be taken and within each identified company , the CEO will be interviewed.

The questionnaire will consist of an introductory letter, a demographic section which will consist mostly of categorical variables some measured on a nominal scale and some measured on an ordinal scale. The body of the questionnaire will consist of two parts. The first part will measure expectations of the producers of waste to the waste disposal industry. The second part will measure perceptions of producers of waste to the waste disposal industry. Both sections will ask questions in a similar fashion. As per the literature search Customer Satisfaction will be broken down into four sub areas to be measured namely tangibles, responsiveness, reliability and assurance. Each of these sub areas will compose of six questions interspersed throughout the questionnaire. All questions will be worded using the correct methodologies. Most questions will be measured using the Likeart scale but we will also use dichotomous variables

(Yes , No answers) and we will also ask a few qualitative open ended questions . The benefit of this approach is that it ensures good balance in the questionnaire design.

1.9.4 Chapter Five- Recommendations and Conclusions

This chapter will detail recommendations and conclusions based on the findings of the study.

1.10 SUMMARY

Due to globalisation and integration of world markets the industrial producers are brought into the spotlight with respect to their policies regarding the environmentally sensitive issues of waste disposal. In respect to this, producers of waste are questioning not only how their wastes is disposed but the general service quality that they receive from their Waste Disposal Companies. Quality is clearly a complex, which cannot be satisfactorily measured by a series of ad-hoc studies. This , and the increasing importance of quality as a means of gaining competitive advantage has seen the emergence of comprehensive programs to research customers *expectations* and *perceptions* of service quality. The most widely used adopted approach thus far has been suggested by Parasuraman, Zietmaml and Berry (1985) who have developed the Service Quality “Servqual” methodology. The Servqual is a multi-item scale for measuring consumer perceptions of service quality.

To measure the level of customer satisfaction for a service , the results for perceptions and expectations need to be calculated for each customer. The gaps between expectations and perceptions can be very helpful. The type of research design is a cross sectional analytical survey method. We have chosen a more dominant quantitative approach to our analysis as in this type of research we can identify cause and effect relationships easily and the research is more structured and controlled.

This research dissertation is aimed at identifying the key factors that impact on the levels of service in the waste industry and an attempt at evaluating the effects of the service levels to determine what actions are necessary to improve the levels of service in the industry. Based on the outcomes of the research , recommendations will be made for further investigations or actions.

CHAPTER 2

HOW DO WE MEASURE SERVICE QUALITY?

2.1 INTRODUCTION

Over the last ten years service industries have become a lot more competitive and this has resulted in the need to somehow measure the abstract construct of service quality. This has resulted in numerous research amongst academics and businesses in the area of service quality. The quality of services is more difficult to measure than quality of goods. An entire discussion is devoted to how one conceptualises service quality, the various approaches available to measuring it and the advantages and disadvantages to each approach and finally why the *Servqual Instrument* is regarded as the best available measuring tool for quantifying service quality.

There are many legal requirements that companies need to adhere to in terms of their waste management policies. Companies are concentrating on their core competency of providing goods and services and it is the aim of this research to establish and measure the quality service that they receive from their waste companies and whether they match up to their expectations in order for them to comply with many regulations and legal requirements

The difference between service quality in terms of goods provision related industries and service provision related industries is that the former is more easily testable and the later is not only more difficult to quantify but can only be measure once the service is consumed, and as such, is more risky . Understanding just what service dimensions are important to the customer in the latter industries also proves to be difficult . Companies cannot make their own misdirected assumptions as to what they believe to be important as this may not in fact be “ what the customer ordered” in a manner of speaking. Another problem is that customers normally have expectations of both the service provider itself and the services they offer and usually both expectations are very closely linked.

2.2 DEFINING SERVICE QUALITY

Quality is a hard concept to define in a few words. At its core, quality has been defined as 'conforming to requirements' (Crosby 1984). According to (Palmer 1998) this implies that organizations must establish requirements and specifications and once established, the quality goal of the various functions of an organization is to comply strictly with these specifications. However, the questions remain: whose requirements and whose specifications? A second series of definitions following on from this state that quality is all about fitness for use (Juran, 1982), a definition based primarily on satisfying customers' needs. According to Palmer (1998) these two definitions can be limited in the concept of customer perceived quality - quality can only be defined by customers and occurs where an organization supplies goods or services to a specification that satisfies their needs.

2.2.1 Instrumental and expressive Quality

Two different approaches have generally been adopted in measuring service quality, these are objective measures of quality and measures which are based on the more subjective perceptions of customers. A definition of Swan and Combs (1976) identified two important dimensions of service quality - 'instrumental' quality describes the physical aspects of the service, while the 'expressive' dimension relates to the intangible or psychological aspects.

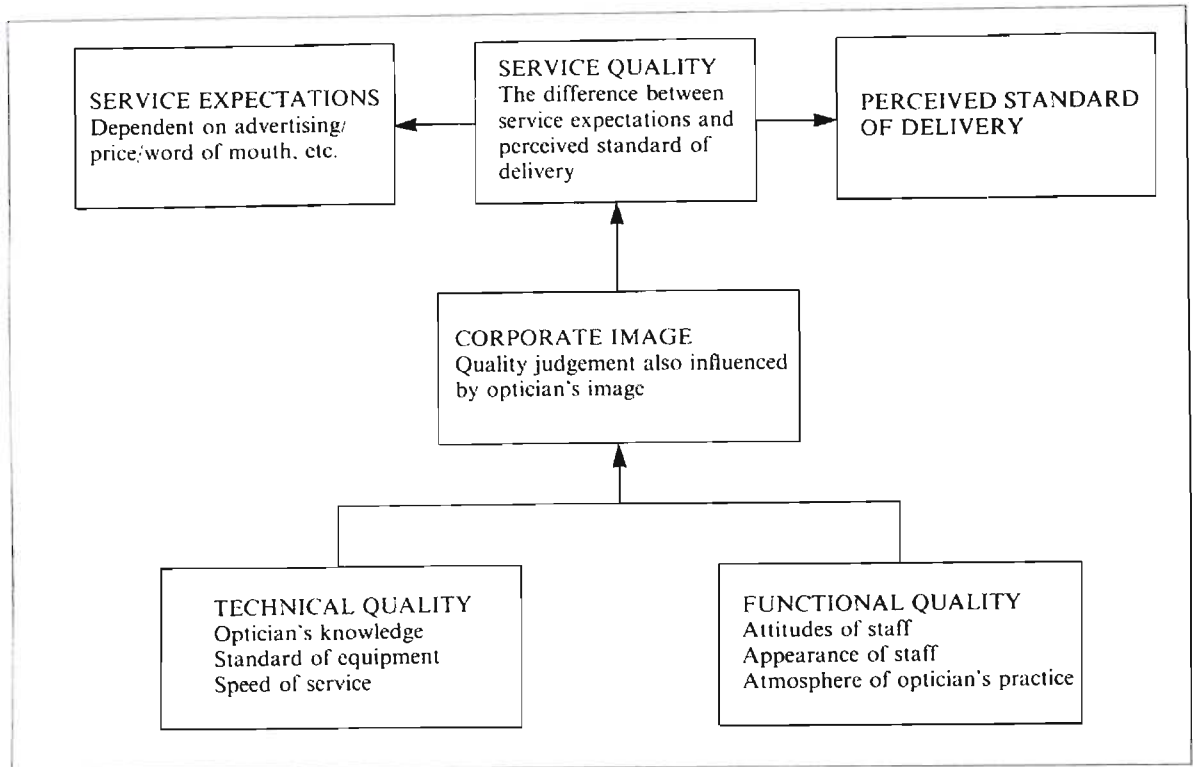
2.2.2 Technical and Functional Quality

Work by Gronroos (1984) identified 'technical' and 'functional' quality as being the two principal components of quality. According to Palmer (1998) Technical quality refers to the relatively quantifiable aspects of a service which consumers receive in their interactions with a service firm. Because it can easily be measured by both customer and supplier, it forms an important basis for judging service quality. Examples of technical quality include the waiting time at a airport checkin counter and the reliability of bus services. This however, is not be the only element that makes up perceived service quality.

Because services involve direct consumer-producer interaction (not the case in goods production services where a customer generally only interacts with the final supplier of the product and not the manufacturing process) , consumers are also influenced by *how* the technical quality is delivered to them. This is what Gronroos describes as *functional* quality and cannot be measured as objectively as the elements of technical quality.

In the case of the queue at an airport checkin, functional quality is influenced by such factors as the environment in which queuing takes place and consumers' perceptions of the manner in which queues are handled by the airlines staff. Gronroos(1984) also sees an important role for a service firm's corporate image in defining customers' perceptions of quality, with corporate image being based on both technical and functional quality, The Figure2.1 illustrates diagrammatically Gronroos's(1984) conceptualisation of service quality, as applied to an optician's practice.

Figure 2.1 Consumer Perception of Technical and Functional Quality applied to a optician's practice (based on Groos(1984), *Strategic Management and Marketing in the Service Sector*, Chartwell-Bratt Ltd).



2.2.3 Service Quality

If quality is defined as the extent to which a service meets customers' requirements, the problem is to identify just what those requirements are.

The challenge faced therefore is understanding exactly what those requirements are. Service quality is a highly abstract construct as opposed to goods quality in which technical features dominate and can more easily be quantified. The conceptualisation of service quality begins by trying to understand exactly what customer expectations of service quality are and then measuring how the perceived service quality measures up to these expectations. In this way, a service which is perceived as being of average standard may be considered of high quality when compared against low expectations, but of low quality when measured against high expectations,

Analysis of service quality is made more difficult by the fact that production

and consumption of a service generally occur simultaneously. In the case of manufactured goods the buyer of such goods only encounters the traditional marketing mix of the seller eg : the product , its price and distribution and how this occurs whereas the seller of service related goods provides the buyer with interaction at both the production stage and the distribution stages . The buyer takes more risk as he has not yet seen the finished product . Another issue with regards analysing service quality is that most services provided result in a unique buyer/seller interaction and no two services are provided in the same way.

2.3 VARIOUS TECHNIQUES APPLIED IN RESEARCHING SERVICE QUALITY

According to Palmer (1998) a number of methods for researching customers' expectations and perceptions are available which are examined below , however, according to Zeithaml , Parasuraman and Berry (1990) a set of general principles for the effective measurement of service quality need to be

- *Varied* . Every research method has its limitations and in order to overcome this and to achieve a comprehensive insight into a problem, a combination of qualitative and quantitative research techniques should be used.
- *Ongoing* . The expectations and perceptions of customers are constantly changing as is the nature of the service offer provided by companies and their competitors. It is therefore important that a service research process is administered on a continuous basis so that any changes can be picked up quickly and acted upon if necessary.
- *Undertaken with employees* . The closeness of staff to customers within the services sector makes it important that they are asked about problems and possible improvements as well as their personal motivations and requirements.
- *Shared with employees* . Employees' performance in delivering service quality may be improved if they are made aware of the results of studies of customer expectations complaint analysis, etc.

2.3.1 Mystery Customers

The use of mystery shoppers is widespread and used particularly in the monitoring of staff in terms of the extent to which service standards are or are not being met . This technique is helpful in industries where it is felt staff are unable or simply unwilling to conduct their work to preset specifications . This monitoring is done by trained personal working in collaboration with company staff to ensure a constructive template approach .according to Palmer (1998)

In particular, if the techniques are applied correctly, they can allow management to know what is really happening at the sharp end of their business. To be effective, mystery shopping surveys need to be undertaken independently, should be objective and must be consistent. The training of assessors is critical to the effective use of this research method and should include, for example training in observation techniques which allow them to distinguish between a greeting and an acknowledgement.

2.3.2 Transaction Analysis

This type of research allows companies to judge their own performance based on recent transactions. In particular it allows a company to judge the customers satisfaction with the contact person with whom the transaction was conducted and the overall satisfaction with the company. This type of research is done by means of a mail out survey which is sent post the transaction and then analysed . This also has an advantage in that it allows for a reward system to be implemented back to the contact person.

2.3.3 Regular Customer Surveys

The importance of service quality has seen a dramatic jump forward in the last few years and many companies have jumped onto this “quality train” . People who not only pay for services but also have a large choice to choose from feel that they have a right to be consulted and to express an opinion with the service that they have been provided by the service provider who they feel

have been “loyal” to by simply being their client .

A few examples of such surveys include a questionnaire one fills out in an aeroplane, surveys conducted in hospitals, restaurants and so on . Although a few of these bear fruit (as in a recent local hospital survey where patients complained of noise from in particular the nurses and as a result , rubber soled shoes for the nurses have been introduced and new wheels on the trolley systems which do not squeak were also launched) , the majority of such surveys smack of lip service and customers complaints are hardly acted on . An example of such as found in fast food outlets is illustrated Figure 2.2 below:

Figure 2.2 Spur Restaurant Survey

2.3.4 Customer Panels

This form of research is used extensively by companies who bring together frequent users of their product who employ personnel during the launch of a new or improved product . This form of research is used extensively amongst retailers to do exactly this and also to monitor levels of service . This form of research assists organizations to anticipate problems early on and to react when the problem is still at an embryonic phase .

The biggest drawback of this form of research is the representativeness of the panel as a whole . The sample of panel conveners may be bias with respect to various dimensions such as social/economic/ demographic /frequency of use and this may affect the validity of the entire research.

2.3.5 Perception Surveys

Palmer(1998) makes the following observations :These investigations use a combination of qualitative and quantitative research methods. Many professional services organizations have employed such studies in order to develop future marketing strategies. Their aim is to achieve a better understanding of how customers view an organization, in other words, to help the firm see itself as clients see it. The initial qualitative stages of a study involve researchers in identifying the attitudes of clients (past, present and future) towards the firm as well as how the firm is perceived by the community at large (this may involve eliciting information from journalists, intermediaries and even competitors). Group discussions and/or in-depth interviews are the vehicles used for assessing the perceptions of people at this stage. In the quantitative phase of a survey, clients are asked to judge the company's performance using a battery of attitude statements. Perception studies often include an analysis of the perceptions of a firm's employees.

2.3.6 Employee Research

This is used on an ongoing basis within companies via staff development seminars , training programs , reporting systems , quality circle workshops and suggestion boxes . The constructive proposals offered by employees can assist the company in providing its services more efficiently and more effectively.

2.3.7 Similar Industry Studies

It is possible to learn from research conducted in a similar industry to learn from it and adapt it to your research . For example research into service

quality in the hotel and catering industry which has been ongoing for some time can be used and adapted to the hospital industry which over the last few years has been privatised and modernised and been forced into using best practices.

The term benchmarking is frequently used to describe the process by which companies set standards for themselves, based on a study of best practice elsewhere. Best practice could be defined in terms of firms within the same sector, or completely different sectors which share similar processes.

2.3.8 Analysis of Complaints

Dissatisfaction of customers is most clearly voiced through the complaints that they make about service provision. In truly market-orientated organizations, complaints analysis forms a useful guide to where the process of service delivery is breaking down. (Palmer 1998)

2.3.9 Comprehensive Expectation and Perception Research

How service quality is perceived has been studied extensively during the past two decades. Most of these studies are based on the notion that quality is perceived through a *comparison between expectations and experiences* over a number of quality attributes.

Quality is clearly a complex concept, which cannot be satisfactorily measured by a series of ad – hoc studies. This, and the increasing importance of quality as a means of gaining competitive advantage has seen the emergence of comprehensive programmes to research customers expectations and perceptions of service quality. The most widely adopted approach thus far has been that suggested by Parasuraman , Zeithami and Berry (1985) who have developed the Service Quality “Servqual “ methodology from 1983 onwards and they also developed their first servqual measuring instrument in 1985 and subsequently have refined it . They postulate that the only factors that are important are those that the customers perceive as relevant to them .

2.4 THE SERVQUAL SYSTEM

Parasuraman, Zeithaml and Berry's research according to Palmer (1998) concentrates on the belief that service quality is measurable, although due to intangibility it may be more difficult to measure than goods quality. It tackles two basic dimensions of service provision outcomes and processes - and supplements this with a number of additional dimensions of service quality which transcend these two basic dimensions. Furthermore they make the point that the only factors that are relevant in determining service quality are those that customers perceive as being important. Only customers judge quality - all other judgements are considered to be essentially irrelevant. Thus they set out to determine what customers expect from services and what the characteristics are which define these services (effectively what is the service in the mind of the customer). A service is deemed to be of high quality when consumers' expectations are confirmed by subsequent service delivery. Because of the emphasis on differences between expectations and perceptions, this type of model is often referred to as a disconfirmation model. Parasuraman, Zeithaml and Berry have subsequently endeavoured to develop an instrument for measuring customers' perceptions of service quality compared to their expectations. Their findings have evolved from a set of qualitative marketing research procedures culminating in the quantitative technique for measuring service quality which is known as **ServQual** (*derived from Service Quality*)

2.4.1 The Original Servqual Instrument

According to the original paper by A.Parasuramen and V.A.Zeithaml and L.L.Berry on Servqual : A Multiple –Item Scale for Measuring Consumer Perceptions of Service Quality 1988:Pages 15-17) we have :

2.4.2 Domain of the Service Quality Construct

“The Conceptual foundation for the SERVQUAL scale was derived from the works of a handful of researchers who have examined the meaning of service quality (Sasser, Olsen, and Wyckoff 1978; Gronroos 1982; Lehtinen and Lehtinen 1982) and from a comprehensive qualitative research study that defined service quality and illuminated the dimensions along which consumers perceived and evaluate service quality (Parasuraman, Zeithaml, and Berry, 1985).

2.4.3 Conceptualisation of Service Quality

The construct of quality as conceptualised in the services literature and as measured by SERVQUAL, the scale that is the focus of this article, involves perceived quality. Perceived quality is the consumer’s judgement about an entity’s overall excellence or superiority (Zeithaml 1987). It differs from objective quality (as defined by, for example, Garvin 1983 and Hjorth-Anderson 1984); it is a form of attitude, related but not equivalent to satisfaction, and results from a comparison of expectation of expectation with perceptions of performance.

2.4.4 Perceived quality versus Objective quality

Researchers (Garvin 1983; Dodds and Monroe 1984; Holbrook and Corfman 1985; Jacoby and Olson 1985; Zeithaml 1987) have emphasized the difference between objective and perceived quality. Holbrook and Corfman (1985), for example, note that consumers do not use the term quality in the same way as researchers and marketers, who define it conceptually. The conceptual meaning distinguishes between mechanistic and humanistic quality; “mechanistic (quality) involves an objective aspect or feature of a thing or event; humanistic (quality) involves the subjective response of people to objects and is therefore a highly relativistic phenomenon that differs between judges” (Holbrook and Corfman 1985, p. 33) Gavin (1983) discussed five

approaches to defining quality, including two (product-based and manufacturing-based that refer to objective quality and one (user-based) that parallels perceived quality.

2.4.5 Quality as attitude

Olshavsky (1985) views quality as a form of overall evaluation of a product, similar in many ways to attitude. Holbrook(1985) concurs, suggesting that quality acts as a relatively global value judgement. Exploratory research conducted by Parasuraman, Zeithaml, and Berry (1985) supports the notion that service quality is an overall evaluation similar to attitude. The researchers conducted a total of twelve focus group interviews with current or recent consumers of four different services – retail banking, credit card, securities brokerage, and product repair and maintenance. The discussions centered on issues such as the meaning of quality in the context of the service in question, the characteristics the service and its provider should possess in order to project a high-quality image, and the criteria customers use in evaluating service quality. Comparison of the findings from the focus revealed that, regardless of the type of service, customers used basically the same general criteria in arriving at an evaluative judgement about service quality.

2.4.6 Quality versus Satisfaction

Oliver (1981) summarizes current thinking on satisfaction in the following definition: [satisfaction is a] summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with consumer's prior feeling about the consumption experience". this and other definitions (e.g., Howard and Sheth 1969, Hunt 1979) and most all measures of satisfaction relate to a specific transaction. Oliver (1981) summarizes the transaction-specific nature of satisfaction, and differentiates it from attitude, as follows:

Attitude is the consumer's relatively enduring affective orientation for a product, store, or process (e.g., customer service) while satisfaction is the emotional reaction following a disconfirmation experience which acts on the

base attitude level and is consumption-specific. Attitude is therefore measured in terms more general to product or store and is less situationally oriented.

Consistent with the distinction between attitude and satisfaction, is a distinction between service quality and satisfaction: perceived service quality is a global judgment, or attitude, relating to the superiority of the service, whereas satisfaction is related to a specific transaction. Indeed, in the twelve focus group interviews included in the exploratory research conducted by Parasuraman, Zeithaml, and Berry (1985), respondents gave several illustrations of instances when they were satisfied with a specific service but did not feel the service firm was of high quality. In this way, the two constructs are related, in that incidents of satisfaction over time result in perceptions of service quality. In Oliver's (1981) words, "satisfaction soon decays into one's overall attitude toward purchasing products."

2.4.7 Expectations compared to Perceptions

The writings of Sasser, Olsen, and Wyckoff (1978); Gronroos (1982); and Lehtinen and Lehtinen (1982), and the extensive focus group interviews conducted by Parasuraman, Zeithaml, and Berry (1985), unambiguously support the notion that service quality, as perceived by consumers, stems from a comparison of what they feel service forms should offer (i.e., from their expectations) with their perceptions of the performance of forms providing the services. Perceived service quality is therefore viewed as the degree and direction of discrepancy between consumers' perceptions and expectations.

The term "expectation" as used in the consumer satisfaction literature. Specifically, in the satisfaction literature, expectations are viewed as predictions made by consumers about what is likely to happen during an impending transaction or exchange. For instance, according to Oliver (1981), "It is generally agreed that expectations are consumer-denied probabilities of the occurrence of positive and negative events if the consumer engages in some behaviour" (p.33). In contrast, in the service quality literature,

expectations are viewed as desires or wants of consumers, i.e., what they feel a service provider should offer rather than would offer.

2.4.8 Dimensions of service quality

Exploratory research of Parasuraman, Zeithmal, and Berry (1985) revealed that the criteria used by consumers in assessing service quality fit 10 potentially overlapping dimensions. These dimensions were tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding/knowing the customer, and access (Parasuraman, Zeithaml, and Berry 1985, p. 47). These 10 dimensions and their descriptions served as the basic structure of the service-quality domain from which items which items were derived for the SERVQUAL scale. See Figure 2.3

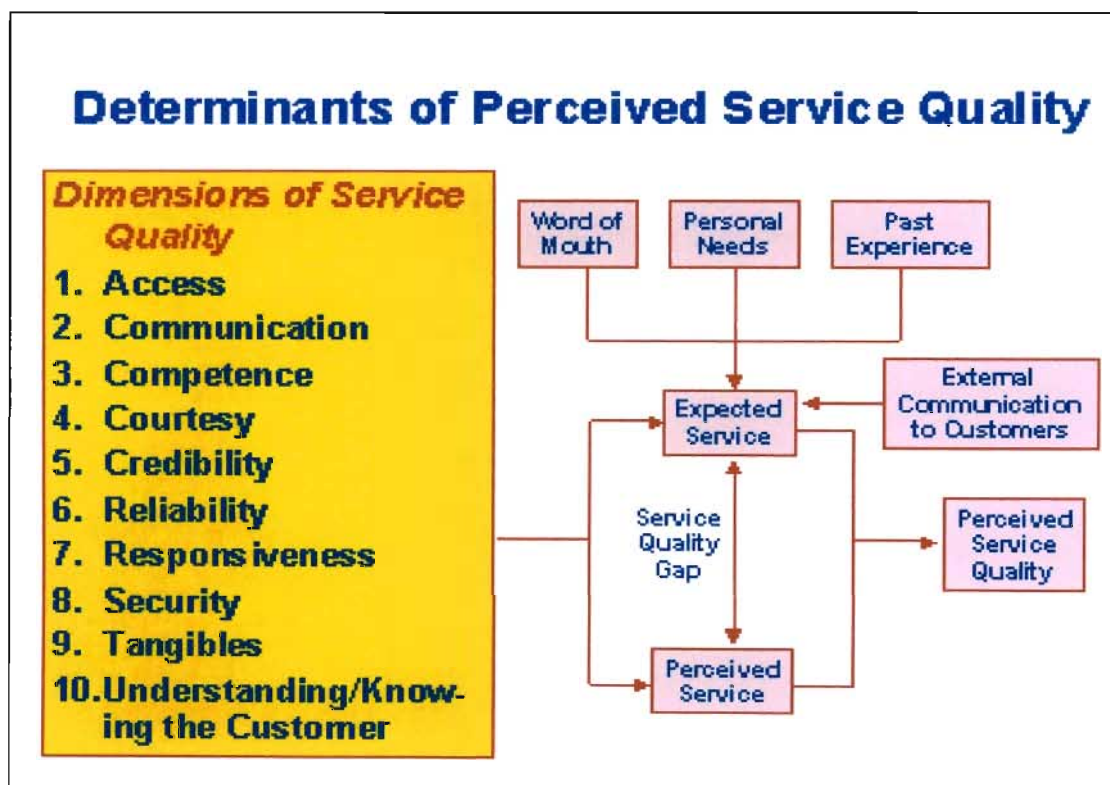


Figure 2.3 The SERVQUAL Model: Its Evolution and Current Status based on Parasuraman, A., ARL's Symposium on Measuring Service Quality, Washington, DC, October 20th, 2000

2.4.9 Generation of Scale Items

Items representing various facets of the 10 service-quality dimensions were generated to form the initial item pool for the SERVQUAL instrument. This process resulted in the generation of 97 items (approximately 10 items per dimension). Each item was recast into two statements – one to measure expectations about firms in general within the service category being investigated and the other to measure perceptions about the particular firm whose service quality was being assessed. Roughly half of the statement pairs were worded positively and the rest were worded negatively, in accordance with recommended procedures for scale development (Churchill 1979). A seven-point scale ranging from “strongly Agree” (7) to “Strongly Disagree” (1), with no verbal labels for scale points 2 through 6, accompanied each statement (scale values were reversed for negatively worded statements prior to data analysis). The expectation statements were grouped together and formed the first half of the instrument. The corresponding perception statements formed the second half. An abbreviated version of the instrument, containing a set of expectation statements (labelled as E's) and a corresponding set of perception Statements (labelled as P's), along with directions for responding to them, is included in the appendix. Negatively worded statements are identified by a minus sign within parentheses in the appendix.

2.4.10 The Methodology of Data Collection and Scale

Purification used by Parasuraman, Ziethaml and Berry(1985) in the development of the ServQual instrument

2.4.10.1 Early development- The 97 item instrument

The 97-item instrument was subjective to two stages of data collection and refinement. The first stage focused on : (1) condensing the instrument by retaining only those items capable of discriminating well across respondents having differing quality perceptions about forms in several categories, and (2) examining the dimensionality of the scale and establishing the reliabilities of

its components. The second stage was primarily confirmatory in nature and involved re-evaluating the condensed scale's dimensionality and reliability by analysing fresh data from four independent samples. Some further refinements to the scale occurred in this stage.

2.4.10.2 Reduction from 97 items in the survey instrument to 54 items

For the first stage pooled data was used from 5 service categories in order to produce a scale which would have general applicability . Raw scores were computed and used in the form of difference scores i.e : $Q = P - E$ (Perception scores minus expectation scores) . In order to condense the instrument an iterative sequence of computing Cronbach coefficient Alphas with item –to – total –correlations was used and this reduced the number of items from 97 to 54 items all with alpha values ranging from 0.72 to 0.83 . The dimensionality of the scale was accomplished by factor analysing the difference scores on the 54 items.

The oblique rotation produced a factor-loading matrix that was by and large easy to interpret. However, several items still had high loadings on more than one factor. When such items were removed from the factor-loading matrix, several factors themselves became meaningless because they had near-zero correlations with the remaining items, thereby suggesting a reduction in the presumed dimensionality of the service-quality domain. Furthermore, the highest loadings of a few of the remaining items were on factors to which they were not originally assigned. In other words, the factor loadings suggested reassignment of some items.

2.4.10.3 Further refinement of the Servqual instrument from 54 to 34 items

The deletion of certain items (and the resultant reduction in the total number of factors or clusters of items) and the reassignment of certain others necessitated the recomputation of alphas and item-to-total correlations and the re-examination of the factor structure of the reduced item pool. This iterative sequence of analyses was repeated a few times and resulted in a final pool of 34 items representing seven distinct dimensions.

From the first stage of the analysis 7 dimensions were classified as below :

D1	Tangibles
D2	Reliability
D3	Responsiveness
D4/D5	Communication/Credibility/Security/Competence/Courtesy
D6	Understanding/Knowing Customers
D7	Access

Five of the original 10 dimensions – tangibles, reliability, responsiveness, understanding/knowing customers, and access – remaining distinct. The remaining five dimensions – communication, credibility, security, competence, and courtesy – collapsed into two distinct dimensions (D4 and D5), each consisting of items from several of the original five dimensions.

2.4.10.4 The Final refinement of ServQual with 22 items

A few items with relatively low item-to-total correlations were deleted. Furthermore, as suggested by the factor analyses, the items remaining in D4 and D5, as well as those in D6 and D7, were combined to form two separate dimensions. For each sample, alpha values were recomputed for the reduced set of five dimensions and a factor analysis (involving extraction of five factors

followed by oblique rotation) was performed. This procedure resulted in a refined scale (“SERVQUAL”) with 22 items spread among five dimensions (D1, D2, D3, a combination of D4 and D5, and a combination of D6 and D7). The expectation and perception statements in the final SERVQUAL instrument are shown later

An examination of the content of the final items making up each of SERVQUAL’s five dimensions (three original and two combined dimensions) suggested the following labels and concise definitions for the dimensions:

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 last two dimensions (assurance and empathy) contain items representing seven original dimensions – communication, credibility, security, competence, courtesy, understanding/knowing customers, and access – that did not remain distinct after the two stages of scale purification. Therefore, while SERVQUAL has only five distinct dimensions, they capture facets of all 10 originally conceptualised dimensions .

2.5 DESCRIPTION OF SERVQUAL

In summary therefore the Servqual is a multi -item scale for measuring consumer perceptions of service quality .

Today numerous applied research companies use the “ Servqual “ instrument as an adapted measuring instrument to measure Customer Satisfaction within their industry. Although there are other measures of this abstract construct (Customer Satisfaction), the “ Servqual “ instrument is generally the most popular used instrument worldwide.

The Servqual instrument measures service, quality within the areas of customer satisfaction. The measuring instrument breaks down the construct of Customer Satisfaction into four distinct areas namely (Parasuraman, Ziethaml and Berry 1985 : P23):

- Tangibles (appearance of physical elements)
- Reliability (dependability , accurate performance)
- Responsiveness (promptness and helpfulness)
- Assurance (competence , courtesy , credibility , and security)
- Empathy (caring and individualized attention the firm provides for its customers

From a statistical standpoint the measuring instrument asks four/five questions within each of these defined construct areas measuring the perceptions and attitudes of the respondents. We will use a Likeart scale for each question. The measuring instrument goes a step further in that it firstly measure expectations of the respondent of the industry and thereafter using the same questions it then measures the perceptions of the respondent to the industry.

To measure the level of customer satisfaction for a service, the results for perceptions and expectations need to be calculated for each customer. From this, measures of service quality can be calculated by simply subtracting expectation scores from perception scores, either unweighted or weighted to take into consideration the relative importance of each dimension of quality. (For the purposes of this study we will use unweighted measures). The

outcome from a one off study of this form tells the company whether its customer expectations are exceeded or not.

Obviously the results from this one off survey enables one to potentially find pitfalls within the industry and hence possible business packaging opportunities for a new competitor company to adopt.

2.6 THE SERVQUAL METHODOLOGY IN MORE DETAIL

From Palmer (1998) The SERVQUAL technique can be used by companies to better understand the expectations and perceptions of their customers. It is applicable across a broad range of services industries and can be easily modified to take account of the specific requirements of a company. In effect it provides a skeleton for an investigatory instrument which can be adapted or added to as needed.

SERVQUAL *is* based upon a generic 22-item questionnaire which is designed to cover five broad dimensions of service quality which the research team consolidated from their original qualitative investigations. The five dimensions covered, with some description of each and the respective numbers of statements associated with them is as follows:

Customers are asked to self-complete the 22 statements relating to their expectations and perceptions section consisting of a matching set of company-specific statements about service delivery. They are asked to score in each instance on a Likert scale from 1 to 5 (strongly disagree to strongly agree), whether or not they agree with each statement. In addition, the survey asks for respondents' evaluation of the relative importance they attach to each of the dimensions of quality, any comments that they would care to make about their experiences of the service, and their overall impression of it. Customers are also asked for supplementary demographic data.

To measure the level of customer satisfaction for a service provided by a particular company, the results for perceptions and expectations need to be calculated for each customer. From this, measures of service quality can be derived quite simply by subtracting expectations scores from perception scores, either unweighted, or weighted to take into consideration the relative importance of each dimension of quality, or the relative importance of different customer groups. The outcome from a one-off study is a measure that tells the company whether its customers' expectations are exceeded or not.

Beyond this simple analysis, SERVQUAL results can be used to identify which components' or facets of a service the company is particularly good or bad at. It can be used to monitor service quality over time, to compare performance with that of competitors, or to measure customer satisfaction with a particular service industry generally.

An organization or industry group can use the information collected in this way to improve its position by acting upon the results and seeking to surpass customers' expectations on a continuous basis. Additionally, the expectations-perceptions results, along with the demographic data, may facilitate effective customer segmentation.

It is important that service providers decide upon a target quality of service level and then communicate the level of service on offer to both consumers and employees. This allows employees to know what is expected of them and customers will have an idea of the level of service they can expect to find.

2.6.1

Gaps explained and diagrams

Source: Servqual Diagrams(2002), Rowan University, New Jersey

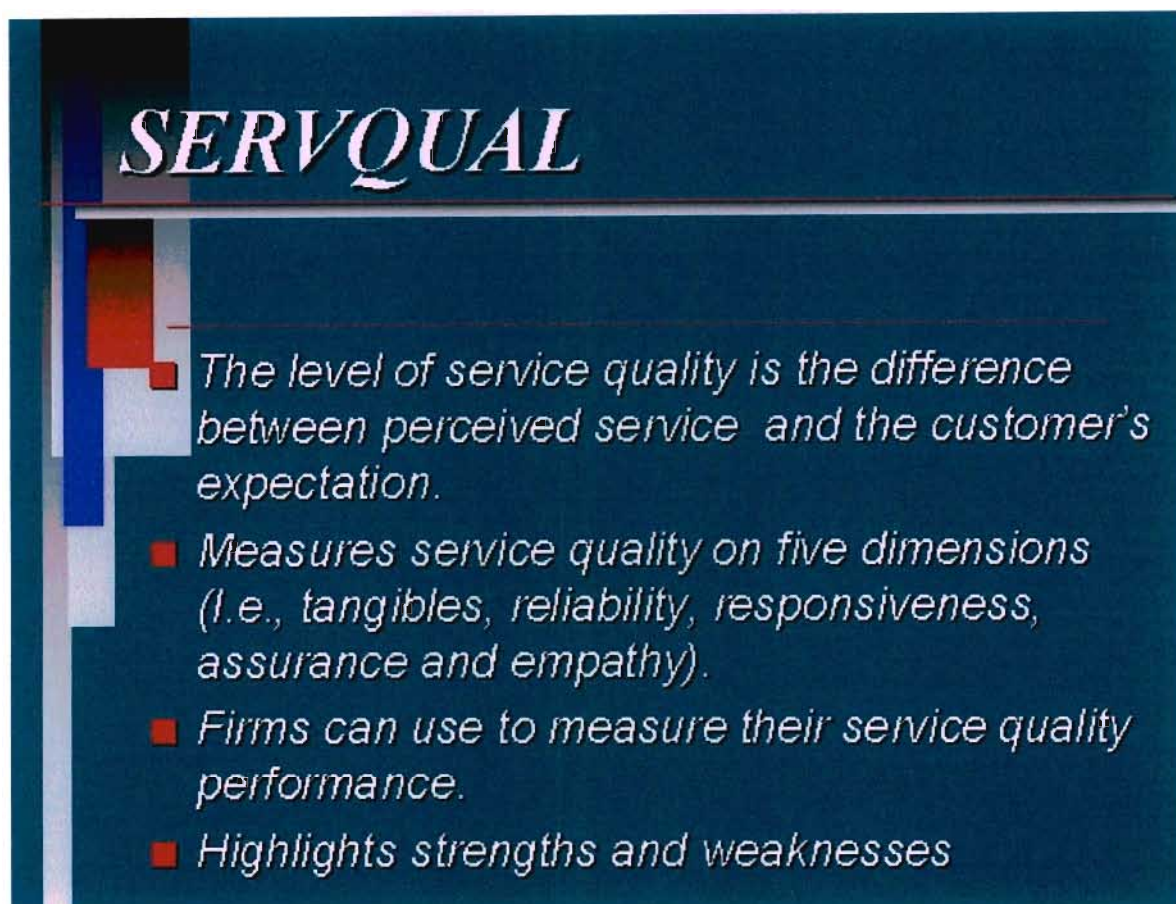


Figure 2.4 – The Basis of the Servqual Instrument

The SERVQUAL methodology highlights the difficulties in ensuring high quality of service for all customers in all situations. More specifically, it identifies five gaps where there may be a shortfall between expectation of service level and perception of actual service delivery.

Service Quality

Gap 1 (The Knowledge Gap)

Difference between what customers expect and management perceptions of customer expectations. Not knowing what customers expect

Causes

- Failure of management to identify consumer expectations.

Strategies

- Communicate with customers
- Conduct market research
- Encourage upward communication
- Decrease layers of management

Source: Valarie A. Zeithaml, Leonard L. Berry, and A. Parasuraman, "Communication and Control Processes in the Delivery of Service Quality," *Journal of Marketing*, Vol. 52 (April 1988), pp. 35-48.

Figure 2.5 – Gap 1 (The Knowledge Gap)

Gap 1: Gap between consumer expectations and management perception
Management may think that they know what consumers want and proceed to deliver this when in fact consumers may expect something quite different

Service Quality Gap 2 (The Standards Gap)

Difference between management perceptions of customer expectations and service quality specifications

Causes

- *Resource constraints*
- *Market conditions*
- *Management indifference*

Strategies

- *Top management commitment*
- *Service quality goals*
- *Standardization of tasks*

Figure 2.6 – Gap 2 (The Standards Gap)

Gap 2: Gap between management perception and service quality specification

Management may not set quality specifications or may not set them clearly. Alternatively, management may set clear quality specifications but these may not be achievable.

Service Quality Gap 3 (The Delivery Gap)

Difference between service quality specifications and delivery of specifications. Failure to ensure that service performance matches specifications

Causes

- *Employees unaware of specifications*
- *Employees do not have skills*
- *Employees unwilling to perform work*

Strategies

- *Enhance teamwork*
- *Ensure employee-job fit*
- *Ensure technology-job fit*
- *Employee control*
- *Supervisory system*
- *Reduce role conflict*
- *Reduce role ambiguity*

Figure 2.7 – Gap 3 (The Delivery Gap)

Gap 3: Gap between service quality specifications and service delivery

Unforeseen problems or poor management can lead to a service provider failing to meet service quality specifications. This may be due to human error but also mechanical breakdown of facilitating or support goods.



Figure 2.8 – Gap 4 (The Communications Gap)

Gap 4: Gap between service delivery and external communications There may be dissatisfaction with a service due to the excessively heightened expectations developed through the service provider's communications efforts. Dissatisfaction occurs where actual delivery does not meet up to expectations held out in a company's communications.

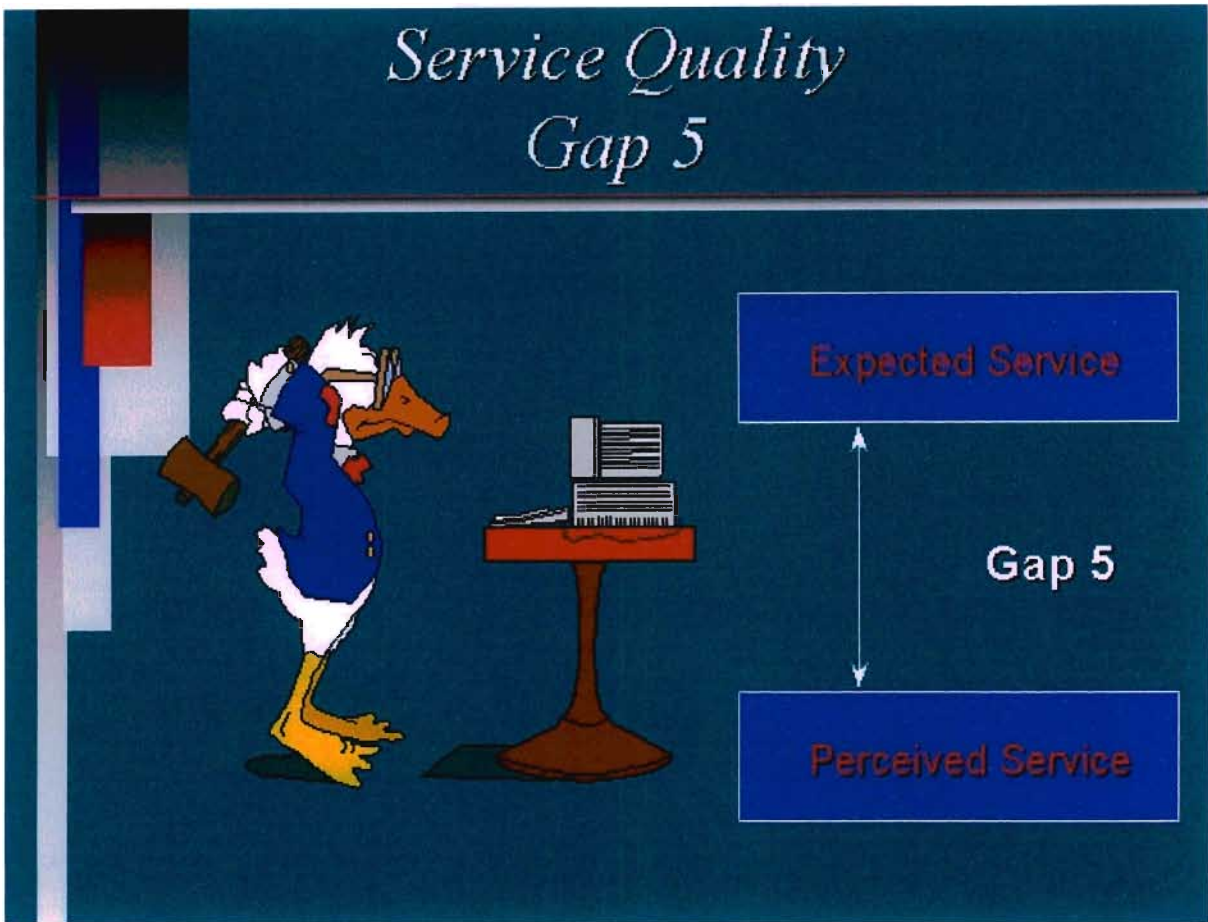


Figure 2.9 – Gap 5 (The Difference between Expected and Perceived Service)

Gap 5: Gap between perceived service and expected service. This gap occurs as a result of one or more of the previous gaps.

2.6.2 Practical Application of the Gaps

These gaps are explained graphically (Figure 2.10) in a practical application as applied in a restaurant below :

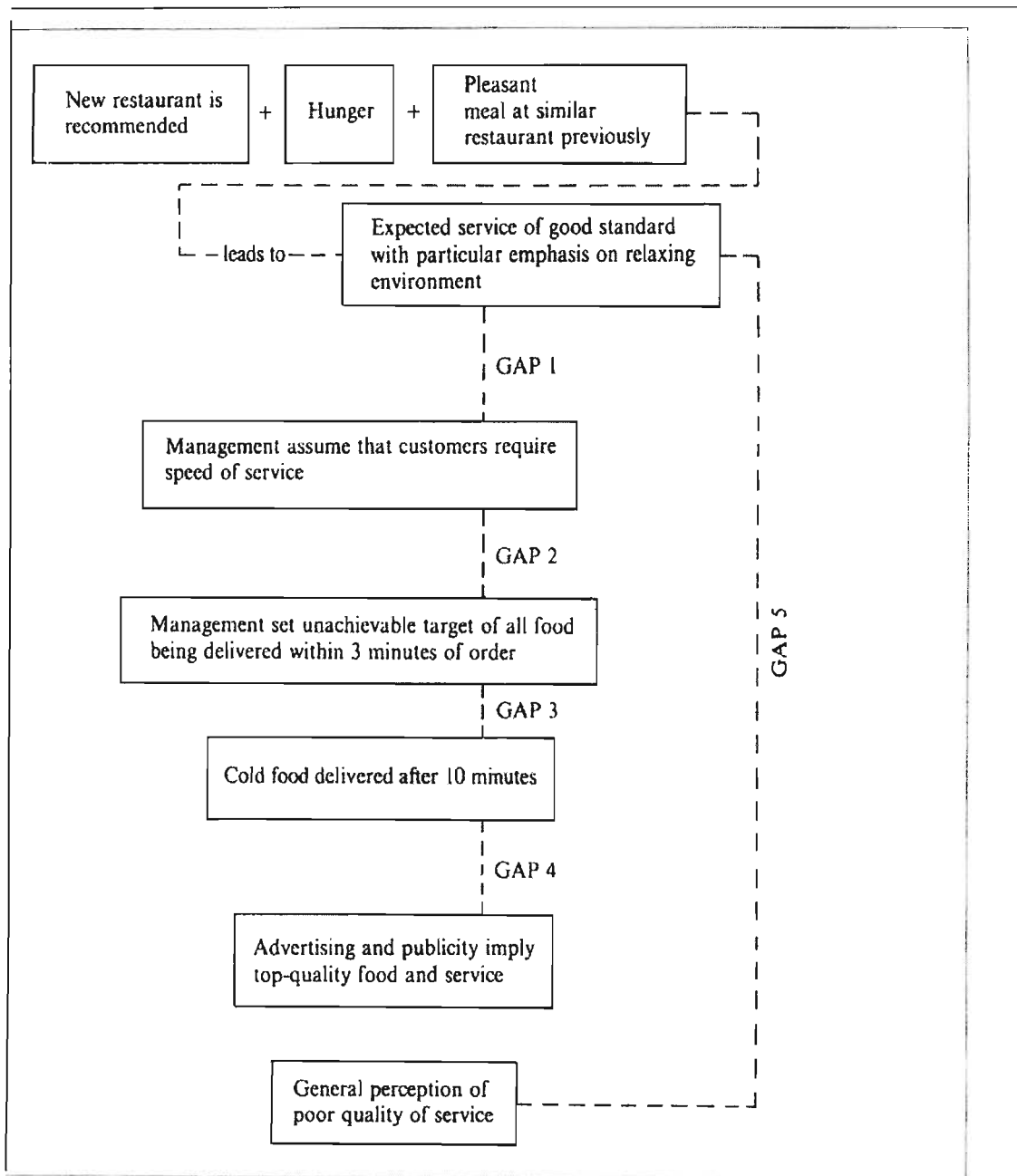


Figure 2.10 Sources of divergence between service quality expectation and delivery (Source: Modified from Parasuraman *et al* (1993) 'A Conceptual Model of Service Quality and its Implications for Future Research', *Journal of Marketing*, Fall)

The gaps model as illustrated above is useful as it allows management to make an analytical assessment of the causes of poor service quality. If the first gaps are great, the task of bridging the subsequent gaps becomes greater, and indeed it could be said that in such circumstances quality service can only be achieved by good luck rather than good management.

2.6.3 Contributing Factors for each of the Organisational Gaps

The challenge to the organisation is to isolate which variables are influencing service quality perceptions negatively and how to eliminate them. Of key importance to your organisation is Gap 1. Gap 5 relates to the overall perception your client-base has of your unit's ability to deliver on service commitments made.

Gap 1: Discrepancy between actual customer expectations and management perceptions of those expectations.

Gap 2: Discrepancy between management perceptions of customer expectations and service-quality specifications.

Gap 3: Discrepancy between service quality and service actually delivered.

Gap 4: Discrepancy between service actually delivered and what is communicated about the service to customers.

Gap 5: Discrepancy between customer's expectations of the service provider and their perceptions of provider delivery.

2.6.4 Zones of Tolerance

Much recent attention has been given to the processes by which customers' expectations of service quality are formed. Zeithaml, Berry and Parasuraman (1993) have proposed that three levels of expectations can be defined against which quality is assessed; the desired level of service, reflecting what the customer wants; the adequate service level, defined as the standard that customers are willing to accept; and the predicted service level - that which they believe is most likely to actually occur. This has led to the idea that *zones*

of tolerance may exist in consumers' perceptions of service quality. If perceptions fall below the desired level of service, this may still be acceptable as long as it does not fall below expectations based on an adequate level of service. In other words, rather than a service either meeting or failing a consumers' quality expectations, there is an intermediate zone of tolerance (Figure 2.11)

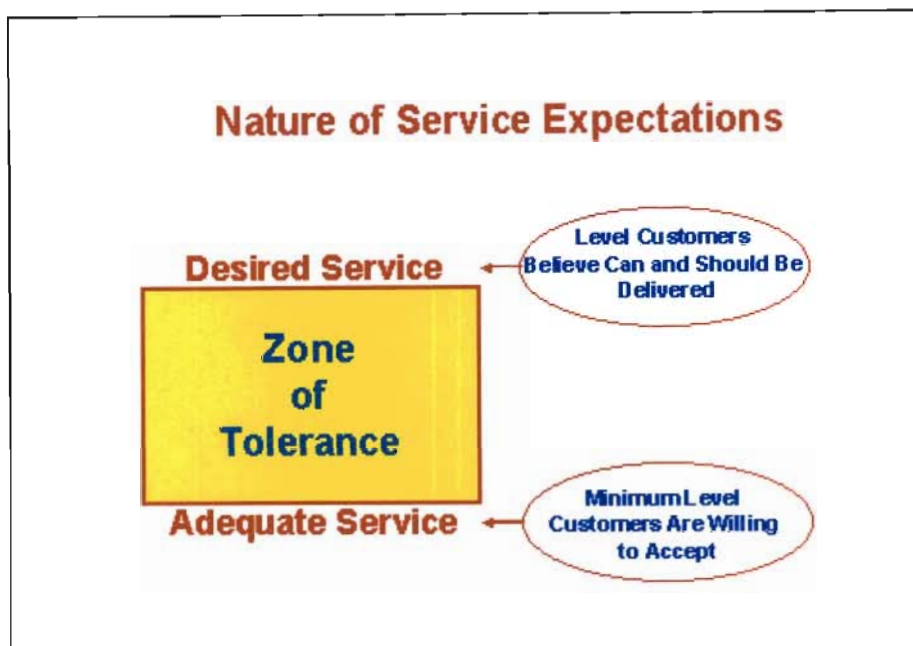


Figure 2.11 Zone of Tolerance

Source: Zeithaml, Berry and Parasuraman(1993)

2.7 REFINEMENT OF SERVQUAL

The wider variation for the negatively worded items implied that respondents may have been confused by those items. Second, managers in the five companies who reviewed the preliminary questionnaire felt that negatively worded expectations statements were awkward and not as meaningful as the positively worded items. Third, the reliability coefficients (Cronbach's alphas), were consistently lower than in the original SERVQUAL study (Parasuraman et al.1988) for responsiveness and empathy—the two dimensions that included all the negatively worded items. For these reasons, negatively worded items were all changed to a positive format in the final questionnaire.

The Cronbach's alpha reliability coefficients for the five SERVQUAL dimensions are similar across studies and are at least of the same order of magnitude as those reported in Parasuraman et al.(1988). These findings support the internal cohesiveness of the scale items forming each dimension. Furthermore the fact that the reliability coefficients obtained in the current study are higher than those obtained in the other studies (including Parasuraman et al. 1988) suggests that the wording changes incorporated in the current study have positive items—a refinement consistent with recommendations made by Babakua and Boller (1991) and Carman (1990) based on problems with negatively worded items in their studies—seems to have been especially beneficial.

Several different forms of validity can serve as criteria for assessing the psychometric soundness of a scale: face validity, convergent validity, discriminant validity, and predictive or concurrent validity.

2.7.1 Face validity.

SERVQUAL face validity a subjective criterion reflecting the extent to which scale items are meaningful and appear to represent the construct being measured, was explicitly assessed prior in the current study and two others (Babakus and Boller 1992;Carman 1990). In the current study, feedback from executives (in each of the five participating companies) who review the questionnaire confirmed that SERVQUAL—with minor wording changes in a few items—had face validity.

2.7.2 Convergent validity.

This to the extent to which scale items assumed to represent a construct do in fact “converge” on the same construct. The reliability of a scale as measured by coefficient alpha reflects the degree of cohesiveness among the scale items and is therefore an indirect indicator of convergent validity. As already measured, coefficient alpha values for the SERVQUAL dimensions are fairly high in all studies.

The findings from the replication studies differ the most from the original study with respect to SERVQUAL's discriminant validity—the extent to which SERVQUAL has five distinct dimensions correctively, the replication studies imply greater overlap among the SERVQUAL dimensions—especially among responsiveness, assurance, and empathy—than implied by the original study.

2.7.3 Predictive or Concurrent Validity.

This measures the SERVQUAL validity to the extent to which SERVQUAL scores are associated as hypothesized with other conceptually related measures. Predictive/concurrent validity was examined in the current study as well as in the Babakus and Boller (1992). SERVQUAL performs fairly well in this regard, with two exceptions.

2.8 GUIDELINES FOR THE USE OF SERVQUAL

It is stated in the original study that SERVQUAL is a generic instrument with good reliability and broad applicability. Having now refined and reassessed SERVQUAL, researchers feel confident of its usefulness. Nevertheless, the combined evidence from various replication studies raises important issues that call for further research. In the meantime, the refined SERVQUAL scale can be used to assess service quality, provided potential users are cognizant of the nature, scope, and limitations of the instrument.(Parasuraman et al. 1988)

The purpose of SERVQUAL is to serve as a diagnostic methodology for uncovering broad areas of a company's service quality shortfalls and strengths. SERVQUAL's dimensions and items represent core evaluation criteria that transcend specific companies and industries, as implied by the systematic, multi-stage, and iterative process that produced the instrument systematic, multi-stage, and iterative process that produced the instrument (Parasuraman et al.1988). As such, the following guidelines and caveats, in

addition to those in our original article, should be helpful in ensuring the most appropriate and effective use of SERVQUAL.

First, since SERVQUAL is the basic “skeleton” underlying service quality, it should be used in its entirety as much as possible. While minor modifications in the wording of items to adapt them to a specific setting are appropriate, deletion of items could affect the integrity of the scale and cast doubt on whether the reduced scale fully captures service quality.

Second, context-specific items can be used to supplement SERVQUAL. However, the new items should be similar in form to existing SERVQUAL items (e.g., they should be general rather than transaction specific). Moreover, each new item, based on its content, should be classified under the most appropriate SERVQUAL dimension. Although items that do not fit under any of the five dimensions (e.g., items about customers’ perceptions of a service’s cost) may be useful to include in the survey questionnaire, such items should be treated separately in analysing the survey data since they do not fall under the conceptual domain of service quality.

Finally, the use of SERVQUAL can fruitfully be supplemented with additional qualitative or quantitative research to uncover the causes underlying the key problem areas or gaps identified by a SERVQUAL study. SERVQUAL is a useful starting point, not the final answer, for assessing and improving service quality. Its standard five-dimensional structure serves as a meaningful framework for tracking a firm’s service quality performance over time and comparing it against the performance of competitors

2.9 THE MEASURING INSTRUMENT

According to SERVQUAL : A MULTIPLE-ITEM SCALE FOR MEASURING CONSUME PERCEPTIONS OF SERVICE QUALITY by Parasuraman , Zeithaml and Berry (Volume 64 , Number 1 , 1988) , THE ORIGINAL SERVQUAL INSTRUMENT states that the following questions should be asked in the measuring instrument.

DIRECTIONS: This survey deals with your opinions of - services. Please show the extent to which you think firms offering -- services should possess the features described by each statement. Do this by picking one of the , seven number next to each statement. If you strongly agree that these films should possess a feature, circle the number 7. If you strongly disagree that these films should possess a feature, circle 1. If your feelings are not strong, circle one of the numbers in the middle. There are no right or wrong answers, all we are interested in is a number that best shows your expectations about firms offering – services (E stands for EXPECTATIONS).

- E1. They should have up-to-date equipment
- E2. Their physical facilities should be visually appealing,
- E3. Their employees should be well dressed and appear neat.
- E4. The appearance of the physical facilities of these firms should be in keeping with, the type of services provided.
- E5. When these firms promise to do something by a certain time, they should do so.
- E6. When customers have problems, these firms should be sympathetic and reassuring,
- E7. These firms should be dependable.
- E8. They should provide their services at the time they promise to do so.
- E9. They should keep their records accurately.
- E10. They shouldn't be expected to tell customers exactly when services will be performed
- E11. It is not realistic for customers to expect prompt service from employees of these firms.
- E12. The employees don't always have to be willing to help customers.
- E13. It is okay if they are too busy to respond to customer requests promptly.
- E14. Customers should be able to trust employees of these firms.
- E15. Customers should be able to feel comfortable in their transactions with these firms' employees.

- E16. Their employees should be polite,
- E17. Their employees should get adequate support from these firms to do their jobs well.
- E18. These firms should not be expected to give customers individual attention.
- E19. Employees of these firms cannot be expected to give customers personal attention.
- E20. It is unrealistic to expect employees to know what the needs of their customers are.
- E21. It is unrealistic to expect these firms to have their customers' best interests at heart.
- E22. They shouldn't be expected to have operating hours convenient to all their Customers.

DIRECTIONS: The following set of Statements relate to your feelings about XYZ. For each Statement, please show the extent in which you believe XYZ has the feature described by the Statement. Once again, circling a 7 means that you strongly agree that XYZ has that feature, and circling a 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 XYZ. P stands for perception

- P1. XYZ has up-to-date equipment.
- P2. XYZ's physical facilities are visually appealing,
- P3. XYZ's employees are well dressed and appear neat.
- P4. The appearance of the physical facilities of XYZ is in keeping with the type of services provided,
- P5. When XYZ promises to do something by a certain time, it does so.
- P6. When you have problems, XYZ is sympathetic and reassuring.
- P7. XYZ is dependable.
- P8. XYZ provides its services at the time it promises to do so.
- P9. XYZ keeps its records accurately.
- P10. XYZ does not tell customers exactly when services will be performed .

- P11. You do not receive prompt service from XYZ's employees.
- P12. Employees of XYZ are not always willing to help customers.
- P13. Employees of X YZ are too busy 10 respond 10 customer requests promptly.
- P14. You can trust employees of X YZ.
- P15. You feel sure in your transactions with XYZ's employees.
- P16. Employees of XY are polite.
- P17. Employees get adequate support from XYZ to do their jobs well.
- P18. XYZ does not give you individual attention.
- P19 Employees XYZ do not give you personal attention.
- P20. Employees of XYZ do not know what your needs are.
- P21. XYZ does not have operating hours convenient to all their customers.

A seven-point scale ranging from "Strongly Agree" (7) to "Strongly Disagree" (1), with no verbal labels for the intermediate scale points (i.e. 2 through 6), accompanies each statement. Also, the statements were in random order in the questionnaire.

2.10 SERVQUAL A TYPICAL APPLICATION

The following questionnaire is a typical application of the SERVQUAL survey questionnaire applied here to the hotel sector (based on Gabbie and O'Neill , 'SERVQUAL and the Northern Ireland sector : a comparative study ' , *Managing Service Quality* , Vol . 7 (1) , 1997 , pp 43 –49).

Please complete Part A by indicating your expectations of hotels *in general*. Then complete Part B indicating your perceptions of this hotel *in particular*. Please answer on a scale from 1 (strongly disagree with the statement) to 7 (strongly agree).

[PART A]

Directions: please complete the following questionnaire pertaining to service quality. If you feel the features mentioned in each statement are essential in your judgment of the hotel, please circle 7. However if you feel the features mentioned are of little importance. please circle number 1.

Strongly Disagree Strongly
Agree

- | | | |
|------|--|---------------------------|
| (1) | An excellent hotel will have modern looking equipment, e.g. dining facility; bar facility, crockery, cutlery, etc. | 1...2...3...4...5...6...7 |
| (2) | The physical facilities, e.g. buildings, signs, dining room decor, lighting, carpet etc., at an excellent hotel will be visually appealing | 1...2...3...4...5...6...7 |
| (3) | Staff at an excellent hotel will appear neat, e.g. uniform, grooming etc. | 1...2...3...4...5...6...7 |
| (4) | Materials associated with the service, e.g. pamphlets, statements, table wine, serviettes will be visually appealing in an excellent hotel | 1...2...3...4...5...6...7 |
| (5) | When an excellent hotel promises to do something by a certain time, it will do so | 1...2...3...4...5...6...7 |
| (6) | When patrons have a problem, an excellent hotel will show genuine interest in solving it, e.g. an error in a bill | 1...2...3...4...5...6...7 |
| (7) | An excellent hotel will perform service right the first time | 1...2...3...4...5...6...7 |
| (8) | An excellent hotel will provide its services at the time it promises to do so | 1...2...3...4...5...6...7 |
| (9) | An excellent hotel will insist on error-free service | 1...2...3...4...5...6...7 |
| (10) | Staff at an excellent hotel will tell patrons exactly when services will be performed | 1...2...3...4...5...6...7 |
| (11) | Staff at an excellent hotel will give prompt service to patrons | 1...2...3...4...5...6...7 |
| (12) | Staff at an excellent hotel will always be willing to help patrons | 1...2...3...4...5...6...7 |
| (13) | Staff at an excellent hotel will never be too busy to respond | 1...2...3...4...5...6...7 |

- | | | |
|------|---|---------------------------|
| (14) | The behaviour of staff at an excellent hotel will instill confidence in patrons | 1...2...3...4...5...6...7 |
| (15) | Patrons of an excellent hotel will feel safe in their transactions | 1...2...3...4...5...6...7 |
| (16) | Staff at an excellent hotel will be consistently courteous with patrons | 1...2...3...4...5...6...7 |
| (17) | Staff at an excellent hotel will have the knowledge to answer patrons' requests | 1...2...3...4...5...6...7 |
| (18) | Staff at an excellent hotel will give patrons individualized attention | 1...2...3...4...5...6...7 |
| (19) | An excellent hotel will have opening hours convenient to all of its patrons | 1...2...3...4...5...6...7 |
| (20) | An excellent hotel will have staff who give its patrons personal attention | 1...2...3...4...5...6...7 |
| (21) | An excellent hotel will have the patrons' best interests at heart | 1...2...3...4...5...6...7 |
| (22) | The staff of an excellent hotel will understand the specific needs of their patrons | 1...2...3...4...5...6...7 |

[PART B]

- | | | |
|-----|--|---------------------------|
| (1) | The hotel has modern looking equipment | 1...2...3...4...5...6...7 |
| (2) | The physical facilities at the hotel are visually appealing | 1...2...3...4...5...6...7 |
| (3) | Staff at the hotel appear neat | 1...2...3...4...5...6...7 |
| (4) | Materials associated with the service are visually appealing | 1...2...3...4...5...6...7 |
| (5) | When the hotel promised to do something by a certain time, it did it | 1...2...3...4...5...6...7 |
| (6) | When patrons have problems, the hotel shows a genuine interest in solving them | 1...2...3...4...5...6...7 |

(7)	The hotel performs the service right the first time	1...2...3...4...5...6...7
(8)	The hotel provides its services at the time it promises to do so	1...2...3...4...5...6...7
(9)	The hotel insists on error-free service	1...2...3...4...5...6...7
(10)	Staff at the hotel were able to tell patrons exactly when services would be performed	1...2...3...4...5...6...7
(11)	Staff at the hotel give prompt service to the patrons	1...2...3...4...5...6...7
(12)	Staff at the hotel are always willing to help patrons	1...2...3...4...5...6...7
(13)	Staff of the hotel are never too busy to respond to patrons	1...2...3...4...5...6...7
(15)	Patrons of the hotel feel safe in their transactions	1...2...3...4...5...6...7
(16)	Staff of the hotel are consistently courteous with patrons	1...2...3...4...5...6...7
(17)	Staff of the hotel have the knowledge to answer patrons	1...2...3...4...5...6...7
(18)	The hotel gives patrons individualized attention	1...2...3...4...5...6...7
(19)	The hotel has opening hours convenient to all of its patrons	1...2...3...4...5...6...7
(20)	The hotel has staff who give its patrons personalized attention	1...2...3...4...5...6...7
(21)	The hotel has the patrons best interests at heart	1...2...3...4...5...6...7
(22)	The staff of the hotel understand the specific needs of their patrons	1...2...3...4...5...6...7

2.11 CRITICISMS OF SERVQUAL

Although SERVQUAL is the most widely used model to evaluate service quality we need to be realistic and be aware that there are many critiques of this model as it is always going to be a difficult science to measure any abstract construct and any innovators in this area will always be questioned.

Therefore, although we have used an adapted form of servqual in our research we need to appreciate the potential shortcomings of this very same model and interpret it in context of such shortcomings.

2.11.1 Applications and Shortcomings of ServQual

The Servqual authors, Parasuraman et al. (1988:P 30-31) state: 'it [the model] provides a basic skeleton... when necessary, can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization'. It should be noted, however, that in 1991, they state: 'Since SERVQUAL is the basic "skeleton" underlying service quality, it should be used in its entirety as much as possible. While minor modifications in the wording of items to adapt them 'to a specific setting are appropriate, deletion of items could affect the integrity of the scale and cast doubt on whether the reduced scale fully captures service quality',

A key difference with respect to the SERVQUAL instrument is the extent to which researchers have adhered to the 22-item format. Most researchers, even while commending SERVQUAL for its face and/or content validity, have added to, deleted from or amended the item content so as to make the questionnaire more relevant to a specific service situation. This raises the question as to what extent the proposed 22-item scale offers a generic measure.

Similarly a considerable number of researchers have failed to identify the five underlying dimensions Carman (1990), for example, has identified a greater number of dimensions and others have highlighted the multifaceted nature of services. Some of these are discussed later.

Replication studies of SERVQUAL have, therefore, suggested that the instrument itself requires substantial amendments and extensions to include other key elements affecting the consumers' evaluation of the service.

2.11.2 An extension of the model by Carman (1990)

To address certain shortcomings of Servqual, Carman (1990) proposed an extension of the work by Parasuraman et al. (1988). He replicated the SERVQUAL model in four diverse service industries. The purpose was to investigate six questions related to the SERVQUAL scale:

- the extent to which the number of dimensions of service quality is generalisable to all settings
- the robustness of the wording of the SERVQUAL items
- service situations with multiple service functions and the role of product quality in bundled retail service offerings
- the validity of analysing the differences between expectations and perceptions
- the necessity of administering the expectations battery
- the relationship between expectations and importance.

Carman (1990) found the dimensions to be 'useful and generally persuasive'. However, certain problems were encountered. Although the model adequately satisfies the first two questions, practitioners' will need to make some changes in adapting the instrument to a particular setting and will need to make substantial changes in adopting the instrument with respect to questions 3 through 6 (Carman 1990).

Carman's research shows that in using the SERVQUAL model caution should be exercised in reducing the original ten dimensions to five as in any one setting five to seven dimensions were important. These were identified as tangibles, reliability, responsiveness, security, courtesy, personal attention, and trust.

In all settings it would be necessary to alter the wording of some of the individual SERVQUAL items in order to make the item more appropriate to the setting. Some dimensions should have additional items added to those in the original article.

In settings where customers receive a variety of service in a departmentalised way, e.g. department stores and airline travel, customers were able to assess service quality in each of these settings separately. They will evaluate them separately and the overall evaluation of the retailer will be some generalized aggregation of the quality of the parts. In these situations it is necessary to assess service quality in each and then to determine the extent to which each contributes to a perception of overall quality. Carman (1990) suggests that in each of the parts, the same five to seven dimensions are appropriate and can be incorporated into this extended model.

In summary Carman(1990) suggests the following:

The treatment of expectations in traditional applications of the SERVQUAL scale is suspect.

- Importance weights should be included in the measures of service quality.
- The contribution of individual SERVQUAL items to the identified dimensions appears to vary across industries.

2.11.3 The Use of Difference Scores

While not generally recognised, the conceptualisation of service quality as a difference – score leads to a number of potential problems . These problems were reviewed and an investigation was carried out by Brown et al. (1993) to determine if they arose empirically with SERVQUAL . In an earlier publication by Brown, Churchill and Peter (1993) the authors cautioned the use of difference-scores as measures of constructs. They concluded that difference-scores are:

- (a) less reliable than other measures
- (b) may appear to demonstrate 'discriminant validity' (involves the extent to which a measure is novel and does not simply reflect some

other variable)

(c) may only be 'spuriously' correlated to other measures since they typically do not discriminate from at least one *of* their components

(d) may exhibit variance restriction (which occurs when one of the component scores used to calculate the difference-score is consistently higher than the other component).

Brown et al. (1993) also explored a nondifference-score conceptualisation of the same facets of service used in the SERVQUAL measure. The investigation indicated that the problems with SERVQUAL, brought on by its measurement as a difference-score, manifest themselves empirically.

Although SERVQUAL had high reliability, its reliability was below that of a nondifference-score measure of service quality. Moreover, not only did SERVQUAL fail to achieve discriminant validity from its components, but the perceptions component, by itself, performed as well as the difference score on a number of criteria. SERVQUAL also exhibited variance restriction effects and the distribution of SERVQUAL scores was not normal.

Brown et al. (1993) established that the nondifference-score measure did not exhibit these problems. Moreover, it displayed better discriminant and nomological validity properties. They claimed that the nondifference-score measure performed better than SERVQUAL on a number of important psychometric and statistical considerations. It did so while requiring subjects to respond to only half as many items (22 instead of 44), and thus is twice as efficient. The nondifference-score measure also allowed subjects to compare their expectations and perceptions directly and did not restrict them to some arbitrary, linear difference.

2.11.4 Defence of the Criticism by the Servqual Authors

Parasuraman et al. (1993) defended the above criticisms by arguing that the deficiencies of the difference-score conceptualisation are not as severe as they are made out to be: 'The superior predictive power of the P-only (perceptions) measures must be balanced against its inferior diagnostic

value'. Furthermore they argue that: the difference-score formulation provides richer, more accurate diagnostics for improving service quality and that managers can continue to have confidence in the difference-score conceptualisation of SERVQUAL. The use of difference scores is nevertheless questionable and further research is deemed necessary .

2.11.5 Practical issues and the timing of administering SERVQUAL

The major shortcoming of the SERVQUAL model as identified by Carman (1990) is that Parasuraman et al.(1988) suggest collecting data on consumers' expectations of the service they are about to receive, presumably as they come in the door; then to ask a very similar battery of questions on consumers' perceptions of the service received, as they leave. Then the authors recommend finding the difference between the perceptions and expectations and using this value in the quantitative analysis. Carman finds that this procedure is not very practical, nor is it the best analytical procedure and suggests alternatives on how to get around this problem.

The findings of another study conducted by Clow & Vorhies (1993) is adequately summarised as follows: the simultaneous measurement of consumer expectations and evaluation of service quality led to biased measures of expectations. Expectations continue to play an important role following the consumption experience. For dissatisfied consumers, the gap between expectations and experience gets larger. For satisfied consumers, the gap becomes smaller. For accurate measures of service quality, consumer expectations should be measured before the service experience and evaluation of the service after the patronage occurs (Clow & Vorhies 1993).

2.11.6 Criticisms of the Expectations scale

Two key issues have arisen as a result of the practice of calculating the gap between consumers' expectations and perceptions as a measure of service quality.

Firstly, Teas (1993) questions the meaning of the expectations measure and suggests that a substantial portion of the variance in the expectations scale is due to differences in respondent interpretations of the question being asked rather than to the variance in respondents' attitudes. In a study conducted by Smith (1995) the revised expectations measure (i.e. from 'should' to 'excellent companies will') appeared to have little advantage over the original scale. The mean score for the expectations scale was 6.401. She noted that of the 29 items the lowest mean score was 5.13. These high scores for the expectations scale are likely to result in negative P-E scores, which affects both the diagnostic utility of the measure and the underlying conceptual interpretation' (Smith 1995).

The second issue is whether the expectations battery should be administered at all. Smith (1995) noted that several researchers neglected to measure expectations and several others highlighted the independent effects of perceptions of, consumer evaluations of satisfaction or quality (Carman 1990; Bolton & Drew 1991 a; Cronin & Taylor 1992). Consequently, the usefulness of the adoption of the disconfirmation paradigm was brought into question.

Cronin & Taylor (1992) questioned the five dimensions of the SERVQUAL model by arguing that the disconfirmation-based paradigm of the model is flawed. They also provided empirical evidence that service quality should be measured as an attitude. The authors have proposed an alternative measure called SERVPERF, which is a performance-based measure of service, Apart from other literature supporting the performance-based paradigm (Babakus & Boller 1992; Babakus Mangold 1992; Boulding et al. 1993), Cronin & Taylor (1994) cite the following as the most telling evidence thus far':

Our results are incompatible with both the one-dimensional view of expectations and the gap formation of service quality, Instead, we find that service quality is directly influenced only by perceptions [of- performance] (Boulding et at. 1993).

Although there have been numerous criticisms during the last 15 years against Servqual , none of the critiques have been able to develop a better customer satisfaction measuring tool , and it is in this breath that we adopted

Servqual for our study , but it is important to realize that there are possible pitfalls that we need be aware of and we need to respect , but more conclusive evidence is still needed before an alternative model is readily adopted .

2.11.7 Managerial implications and recommendations

The results reported by various researchers suggest that the construct validity of SERVQUAL should be examined on an industry by industry basis before it is used to gather consumers' perceptions of service quality, Managers' are advised to carefully consider which issues are important to service quality in their specific environments and to modify the SERVQUAL scale as needed. The nondifference-score version of the scale can serve as a useful starting point for these modifications, Cronin & Taylor (1992, 1994) have suggested a performance-based measure of service as an improved means of measuring the service quality construct. They have consistently argued that managers should not include consumer expectations in measures of service quality, although expectations can impart valuable information 'if their unique effect on purchase behaviours and performance perceptions are conceptualised properly'. In addition to performance-based measures, performance-based maps would be of benefit.

2.11.8 The absence of Psychological disciplines in the Development of Servqual

There have been numerous criticisms of SERVQUAL for the inductive nature of the original research in that it failed to draw on the theory base in the disciplines of psychology, social sciences and economics (Anderson 1992). Relatively little attention has been devoted to an understanding of how perceptions are formed. Most importantly, it can be argued that disconfirmation models are flawed because *when* a respondent gives a response to their perception of service delivery can be just as important as the actual recorded score, or the level of expectations against which perceptions are compared (e.g. a person has a very negative attitude towards a haircut immediately after leaving a hairdresser, but their perceptions of the haircut

may become more favourable over time as they get used to it).

Finally, while the desirability of measuring service quality is now widely recognized, there is relatively little understanding of the mechanisms by which service quality leads to customer satisfaction and in turn leads to purchase intentions. An attempt to understand these linkages has been made by Cronin and Taylor (1992) who showed how service quality is an antecedent of consumer satisfaction, which in turn had a significant effect on purchase intentions. Their empirical investigation suggested that consumer satisfaction had greater effect on purchase intentions than quality as more narrowly defined.

2.11.9 Setting Quality Standards

A precise specification of service standards serves a valuable function in communicating the standard of quality which consumers can expect to receive. It also serves to communicate the standards which are expected of employees. While the general manner in which an organization goes about promoting itself may give a general impression as to what level of quality it seeks to deliver, more specific standards can be stated in a number of ways which are considered below.

At its most basic, an organization can rely on its terms of business as a basis for determining the level of service to be delivered to customers. These generally act to protect customers against excessively poor service rather than being used to proactively promote high standards of excellence. The booking conditions of tour operators, for example, make very few promises about service quality, other than offers of compensation if delays exceed a specified standard or if accommodation arrangements are changed at short notice.

Generally-worded customer charters go beyond the minimum levels of business terms by stating in a general manner the standards of performance which the organization aims to achieve in its dealings with customers. In this

way, banks usually publish charters which specify in general terms the manner in which accounts will be conducted and complaints handled.

Specific guarantees of service performance are sometimes offered, especially in respect of service outcomes. As an example, parcel delivery companies often guarantee to deliver parcel within a specified time and agree to pay compensation if they fall below the standard. Many of the companies now offer compensation payments if certain specified services are not delivered correctly.

Increasingly, service organizations set their service guarantees with reference to benchmarks established by best practice companies within their sector, or in a completely different sector. Sometimes, guarantees concentrate on the manner in which a service is produced rather than specifically on final outcomes. In this way, building societies set standards for the time which it will take to give a decision on a mortgage application and to subsequently process it. While there can be great benefits from publicising specific guaranteed performance standards to customers, failure to perform could result in heavy compensation claims, or claims for misleading advertising. Many highly specific targets are therefore restricted to internal use where their function is to motivate and control staff rather than to provide guarantees to potential customers.

Many services companies belong to a trade or professional association and incorporate the association's code of conduct into their own service offering. Codes of conduct adopted by members of professional associations as diverse as car repairers, undertakers and solicitors specify minimum standards below which service provision should not fall. The code of conduct provides both a reassurance to potential customers and a statement to employees about the minimum standards which are expected of them.

2.11.10 ISO 9001 Standard

Of more general applicability is the adoption of ISO 9001. Contrary to popular belief, a company operating to ISO 9001 does not guarantee a high level of quality for its service. Instead, ISO 9001 is granted to organisations who can show that they have in place management systems for ensuring a *consistent* standard of quality - whether this itself is high or low is largely a subjective judgement. Although this standard was initially adopted by manufacturing industries, it has subsequently found significant use among service companies, including education, leisure centres and building contractors. Increasingly, industrial purchasers of services are seeking the reassurance that its suppliers are ISO 9001 registered.

2.12 SUMMARY OF THE SERVQUAL METHODOLOGY

Despite the various methods suggested with respect to measuring service quality, none except SERVQUAL has received extensive empirical testing. The debate about SERVQUAL makes it clear that the conceptual clarity about the dimensions *of* service quality has not as yet been achieved. To have an impact on service strategy, the studies of service quality will need to incorporate variables other than those identified in SERVQUAL, e.g. price/quality or value relationship. The incorporation *of* these variables would help to clarify the relative priorities of not only the dimensions of quality, but also the other 'service winners' (Rosen & Karwan 1994).

Thus, service firms are still faced with uncertainty when trying to identify an appropriate measure of service quality. Given the importance of measuring and controlling service quality and the shortcomings of existing efforts, additional research in this area seems warranted.

2.13 WHY THE NEED TO MEASURE SERVICE QUALITY IN THE WASTE INDUSTRY

There are many legal requirements that companies need to adhere to in terms of their waste management policies. Companies are concentrating on their core competency of providing goods and services and it the aim of this research to establish if the service that they receive from their waste companies match up to their expectations in order for them to comply with many regulations and legal requirements.

2.13.1 Environmental Concerns of Companies

Environmental concerns, growing public pressure and regulatory measures are changing the way people do business around the world. Moves towards triple bottom line reporting (financial, social and environmental) by large companies around the world are evidence of this. Consumers and shareholders are increasingly demanding environmentally friendly products and services that are delivered by socially responsible companies.

More companies are recognizing the competitive advantage in going beyond simple regulatory compliance to sustainability. It is becoming increasingly important for organizations to demonstrate that their environmental policies are acceptable. Excellence in environmental performance, once viewed as an external cost , is fast becoming an integral part of economic prosperity.

Organisations adopt business strategies that maintain environmental quality and at the same time enhance competitive advantage and increase profitability. In the pursuits of outcomes , environmental and community benefits, management considers the long term interests and needs of their stakeholders. The number of annual reports being published by large corporations indicate that sustainable development has become an integral part of their corporate operations.

2.14 LEGISLATION RELATING TO WASTE MANAGEMENT IN SOUTH AFRICA

The producers of industrial waste have to ensure that the waste that they produce is disposed off in an environmentally acceptable manner and it is in compliance of many regulations and acts of parliament.

To achieve compliance it is necessary that companies have the appropriate support and backup from waste disposal companies to carry out their waste disposal activities. Also increasing pressure from environmental groups and government agencies makes it a prerequisite that companies waste are handled in the most environmentally acceptable manner with least impact on the surrounding environment.

2.14.1 Most Important National Acts

There are many acts, regulations, guidelines, codes of conduct , local by-laws and draft legislations in South Africa that the producers of waste are governed by. It affects all spheres of the commerce and industry as well as individuals They are as follows:-

- The Environmental Conservation Act (Act 73 of 1989 and amendments) – This statute was designed to address the management of the environment in South Africa but has some flaws which the National Environmental Management Act attempts to address. The ECA is the act that enables the Department of Water Affairs & Forestry to manage waste in terms of Section 24.
- National Environmental Management Act (107 of 1998) partially replaces ECA and will, eventually, entirely replace the ECA. It is new order legislation for South Africa and is modelled on overseas legislation. However, it, too, still has some serious flaws.
- The Water Act (Act 54 of 1956 and its amendments (1985). This is the original water act that controls the management and use of water in South Africa.
- Water Services Act (108 of 1997) – new order legislation that deals

with the distribution and use of water in South Africa enabling the establishment of Water Boards.

- National Water Act (36 of 1998). This is the act that deals with water quality management and water conservation.
- The Hazardous Substances Act (Act 15 of 1973). This act deals with the proper management and control of all hazardous substances in industry and includes the transport of these materials.
- The Health Act (Act 63 of 1977). This act deals with public health, infectious diseases, hospitals, clinics, health care institutions in general, health care waste management.
- The Atmospheric Pollution Prevention Act (Act 45 of 1965). This act is about to be repealed and will be replaced by another similar act which is related to NEMA above.
 - The Occupational Health & Safety Act (Act 85 of 1993). This legislation replaced the Factories Act and deals with the provision and management of safe working conditions in working environments – it also applies to waste disposal sites!

2.14.1.1 Less Significant National Acts

- Animal Slaughter, Meat and Animal Products Hygiene Act (Act 87 of 1967) – Foot & mouth, rinderpest and other notifiable stock diseases as well as tapeworms, etc. that might affect human beings.
- Conservation of Agricultural Resources Act (Act 43 of 1983). This act relates to the alienation of agricultural land, e.g. for landfill sites.
- Fertilizers, Farm Feeds, Agricultural Remedies & Stock Remedies Act (Act 36 of 1947). Hazards associated with these materials are catered for under this legislation.
- Foodstuffs, Cosmetics and Disinfectants Act (Act 54 of 1972). Also relates to hazardous substances that are to be found amongst these materials.
- Forest Act (Act 122 of 1984). Conservation of land under forestry – both indigenous and cultivated.
- Human Tissue Act (Act 65 of 1983). Related to the management of health

care wastes.

- Marine Traffic Act (Act 2 of 1981). Disposal of wastes arising from shipping and ship-based activities with an emphasis on pollution.
- Merchant Shipping Act (Act 57 of 1951). Similar to Marine Traffic Act.
- Minerals Act (Act 50 of 1991). As above, this act has a number of codicils that relate to the management of hazardous substances arising from mining activities or the purification of minerals.
- Nuclear Energy Act (Act 92 of 1982). This act deals with nuclear energy and provides for the establishment of a governing body to control nuclear energy. A codicil relates to the classification and control of radioactive wastes.
- Road Traffic Act (Act 29 of 1989). Codicils relating to the management of spillages of hazardous substances including wastes.
- Roads and Ribbon Development Act (Act 21 of 1940). Apart from the control of development this act also proscribes certain developments of a sensitive nature in designated areas, including waste water treatment works and landfill sites.
- Sea Fisheries Act (Act 58 of 1973). Codicils relating to the dumping of wastes arising from fishing and fish processing activities.
- Sea Shore Act (Act 21 of 1935)

2.14.2 Provincial Ordinances and Acts

- Road Ordinances - dumping of waste on roads
- Road Traffic Act - administered at Provincial level - prohibits waste along the road
- CA regulations which give provincial administrations responsibility for certain waste management functions
- Provincial Ordinances and Acts especially relating to planning

2.14.3 Local By-Laws

- By-laws – there is no uniformity from one local authority to another
- Empowering provincial local government ordinances over the littering of

public places, streets, private premises, streams, dams etc.

- Local authorities are obliged under the Health Act 63 of 1977 to provide sanitary services for the collection and disposal of waste. They may also require operators to apply for Scheduled Trade Permits or Trade Effluent Permits, depending on the Local Authority bylaws in the area under consideration.

2.14.4 Regulations

- ECA regulations can be made concerning
- classification of wastes,
- handling, storage, transport and disposal of such waste,
- reduction of waste, recovery, re-use or processing of waste,
- management of sites,
- installation and equipment used for waste disposal.
- So far there are two sets of ECA regulations for the control of solid waste facilities :
- Application for a Disposal Site Permit (No. R 1196, July 1994) and
- EIA Regulations (Govt Notice 1182 & 1183 of 1997)

2.14.5 Guidelines

- The Minimum Requirements Waste Management Guideline Series (1998) are a set of documents which are, in effect, draft regulations in terms of the ECA which although they are guidelines, are already being applied as if they are law.
- Regulations in terms of the Hazardous Substances Act controlling the disposal of empty hazardous substance containers and the transportation of grouped hazardous substances by means of a road tanker
- Numerous regulations relating to the Water Act, Health Act, and Occupational Health and Safety Act
- Revised General and Special Standards for Effluents (Regulation No. 991 of 18 May 1984) -uniform effluent standards (Water Act)
- Eventually these are to be replaced by Receiving Water Quality Objective

approach - South African Water Quality Guidelines (1993)

- Guidelines for Design, Installation and Operation of Incinerators in terms of Atmospheric Pollution Prevention Act

2.14.6 Codes of Practice

- Codes of Practice are not mandatory unless specified in a statute or its regulations. SABS Codes of practice are used in several instances relating to solid waste management e.g.:-
 - SABS Code 0228 Classification of hazardous substances (including hazardous wastes)
 - SABS Code 0230: Vehicle Inspection Requirements
 - SABS Code 0232: Emergency Response Information
 - SABS Code 0248: Medical waste collection and handling
 - NB: There is also a process in place to develop Health Care Risk Waste Guidelines for the country through the Pilot project being managed by DACEL (Dept of Agriculture, Conservation of the Environment and Land in Gauteng) as part of the National Waste Management Strategy – a Workshop is planned for later this year on this topic.
 - What should be noted is that is legislation is being reformed – so there is new order legislation and old order legislation on the statute books. The government, very sensibly, is maintaining much of the old order regulations whilst the reformation process is taking place.

2.14 THE INTERNATIONAL CONTEXT

In recent times it has become apparent that countries that have poor records in the field of labour practices, especially child labour and poor environmental standards lose the opportunity to trade with the major trading partners of the world. South Africa in an effort to promote trade and attract direct foreign investment into the country will have to ensure that its environmental

standards and laws are in place. South Africa is party to many international treaties and protocols that promote good responsible environmental policies.

2.15.1 Global concern about pollution (*Agenda 21*)

The report of the World Commission on Environment and Development showed that measures to reduce, control and prevent pollution needed to be greatly strengthened in both developed and developing countries. In the decade subsequent to that report, significant international efforts have been directed at promoting development that produces less waste and pollution.

Many of these efforts have concentrated on those pollutants of global concern, *i.e.* those pollutants generated in one country that may affect another country or the planet's ecological balance. Other international efforts have focused on the protection of less developed countries against environmental exploitation. In 1992, the United Nations Conference on Environment and Development established an agenda (*Agenda 21*) for world action on the environment and increased international efforts towards sustainable development. These international decisions form the broad context for pollution prevention and waste minimisation in South Africa, and this Integrated Pollution and Waste Management policy is part of the South African government's efforts to meet the goals of *Agenda 21*.

Certain international agreements, such as the Framework Convention on Climate Change dealing with greenhouse gases, and the Basel Convention, which addresses trans-boundary movements of hazardous waste, impose specific requirements on South Africa.

2.15.2 South Africa as part of the World Economy

South Africa's re-integration into the global economy and the international political arena necessitates an improved pollution and waste management system. With the advent of democracy, South Africa's role and responsibility in the Southern African Development Community and the Southern African

Region, has increased. The country's economic and industrial policy has also turned towards export promotion as a pillar of South Africa's economic development. This globalisation of the economy has been spurred on by the expanded role of the World Trade Organisation in developing open international markets. South Africa has growing obligations to meet international commitments and to be a globally responsible country.

In response to these political and socio-economic factors, the government will promote an integrated approach to pollution and waste management as a key factor in achieving sustainable development by ensuring that:

- South Africa companies meets all its international environmental obligations as rapidly as possible;
- exporters are assisted in meeting internationally expected standards of environmental management;
- international pollution control efforts are not used as unfair trade barriers against South Africa's exports; and
- South Africa's pollution and waste management interests are adequately represented in international forums.

2.15.3 International obligations and agreements

Global governance is a dynamic, complex process of interactive decision-making that is evolving and responding to changing circumstances. Although it responds to the specific requirements of different issue areas, governance takes an integrated approach to the question of human survival and prosperity. Effective global decision-making, mainly through international obligations and agreements, builds upon and influences decisions taken locally, regionally and nationally, and draws on the skills and resources of a diversity of people and institutions at many levels. It builds partnerships that enable global actors to pool information, knowledge, and capacities and develops joint policies and practices on issues of concern, such as integrated pollution and waste management. South Africa, therefore, has a moral

obligation as a global actor to take cognisance of and become involved in international obligations, agreements and processes.

Some of the international treaties to which South Africa is a party impact specifically on pollution of the water, air and land environments; others are of a cross-cutting nature and impact on all three media. The obligations imposed under these international treaties and their implications for integrated pollution and waste management are given in Appendix 1.

There are 26 international agreements (17 conventions, 4 protocols, 3 treaties, 2 agreements) which pertain to integrated pollution and waste management. Of these 26 agreements, 19 have been acceded to or ratified by South Africa.

The following South African legislation fully or partially covers 12 of these international agreements:

- Prevention and Combating of Pollution of the Sea by Oil Act (6 of 1981) and regulations;
- International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties Act (64 of 1987);
- Dumping at Sea Control Act (73 of 1980);
- Prevention of Pollution from Ships Act (2 of 1986) and regulations;
- Conservation of Agricultural Resources Act (43 of 1983)
- Nature Conservation Ordinances of the various provinces;
- Antarctic Treaty Act (60 of 1996); and
- Nuclear Energy Act (113 of 1994).

2.16 THE NATIONAL CONTEXT

Other pertinent national laws that govern pollution and waste management.

2.16.1 The Constitution

The constitution stipulates that every individual has the right to a clean and healthy environment. The adoption of a democratic Constitution has made the government accountable to the people. The Constitution sets out the legislative and executive authority of different spheres of government within a framework of co-operative governance.

The Constitution (Act 108 of 1996) is relevant to pollution and waste management for two reasons. Firstly the Bill of Rights (Chapter Two of the Constitution) contains a number of rights relevant to integrated pollution and waste management. To the extent that an act or particular statutory provision does not uphold these rights, it is unconstitutional.

Secondly, the Constitution provides the legal basis for allocating powers to different spheres of government, and is thus relevant to the institutional regulation of integrated pollution and waste management.

2.16.2 Sovereignty

The Constitution states that South Africa is a sovereign, democratic State based on the values of human dignity, equality, non-discrimination, the rule of law and universal suffrage. In terms of environmental management, it is important to recognise that sovereignty includes the ability to limit sovereign powers by entering into international agreements where the need arises.

2.16.3 The Bill of Rights

The most pertinent fundamental right in the context of integrated pollution and waste management is the Environmental Right (s 24) which provides that:

"Everyone has the right

- a. *to an environment that is not harmful to their health or well-being; and*
- b. *to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that -*
 - (i) preserve conservation and*
 - (ii) secure ecologically sustainable development and the use of natural resources*
 - (iii) promote development*

This section of the Bill of Rights guarantees the people of South Africa the right to an environment not detrimental to human health or well-being, and specifically imposes a duty on the State to promulgate legislation and take other steps to ensure that the right is upheld and that, among other things, pollution and ecological degradation is prevented.

2.16.3.1 Health Care, Food, Water and Social Security (s 27)

This provision in the Constitution upholds the right to water, amongst other things. It essentially envisages an equitable allocation of resources and, by implication, resources of an acceptable quality.

2.16.3.2 Access to Information (s 32)

The Bill of Rights enshrines the right of access to information held by the State, or any other person which is required for the exercise of any right. The section imposes a duty on the State to enact legislation to give effect to the right. This Integrated Pollution and Waste Management policy includes provisions concerning access to information insofar as it relates to future integrated pollution and waste management legislation.

2.16.3.3 Just Administrative Action (s 33)

The Constitution protects the right to fair, lawful, reasonable and procedurally fair administrative action and provides that where administrative action has adversely affected rights, written reasons must be given. This right is important, for example, where permits authorised in terms of integrated pollution and waste management legislation are refused. However, in terms of Section 23 of Schedule 6 of the Constitution, this clause has not yet come into operation.

2.17 THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT OF 1998

The above act on Environmental Management Policy for South Africa is an overarching framework policy. Through the Act on Environmental Management Policy the government undertakes to give effect to the many rights in the Constitution that relate to the environment, as well as those relating to governance, such as the legal standing of parties, administrative justice, accountability and public participation. Furthermore, this Act on Environmental Management Policy for South Africa defines the essential nature of sustainable development as a combination of social, economic and environmental factors. It takes ownership of sustainable development as the accepted approach to resource management and utilisation, thus entrenching environmental sustainability in policy and practice.

The vision of the above Act on Environmental Management Policy for South Africa is one of a society in harmony with its environment. The policy seeks to unite the people of South Africa in working towards a society where all people have sufficient food, clean air and water, decent homes and green spaces in their neighbourhoods, enabling them to live in spiritual, cultural and physical harmony with their natural surroundings.

This National Environmental Management Act, No 107 of 1998 for South Africa, sets a number of objectives for an integrated pollution and waste management policy. These objectives are:

- "To prevent, reduce and manage pollution of any part of the environment due to all forms of human activity, and in particular from radioactive, toxic and other hazardous substances.
- To set targets to minimise waste generation and pollution at source and promote a hierarchy of waste management practices, namely reduction of waste at source, re-use, recycling and safe disposal as the last resort.
- To regulate and monitor waste production, enforce waste control measures, and coordinate administration of integrated pollution and waste management through a single government department.
- To set up information systems on chemical hazards and toxic releases and ensure the introduction of a system to track the transport of hazardous materials.
- To ensure the protection and proactive management of human health problems related to the environment in all forms of economic activity.
- To promote cleaner production and establish mechanisms to ensure continuous improvements in best practice in all areas of environmental management."

This Integrated Pollution and Waste Management policy is driven by a vision of environmentally sustainable economic development. This vision promotes a clean, healthy environment, and a strong, stable economy. By preventing, minimising, controlling and remediating pollution and waste, the environment is protected from degradation. By increasing the use of cleaner production technologies, avoiding accidental and operational releases and reducing the non-productive costs of treatment, disposal and clean-up, a more efficient and competitive economy and a healthier environment will be established.

The South African government is committed to a programme of sustainable development that will deliver basic environmental, social and economic services to all, without threatening the viability of natural, built and social systems upon which these services depend.

2.17.1 Reconstruction and Development Programme

The Reconstruction and Development Programme articulates the need to follow a path towards sustainable development. It affirms the need to manage economic development and human growth in such a way that the earth's life support systems are not damaged or destroyed.

In addressing environmental issues, the Reconstruction and Development Programme recognises the need for government to work towards:

- equitable access to natural resources,
- provision of safe and healthy living and working environments, and
- a participatory decision-making process around environmental issues which empowers communities to manage their natural environment.

The approach to environmental protection has been broadened to reflect the value that must be placed on the country's natural resources and a wide range of instruments is being developed to assist in achieving the objectives of sustainable development. The government in its move to sustainable development, is investigating the use of measures additional to legal and regulatory mechanisms.

2.17.2 Growth, Employment and Macroeconomic Strategy

The key principles of the Reconstruction and Development Programme are re-emphasised in the Growth, Employment and Redistribution Macroeconomic Strategy, which guides economic actions in South Africa.

The long term view of the Growth, Employment and Redistribution Macroeconomic Strategy is:

- a competitive fast-growing economy which creates sufficient jobs for all work-seekers,
- a redistribution of income and opportunities in favour of the poor,
- a society in which sound health, education and other services are available to all, and
- an environment in which homes are secure and places of work are productive.

The macro-economic strategy for rebuilding and restructuring the economy is in line with the goals set in the Reconstruction and Development Programme. In the context of this integrated economic strategy, South Africa can successfully meet the related challenges of satisfying basic needs, developing human resources, increasing participation in the democratic institutions of civil society and implementing the Reconstruction and Development Programme in all its facets.

The Growth, Employment and Redistribution Strategy aims to boost economic growth by lowering protective barriers in a number of industrial sectors, promoting small and medium size industry and greater integration with the countries in the Southern African Development Community, as well as by creating an internationally competitive manufacturing industry. The strategy also emphasises that the South African economy cannot grow merely through exploitation of crude natural resources.

The Growth, Employment and Redistribution Strategy also states that the provision of basic household services is a relatively low-cost and effective form of public intervention in favour of the poor and consistent with the reduction of income inequalities. The universal provision of basic household waste removal services, as outlined in this Integrated Pollution and Waste Management policy, is therefore in accordance with the Growth, Employment and Redistribution Strategy and provides an area of synergy between macro-economic policy, waste management, health protection, and the redistribution of resources.

2.17.3 Polluter Pays Principle

It is the responsibility of the company that produces the waste to ensure that the waste is properly disposed off.

The National Environmental Management Act 98 subscribes to the rule of law "The Polluter Pays Principle". This stipulates that the producer of waste is solely responsible for the safe disposal that product and is liable in court of law should the waste be disposed off inappropriately. This means that even though a company has contracted a legally registered waste contractor to meet their waste disposal needs the responsibility does not lie with the waste contractor, it remains with the producer of waste. This leads us to the famous phrase that is used in the waste industry being:

2.17.4 The Cradle to Grave Policy

Responsibility for the environmental and health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle. It starts with conceptualisation and planning and runs through all stages of implementation to reuse, recycling and ultimate disposal of products and waste or decommissioning of installations.

Those responsible for environmental damage must pay the repair costs both to the environment and human health, and the costs of preventive measures to reduce or prevent further pollution and environmental damage.

2.18 ISO 14000 STANDARDS

The ISO 14000 Standard for Environmental management systems establishes procedures for environmental conformance, facility audits, non-conformance analysis, pollution prevention and other environmental practices. ISO has developed standards for environmental management that can be implemented by any public or private organization. The ISO 14000 family consists of

standards for environmental management systems(EMS), environmental auditing and environmental performance management. In order to earn ISO 14001 certification , a company needs to demonstrate diligent record keeping for its environmental management records to prove that they are reviewed and assessed according to a defined schedule.

2.18.1 Using ISO 14000 as a trade Barrier

For Companies engaged in trade with other local and international companies it is becoming increasingly important for these companies to be ISO 14000 accredited. Concerns about countries using ISO 14000 as a trade barrier are on the rise worldwide. So is the demand by multinationals like IBM and Volvo that their suppliers meet the requirements of this international standard for environmental management system. The compliance to this standard will rely heavily on the service levels provided by waste disposal companies. In response to these international trends most industries are developing environmental management systems that can be accredited under the International Organisation for Standardisation (ISO) The ISO 14000 embodies the following:

2.18.2 The Advantages Of ISO 14001 Certification

Many companies are establishing environmental management systems that conform to ISO 14001 guidelines in order to remain competitive in the global marketplace. For many companies, their competitors are seeking ISO 14001 registration and their customers are beginning to demand conformance to these guidelines. Hence the need for a comprehensive environmental management system (EMS) that complies with ISO 14001, and the contributing factor is the support corporations receive from their waste disposal service providers.

2.19 SUMMARY

Service quality is without doubt an extremely important element of modern business today . It is for this reason that we investigated the history of Service Quality within the waste disposal industry . Surprisingly very little research has been done in this arena and it is for this reason that we studied how service quality is conceptualised , measured and applied to modern business . We also investigated the various aspects of Service Quality which are important to be included within the waste disposal industry .

Although there are numerous schools of thought on both the conceptualisation of Service Quality and the measurement thereof , it has been widely accepted that SERVQUAL is the most advanced tool available worldwide in measuring this abstract construct . As with all market leaders SERVQUAL has had its fair share of criticisms , although none of these critiques has been able to provide a more comprehensive “customer satisfaction” measuring instrument . Some of them , however , have introduced a few salient points which need to be further researched . Numerous literature is available on how one should go about adapting Servqual to their particular industry – these points were enacted on during the construction of our Questionnaire . In addition to this we also considered all the relevant acts , regulations , guidelines , bylaws , codes of practice and international standards of operation that corporations need to comply with in the final construction of our measuring instrument .

The producers of industrial waste have to ensure that the waste that they generate is disposed off in an environmentally acceptable manner and it is in compliance of many regulations and acts of parliament .

South Africa's reintegration into the global economy and the industrial policy arena necessitates an improved pollution and waste management system . the country's economic and industrial policy is also turned towards export promotion as a pillar of South Africa's economic development . South Africa has growing obligations to meet international commitments and to be a

globally responsible country . The “Polluter Pays Principle “ and “The Cradle to Grave Policy “ according to The National Environmental Act 89 subscribes to the rule of law that those responsible for environmental damage must pay the repair costs both to the environment and human health .

In the light of this it is essential that generators of waste need to be both knowledgeable and compliant of all aspects pertaining to an excellent waste management policy and this is only possible if all aspects including but not limited to service delivery of waste contractors is of the highest standards .

The research design and methodology will be discussed in Chapter 3 in order to identify and evaluate the levels of customer satisfaction.

CHAPTER 3 RESEARCH METHODOLOGY AND DESIGN

3.1 INTRODUCTION

Having identified the importance and reason for this research and having also described a background of research in the area of service quality , a study will be conducted focusing on identifying and evaluating the levels of customer satisfaction with respect to the industrial and commercial waste disposal service provided to commerce and industry in KZN .

3.2 THE PROBLEM STATEMENT

What are customer satisfaction levels within the waste disposal industry ? .

An analysis of this problem will be done by conducting a survey in order to implement a quality assurance program towards improving the levels of service to the producers of waste.

3.3 THE OBJECTIVES OF THE STUDY

3.3.1 Objective 1

To adopt the appropriate measurement scale to measure customer satisfaction within the waste disposal industry.

3.3.2 Objective 2

To measure the levels of customer satisfaction within the waste disposal industry.

3.3.3 Objective 3

To make recommendations towards improving the levels of service and ultimately begin implementing a quality assurance program within the waste disposal industry. This objective, however, will only be elaborated on in Chapter 5 once we have received all the data from Chapter 4.

3.4 DELIMITATIONS

The study is delimited to the KZN area and is also delimited to producers of industrial and commercial waste only.

3.5 ASSUMPTIONS

We need to assume that the population statistics provided by the Waste Disposal Industry Association is accurate. We also need to assume that Measuring instrument is valid, that the interviewer is well trained, and that the respondents respond truthfully.

3.5 THE RESEARCH DESIGN AND METHODOLOGY

The type of research Design is a cross sectional analytical survey method. This type of research would ideally involve a longitudinal study involving the present survey, a treatment post the survey attempting to improve the levels of customer satisfaction and then a follow up survey in possibly eighteen months time to see if the general attitude to customer satisfaction within this industry has improved. For the purposes of this thesis, however, we will focus on the information obtained from the present survey.

We have chosen a more dominant quantitative approach to our analysis as in this type of research we can identify cause and effect relationships more easily and the research is more structured and more controlled. Internal Validity will be checked a few ways. Firstly against the review of the related literature (i. e: the accuracy of the measurement scale, namely the "Servqual"

instrument which has been chosen) , secondly we will also check for face validity using the feedback obtained from focus groups held with a few corporate executives . Convergent validity will be tested using the results from the Cronbach coefficient alphas . We will also use our qualitative open ended questions to see if they agree with our close ended quantitative questions as a third measure of internal consistency. Choosing a very representative , non-bias sample of the population will ensure external validity, although this is not possible in this study , as will be elaborated on later we will however attempt to get as large a sample as possible .

To ensure reliability within this process we will ensure that the questionnaire is well designed and that the interviewer is well trained . We will also use Cronbach Coefficient Apha correlations to test for reliability . The Cronbach coefficient measures the mean of all split –half coefficients .

In terms of the questionnaire design we need to ensure various factors. A few of these points are covered within the questionnaire itself. Other remaining points include that we will accommodate for possible pitfalls of question design namely:

- a) Questions will not be leading.
- b) Questions will not be vague.
- c) Questions will only ask one thing at a time.
- d) Questions will be clear and simple and understandable to the respondent.
- e) The questionnaire will not be long .
- f) Questions and Questionnaire structure will be adapted to both SERVQUAL and the related literature on the waste industry .

The above points constitute a few of the guidelines one needs to be aware of when creating a questionnaire . Fortunately for us the questionnaire we use as our measuring instrument namely SERVQUAL has undergone rigorous tests across many angles and in terms of question wording has provided a thoroughly tested template of which we are able to develop and adapt to the

waste disposal industry .

3.6 THE DATA DESIGN AND COLLECTION

The population of industrial waste disposal users is identified as 500 . The KZN area is broken up into 3 areas and we choose a convenience sample 75 respondents across all three areas is chosen on on a quota basis . Instead of this non-probability approach to sampling which could introduce bias and create a non representative sample , we would ideally have preferred a probability sampling technique such as stratified random or cluster sampling , but this was unfortunately impractical due to both cost and time constraints.

Each of our 75 respondents will be the CEO's from different companies.

The questionnaire (which is outlined below) consists of an introductory letter, a demographic section which consists mostly of categorical variables some measured on a nominal scale and some measured on an ordinal scale. The body of the questionnaire will consist of two parts. The first part will measure expectations of the producers of waste to the waste disposal industry. The second part will measure perceptions of producers of waste to the waste disposal industry. Both sections will ask questions in a similar fashion. As per the literature search Customer Satisfaction will be broken down into five sub areas to be measured namely tangibles, responsiveness, reliability , assurance and empathy . Each of these sub areas will compose of four/five/six questions interspersed throughout the questionnaire. All questions will be worded using the correct methodologies. Most questions will be measured using the Likert scale but we will also use dichotomous variables i.e :

(Yes , No answers) and we will also ask a few qualitative open ended questions . We will also ask any other questions that we feel are pertinently related to issues of high service quality within the waste disposal industry . The benefit of this approach is that it ensures good balance in questionnaire design.

3.6.1.1 The Questionnaire as Adapted to the Waste Disposal Industry

Although the original SERVQUAL advocated four/five questions per dimension we felt in line of considering the waste disposal industry in isolation and the various important factors which influenced service quality within this industry , it was necessary to extend this in certain cases to 6 questions per dimension . We ended up with a 25-item questionnaire instead of the original 22 as developed by SERVQUAL. We also added in a Section C to the questionnaire to provide for additional information which we felt necessary . The additional questions as well as the adapted questions all took into account factors that affect service quality in this industry taking special notice of the various codes of practice, acts, regulations etc...

Our 5 dimensions were made up as follows:

Tangibles	Question 1 – Question 6
Reliability	Question 7 - Question 11
Responsiveness	Question 12 – Question 15
Assurance	Question 16 - Question 20
Empathy	Question 21 – Question 25

These are the three new questions which were added to the questionnaire:

- (5) An excellent Waste Disposal Company will always leave my waste collection area neat after collecting waste .
- (6) An excellent Waste Disposal Company will stack waste neatly into their trucks.
- (20) A good Waste Disposal Company will keep their client abreast of all legislation pertaining to waste disposal

Questions 5 and 6 specifically relate to pollution (The Pollution Act) , littering the Road Ordinance Act , and the safety (The Occupational Safety Act) , and health (The Health Act) and were therefore added in as important service factors within this industry .

Question 20 and a few questions in section C (mentioned below) relate specifically to the important legal aspects of the industry, which is covered in numerous Acts and Codes of Practice.

Section C will also ask a few questions which measures the knowledge of customers with respect to the very sensitive and important legal issue of “The Polluters Pay Principle” and it also asks questions measuring the overall state of the industry.

The data, therefore will all be primary data and the authenticity of such data will be assured through using a well trained interviewer and also obtaining “by in “ from the respondents by highlighting the fact that truthful answers may benefit the respondents in the long run.

3.7 SAMPLE SIZE AND SAMPLING TECHNIQUE

The sampling technique used will be a combination of quota and convenience sampling. Ideally we would have liked to divide the population into various industry uses of waste as we feel they may experience a different level of

service and hence reflect different levels of customer satisfaction. This will ensure that we create homogeneous strata from these groups. We will then apply random sampling to each group, hence stratified random sampling, but as mentioned earlier this was not possible, although it could be a suggested technique for further research.

The population size (after our delimitations have been applied) is approximately 500 companies or producers of waste. We will choose a sample size of 15 %. We feel this sample size is both sufficiently large and manageable at the same time , and as such will improve the accuracy of our various population parameters that we may estimate .

This will give us a sample of approximately 75 companies who we would need to interview.

3.8 THE SERVQUAL QUESTIONNAIRE AS ADAPTED TO THE WASTE DISPOSAL INDUSTRY

INTRODUCTION

Due to Globalisation and Integration of world markets the industrial producers of waste are being brought into the spotlight with respect to their policies re: the environmentally sensitive issues of waste disposal. In respect of this producers of waste are questioning not only how their waste is disposed but also the general service quality of their Waste Disposal Company. This Questionnaire aims to quantify exactly that by measuring the levels of Customer Satisfaction within the Waste Disposal Industry.

This study is conducted by Morgan Nadasen Odayar and is for the purposes of his MBA.

INSTRUCTIONS

The questionnaire below is divided up into 3 Sections. Section A includes demographic data , Section B includes the main body of the Servqual measuring instrument . This Section is divided up into two parts namely Part A and Part B . Part A attempts to quantify your expectations of service delivery from your Waste Disposal Company. Note Expectations involves "What levels of Service you would expect to receive within each of the various service areas. " Although Part B of this Section is a continuation of Part A it measures

something significantly different. In this case we are measuring your perceptions of your current level of service enjoyed by your Waste Disposal Company. In other words " How you perceive the present levels of Service provided by your Waste Disposal Company across the different service areas. Part C includes a few additional questions.

The questionnaire, once completed is completely confidential and the information supplied is kept anonymous.

Respondents will be protected when information is analysed.

A contact name and address and telephone number should however be provided in the top right hand corner of the questionnaire in the event that feedback of the results is required.

Please note that there are no correct or wrong responses to the items or questions in the questionnaire.

Please complete the questionnaire as honest and as accurate as may be possible.

Note also that through your responses you will be making a valuable contribution to the study and the understanding of the Waste Disposal Industry in general.

Thank you for your cooperation.

SERVQUAL QUESTIONNAIRE

SECTION A

COMPANY PROFILE

Public Company	Private Company	Close Corporation	Partnership	Other State
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PLEASE TICK THE APPROPRIATE INDUSTRY TYPE THAT YOU BELONG TO .

Furniture	Paper	Auto	Gas / Petroleum	Chemicals
Shipping	Agriculture	Building	Packaging	Other

HOW MUCH WASTE DO YOU GENERATE PER MONTH. ? (IN TONS)

0 - 49	50 - 99	100 - 149	150 - 199	Over 200
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PLEASE TICK WHAT TYPE OF WASTE YOU GENERATE.

Non-Hazardous Solid Waste	High Hazardous Solid Waste	Non- Hazardous Liquid Waste	High Hazardous Liquid Waste	Recycling Waste
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WHICH HUB DO YOU SUPPLY THE MAJOR PORTION OF YOUR WASTE TO.

Richards Bay	Durban	Pinetown
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SECTION B

Please complete Part A by indicating your expectations of "a Waste Disposal Company" in general. Then complete Part B indicating your perceptions of your "Waste Disposal Company" in particular. Please answer on a scale from 1 (strongly disagree with the statement) to 7 (strongly agree).

[PART A] YOUR EXPECTATIONS OF WHAT A WASTE COMPANY SHOULD DO

Directions: please complete the following questionnaire pertaining to service quality. If you feel the features mentioned in each statement are essential in your judgment of the "waste disposal supplier", please circle 7. However if you feel the features mentioned are of little importance, please circle number 1.

	Strongly Disagree	Strongly Agree
(1) An excellent Waste disposal company have neat looking equipment, e.g. clean trucks and waste bins, etc.	1...2...3...4...5...6...7	
(2) The physical facilities, e.g. buildings, signs, yard, offices etc., at an excellent Waste Disposal Company will be visually appealing	1...2...3...4...5...6...7	
(3) Staff of a Waste Disposal Company will appear neat, e.g. uniform, safety wear grooming etc.	1...2...3...4...5...6...7	
(4) Documentation associated with the service, e.g. delivery notes statements of accounts, corporate profile etc. will be visually appealing in an excellent Waste Disposal Company	1...2...3...4...5...6...7	
(5) An excellent Waste Disposal Company will always leave my waste collection area neat after collecting waste.	1...2...3...4...5...6...7	
(6) An excellent Waste Disposal Company will stack waste neatly into their trucks.	1...2...3...4...5...6...7	
(7) When an excellent Waste Disposal Company promises to do something by a certain time, it will do so	1...2...3...4...5...6...7	
(8) When a client has a problem, an excellent Waste Disposal Company will show genuine interest in solving it.	1...2...3...4...5...6...7	
(9) An excellent Waste Disposal Company will perform service right the first time	1...2...3...4...5...6...7	
(10) An excellent Waste Disposal Company will provide its services at the time it promises to do so	1...2...3...4...5...6...7	
(11) An excellent Waste Disposal Company will insist on top quality service in an emergency eg: in the event of a waste spillage.	1...2...3...4...5...6...7	
(12) Staff at an excellent Waste Disposal Company will tell a client exactly when services will be performed	1...2...3...4...5...6...7	
(13) Staff at an excellent Waste Disposal Company will give prompt service to a client	1...2...3...4...5...6...7	
(14) Staff at an excellent Waste Disposal Company will always be willing to help a client	1...2...3...4...5...6...7	
(15) Staff at an excellent Waste Disposal Company will	1...2...3...4...5...6...7	

never be too busy to respond

- | | | |
|------|---|---------------------------|
| (16) | The behaviour of staff at an excellent Waste Disposal Company will instill confidence in a client | 1...2...3...4...5...6...7 |
| (17) | Clients of an excellent Waste Disposal Company will feel safe in their transactions | 1...2...3...4...5...6...7 |
| (18) | Staff at an excellent Waste Disposal Company will be consistently courteous with clients | 1...2...3...4...5...6...7 |
| (19) | Staff at an excellent Waste Disposal Company will have the knowledge to answer a clients requests | 1...2...3...4...5...6...7 |
| (20) | A good Waste Disposal Company will keep their client abreast of all legislation pertaining to waste disposal | 1...2...3...4...5...6...7 |
| (21) | Staff at an excellent Waste Disposal Company will give clients individualized attention | 1...2...3...4...5...6...7 |
| (22) | An excellent Waste Disposal Company will have convenient operating hours | 1...2...3...4...5...6...7 |
| (23) | An excellent Waste Disposal Company will have staff who give its client priority attention in the event of emergencies. | 1...2...3...4...5...6...7 |
| (24) | An excellent Waste Disposal Company will have clients best interests at heart | 1...2...3...4...5...6...7 |
| (25) | The staff of an excellent Waste Disposal Company will understand the specific needs of a client | 1...2...3...4...5...6...7 |

[PART B] YOUR PERCEPTIONS OF WHAT YOUR WASTE COMPANY IS DOING

- | | | Strongly Disagree | Strongly Agree |
|-----|--|---------------------------|---------------------------|
| (1) | My Waste Disposal Company has neat looking equipment | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |
| (2) | The physical facilities at my Waste Disposal Company are visually appealing. | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |
| (3) | Staff of my Waste Disposal Company appear neat | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |
| (4) | Documentation associated with the service are visually appealing | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |
| (5) | My Waste Disposal Company will always leave my waste collection area neat after collecting waste.. | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |
| (6) | My Waste Disposal Company loads waste neatly into their trucks. | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |
| (7) | When my Waste Disposal Company promised to do something by a certain time, it did it | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |
| (8) | When I have problems, my Waste Disposal Company shows a genuine interest in solving them . | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |

- | | | |
|------|--|---------------------------|
| (9) | My Waste Disposal Company performs the service right the first time | 1...2...3...4...5...6...7 |
| (10) | My Waste Disposal Company provides its services at the time it promises to do so | 1...2...3...4...5...6...7 |
| (11) | My Waste Disposal Company insists on top quality service. | 1...2...3...4...5...6...7 |
| (12) | Staff at the Waste Disposal Company were able to tell clients exactly when services would be performed | 1...2...3...4...5...6...7 |
| (13) | Staff at my Waste Disposal Company gives prompt service | 1...2...3...4...5...6...7 |
| (14) | Staff at our Waste Disposal Company are always willing to help | 1...2...3...4...5...6...7 |
| (15) | Staff at our Waste Disposal Company are never too busy to respond to our needs | 1...2...3...4...5...6...7 |
| (16) | The behaviour of staff at our Waste Disposal Company instills confidence in us | 1...2...3...4...5...6...7 |
| (17) | I feel safe in my transactions with my Waste Disposal Company | 1...2...3...4...5...6...7 |
| (18) | Staff of our Waste Disposal Company are consistently courteous | 1...2...3...4...5...6...7 |
| (19) | Staff of our Waste Disposal Company have the knowledge to answer questions | 1...2...3...4...5...6...7 |
| (20) | My Waste Disposal Company will keep their client abreast of all legislation pertaining to waste disposal | 1...2...3...4...5...6...7 |
| (21) | We get individualized attention from our Waste Disposal Company | 1...2...3...4...5...6...7 |
| (22) | Our Waste Disposal Company has flexible working hours if needed . | 1...2...3...4...5...6...7 |
| (23) | Our Waste Disposal Company has staff who give us prioritized attention in emergencies . | 1...2...3...4...5...6...7 |
| (24) | My Waste Disposal Company has my companies best interests at heart | 1...2...3...4...5...6...7 |
| (25) | The staff of my Waste Disposal Company understands our specific needs. | 1...2...3...4...5...6...7 |

SECTION C

- | | Strongly Disagree | Strongly Agree |
|---|---------------------------|---------------------------|
| I believe that the tariffs of waste disposal are too high. | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |
| Land filling is the cheapest form of waste disposal. | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |
| The Waste Disposal industry has numerous fly by night operators . | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |
| I believe the industry needs another waste disposal supplier . | 1...2...3...4...5...6...7 | 1...2...3...4...5...6...7 |

How many major waste disposal suppliers are there ?

1	2	3	4	≥5
---	---	---	---	----

Are you aware of the "polluter pays principle" ?

YES	NO
-----	----

If Yes describe how you understand it.

END OF QUESTIONNAIRE

3.9 STATISTICAL ANALYSIS

Service Quality is clearly a complex, which cannot be satisfactorily measured by a series of ad-hoc studies. This, and the increasing importance of quality as a means of gaining competitive advantage has seen the emergence of comprehensive programs to research customers *expectations* and *perceptions* of service quality. The most widely used adopted approach thus far has been suggested by Parasuraman, Zietmaml and Berry (1985) who have developed the Service Quality "Servqual" methodology. The Servqual is a multi-item scale for measuring consumer perceptions of service quality.

For our analysis we will run various descriptive statistics on our demographic data such as frequency tables and we will also draft the appropriate graphical illustrations where necessary such as bar and pie charts and histograms . Arithmetic means and standard deviations will also be calculated where appropriate.

To measure the levels of customer satisfaction for a service, the results for perceptions and expectations need to be calculated for each customer. The gaps between both expectations and perceptions need to be calculated and analysed overall and by each demographic. We will also run various reliability and validity tests using the Cronbach coefficient alpha. The gaps as highlighted below will be isolated and elaborated on in Chapter 5 of this study as they are extremely helpful to management for decision making purposes .

1. *Gap 1: Gap between consumer expectations and management perception*
Management may think that they know what consumers want and proceed to deliver this when in fact consumers may expect something quite different.

2. *Gap 2: Gap between management perception and service quality specification* Management may not set quality specifications or may not set them clearly. Alternatively, management may set clear quality specifications but these may not be achievable.

3. *Gap 3: Gap between service quality specifications and service delivery*
 Unforeseen problems or poor management can lead to a service provider failing to meet service quality specifications. This may be due to human error but also mechanical breakdown of facilitating or support goods.

4. *Gap 4: Gap between service delivery and external communications* There may be dissatisfaction with a service due to the excessively heightened expectations developed through the service provider's communications efforts. Dissatisfaction occurs where actual delivery does not meet up to expectations held out in a company's communications.

- 3 *Gap 5: Gap between perceived service and expected service.* This gap occurs as a result of one or more of the previous gaps.

We will also use an inferential testing technique known as confidence intervals to estimate a few of our population parameters . These confident intervals will be established at a 95% confidences interval.

The various Statistical Techniques described are elaborated on below:

The concepts of descriptive statistics that will be applied in this study are simple and need not be explained , however , we will explain the “Cronbach Coefficient Alpha” and confidence intervals in more detail .

3.9.1 “Cronbach Coefficient Alpha”

This technique is used to measure both the reliability and validity of the measuring instrument.

Cronbach Alpha is a modified form of Split Half Reliability testing. In this later method a single test is divided into two parts in such a manner that they may be regarded as two parallel test halves. If they are indeed parallel, the correlation between them will provide an estimate of the parallel-forms reliability of either of the test halves (instead of the entire test). There are several ways in which a test may be divided into two halves. For example, in the case of a 30-item test, the first 15 could form one half and the last 15, the other half. For several reasons, the most popular way would be to take the 15 off-numbered items and the 15 even-numbered items as the two test halves. In the case of a 10-item test, there are altogether 126 different pairs of test halves. As the number of items in the test increases, the total number of splits increases geometrically.

To the extent that some splits do not meet the assumption on which the split-half coefficient is based, this coefficient will tend to vary from one split to the next. Intuitively it makes sense to maintain that the mean of all these split-half coefficients will provide a better estimate of the reliability of the test than any single split alone. Cronbach (1951) developed the following equation for the mean split-half reliability coefficient (based on the less restrictive assumption), a quantity which he called coefficient alpha;

$$\text{Coefficient alpha} = \left(\frac{J}{J-1} \right) \left(1 - \frac{\text{sum of the items variances}}{\text{variance of the total test}} \right)$$

Where J stands for the total number of items in the test. Thus, if the variance of a five-item test equals 1,00 and the five variances are 0,16, 0,13, 0,16 0,22 and 0,21

$$\begin{aligned} \text{Coefficient alpha} &= (5 / 5-1) (1- 0,88/ 1) \\ &= 0.15 \end{aligned}$$

By using this formula, the mean split-half reliability coefficient can thus be obtained directly, that is, without first computing all possible split-half coefficients.

“Confidence Intervals”

An interval estimate is a range of values defined around a sample statistic . The population parameter is expected to lie within this range with a specified level of confidence . It is therefore called a confidence interval . The formula used to construct the desired confidence interval is :

$$Z = \frac{\bar{x} - \mu_0}{s_x / \sqrt{n}}$$

Where \bar{x} is the sample mean , μ_0 is the population mean , s_x is the estimated population mean using sample data , and n is the sample size.

All statistical will be conducted using the SPSS (version 9) software suite. This Statistical software program is manufactured by SPSS Inc , 444N . Michigan Avenue , Chicago , Illinois , USA.

3.10 SUMMARY

This research dissertation is aimed at identifying the key factors that impact on the levels of service in the waste disposal industry , developing a measuring instrument to evaluate such service quality and making recommendations (Chapter 5) as to what actions are necessary to improve the levels of service in the industry.

Service Quality is clearly a complex construct , which cannot be satisfactorily measured by a series of ad-hoc studies. This, and the increasing importance

of quality as a means of gaining competitive advantage has seen the emergence of comprehensive programs to research customers *expectations* and *perceptions* of service quality. The most widely used adopted approach thus far has been suggested by Parasuraman, Zietmaml and Berry (1985) who have developed the Service Quality "Servqual" methodology. The Servqual is a multi-item scale for measuring consumer perceptions of service quality.

This measuring instrument has been adapted and applied to the waste disposal industry . A convenience sample of waste generators across the KZN area were interviewed and the results tabulated in Chapter 4 . The statistical techniques used in this analysis included various descriptive and inferential processes , the former including various measures of central location and dispersion and numerous tables and graphs , whereas the inferential techniques used were the Cronbach Alpha Coefficient (which assisted in both reliability and validity testing) and the confidence interval analysis .

Based on the outcomes and conclusions of this research , recommendations will be made for further investigations or actions or even further research

CHAPTER 4

RESULTS OF STATISTICAL ANALYSIS

4.1 INTRODUCTION

One sample was drawn from the defined target population . As this population consisted of 3 areas namely Pinetown , Richards Bay and Durban and the population demographics of these three areas was 12%,12% and 75 % respectively a quota sample representing these demographics was chosen

4.2 DATA COLLECTION

The population of industrial waste disposal users will be identified and a stratified random sample of the players will be taken and within each identified company , the CEO will be interviewed.

4.2.1 Sample Size

A total of 75 respondents was chosen , this constituted a sample size of 15% of the original defined population .

4.2.2 Sampling Technique

Convenience sampling was used within each quota region . The three regions constituted Pinetown , Richards Bay and Durban which each represented 12% , 12% and 75 % respectively from the population . A quota sample representing these demographics was chosen .

Although this techniques was a non-probability sampling technique and ideally we would have liked to have chosen a probability sampling technique free from Bias , we were limited by both time and budget .

Nonetheless for the purposes of this thesis we assumed the sample to be representative of the population group and drew inferences accordingly .

4.3 STATEMENT OF RESULTS

The statement of results follows :

Initially we describe the various **descriptive demographic statistics** that make up our sample group . As we can see from the Frequency distribution tables below (Tables 1 – 5) the majority of our companies are private companies (50%) , our industry types are spread across all types , 78.7% of the waste generated is under 149 tons , 72% of our companies sampled generated non-hazardous solid waste and 75% of the companies are from the Durban Hub , 12% from Pinetown and the other 12% or so from Richards Bay.

Table 4.1

Comapny Profile

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1.3	1.3	1.3
Close Corporation	6	8.0	8.0	9.3
Other	6	8.0	8.0	17.3
Partnership	6	8.0	8.0	25.3
Private Company	38	50.7	50.7	76.0
Public Company	18	24.0	24.0	100.0
Total	75	100.0	100.0	

Table 4.2

Industry Type

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1.3	1.3	1.3
Agriculture	4	5.3	5.3	6.7
Auto	8	10.7	10.7	17.3
Building	6	8.0	8.0	25.3
Chemicals	11	14.7	14.7	40.0
Furniture	6	8.0	8.0	48.0
Gas/Petroleum	6	8.0	8.0	56.0
Other	18	24.0	24.0	80.0
Packaging	3	4.0	4.0	84.0
Paper	4	5.3	5.3	89.3
Shipping	8	10.7	10.7	100.0
Total	75	100.0	100.0	

Table 4.3**Amount of Waste Generated(In Tons)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2.7	2.7	2.7
0 -49	24	32.0	32.0	34.7
100 - 149	15	20.0	20.0	54.7
150 - 199	7	9.3	9.3	64.0
50 - 99	20	26.7	26.7	90.7
Over 200	7	9.3	9.3	100.0
Total	75	100.0	100.0	

Table 4.4**Waste Type Generated**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	6.7	6.7	6.7
High Hazardous Liquid Waste	4	5.3	5.3	12.0
High Hazardous Solid Waste	4	5.3	5.3	17.3
Non-Hazardous Liquid Waste	2	2.7	2.7	20.0
Non-Hazardous Solid Waste	54	72.0	72.0	92.0
Recycling Waste	6	8.0	8.0	100.0
Total	75	100.0	100.0	

Table 4.5**Hub Where Majority of Waste is Supplied**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1.3	1.3	1.3
Durban	56	74.7	74.7	76.0
Pinetown	9	12.0	12.0	88.0
Richards Bay	9	12.0	12.0	100.0
Total	75	100.0	100.0	

We also highlight the means and standard deviations from both the expectations and perception questions :

E1 – E25 Expectation scores as below.

P1 – P25 Perception scores as below.

Expectation Scores Tabulated below in Table 4.6 :

Table 4.6- Expectation Scores

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
E1	75	3	7	5.60	.87
E2	75	1	7	5.59	1.04
E3	75	4	7	5.87	.72
E4	75	4	7	5.91	.79
E5	75	3	7	6.09	.81
E6	74	3	7	6.01	.87
E7	73	3	7	6.23	.79
E8	75	4	7	6.23	.78
E9	75	3	7	6.15	.80
E10	75	3	7	6.40	.75
E11	75	4	7	6.43	.68
E12	74	3	7	5.91	.72
E13	74	4	7	6.23	.69
E14	73	4	7	6.25	.68
E15	74	4	7	6.15	.81
E16	74	3	7	6.07	.75
E17	73	4	7	6.15	.70
E18	73	3	7	6.12	.80
E19	74	3	7	6.07	.88
E20	74	3	7	6.20	.79
E21	74	4	7	6.01	.85
E22	74	3	7	6.07	.76
E23	74	3	7	6.31	.76
E24	74	3	7	6.19	.79
E25	74	3	7	6.22	.80
Valid N (listwise)	70				

Table 4.7 - Perception Scores Tabulated below

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
P1	75	2	6	3.95	1.10
P2	72	1	7	3.99	1.12
P3	75	2	7	4.19	1.17
P4	74	1	7	4.26	1.24
P5	75	1	6	3.36	1.13
P6	74	1	6	3.36	1.04
P7	75	1	7	3.19	1.12
P8	74	1	6	3.34	1.17
P9	75	1	6	3.32	1.12
P10	75	1	6	3.23	1.13
P11	75	1	6	3.21	1.14
P12	75	1	5	3.08	.91
P13	75	1	6	3.13	1.09
P14	75	2	6	3.24	.96
P15	74	1	6	3.26	1.03
P16	75	1	6	3.28	1.13
P17	74	1	6	3.41	1.19
P18	74	1	6	3.42	1.17
P19	73	1	6	3.11	1.11
P20	74	1	5	3.00	1.09
P21	74	1	6	3.08	1.13
P22	73	1	6	3.15	1.01
P23	73	1	6	3.16	1.13
P24	74	1	6	3.09	1.04
P25	73	1	6	3.16	1.09
Valid N (listwise)	69				

4.4 HIGHLIGHT OF REMARKABLE RESULTS

Expectation Scores by Dimension (Ranked)

- Reliability (dependability , accurate performance) (Q12-Q15)
6.3
- Empathy (caring and individualized attention the firm provides for its customers (Q21-Q25)
6.16
- Responsiveness (promptness and helpfulness) (Q7-Q11)
6.14
- Assurance (competence , courtesy , credibility , and security) (Q16-Q20)
6.12
- Tangibles (appearance of physical elements) (Q1-Q6)
5.85

Perception Scores by Dimension (Ranked)

- Tangibles (appearance of physical elements)
3.85
- Reliability (dependability , accurate performance)
3.26
- Assurance (competence , courtesy , credibility , and security)
3.24
- Responsiveness (promptness and helpfulness)
3.18
- Empathy (caring and individualized attention the firm provides for its customers)
3.13

Table 4.8

True Gap Scores (P1 E1 = Perception 1 Minus Expectation 1)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
P1_E1	75	-5.00	2.00	-1.6533	1.4094
P2_E2	72	-6.00	3.00	-1.6528	1.5848
P3_E3	75	-4.00	1.00	-1.6800	1.2961
P4_E4	74	-6.00	2.00	-1.6351	1.4484
P5_E5	75	-6.00	1.00	-2.7333	1.4269
P6_E6	73	-6.00	1.00	-2.6986	1.3404
P7_E7	73	-6.00	1.00	-3.0685	1.3574
P8_E8	74	-6.00	1.00	-2.8784	1.3237
P9_E9	75	-6.00	1.00	-2.8267	1.2774
P10_E10	75	-6.00	.00	-3.1733	1.3087
P11_E11	75	-6.00	.00	-3.2133	1.2335
P12_E12	74	-6.00	.00	-2.8243	1.1862
P13_E13	74	-5.00	1.00	-3.0811	1.2470
P14_E14	73	-5.00	1.00	-3.0000	1.1902
P15_E15	73	-6.00	.00	-2.9178	1.3097
P16_E16	74	-6.00	1.00	-2.7703	1.4482
P17_E17	72	-5.00	1.00	-2.7222	1.4459
P18_E18	72	-6.00	.00	-2.6944	1.3803
P19_E19	72	-6.00	.00	-2.9583	1.3155
P20_E20	73	-6.00	.00	-3.2192	1.3255
P21_E21	73	-6.00	1.00	-2.9178	1.4884
P22_E22	72	-6.00	.00	-2.9167	1.3082
P23_E23	72	-6.00	.00	-3.1389	1.3769
P24_E24	73	-6.00	.00	-3.0959	1.2490
P25_E25	72	-6.00	2.00	-3.0556	1.3415
Valid N (listwise)	65				

Perception Minus Expectation Scores by Dimension (Ranked)

- Empathy (caring and individualized attention the firm provides for its customers)
-3.02
- Reliability (dependability , accurate performance)
-3.0
- Responsiveness (promptness and helpfulness)
-2.96
- Assurance (competence , courtesy , credibility , and security)
-2.87
- Tangibles (appearance of physical elements)
-2.00

Table 4.9: Summary of Results

PERCEPTIONS MINUS EXPECTATIONS	Combined	Durban	Pinetown	Richards Bay
Tangibles				
Q1	-1.65	-1.64	-1.56	-2.11
Q2	-1.65	-1.54	-1.67	-2
Q3	-1.68	-1.7	-1.33	-1.67
Q4	-1.64	-1.64	-1.11	-2
Q5	-2.7	-2.7	-2.22	-3.22
Q6	-2.7	-2.7	-2.44	-2.5
	-2	-2.01	-1.72	-2.25
Reliability				
Q7	-3.07	-3.2	-2.33	-2.77
Q8	-2.88	-2.97	-2.67	-2.75
Q9	-2.83	-2.9	-2.67	-2.67
Q10	-3.17	-4.3	-3.2	-3
Q11	-3.21	-3.3	-2.67	-3.33
	-3	-3.33	-2.7	-2.9
Responsiveness				
Q12	-2.82	-2.93	-2.56	-2.67
Q13	-3.08	-3.18	-3	-2.56
Q14	-3	-3.11	-2.44	-2.89
Q15	-2.9	-2.96	-2.67	-3.25
	-2.96	-3.05	-2.67	-2.84
Assurance				
Q16	-2.77	-3.04	-1.78	-2.33
Q17	-2.72	-2.87	-2.33	-2.62
Q18	-2.69	-2.81	-2.67	-2.22
Q19	-2.96	-3.26	-2.11	-2
Q20	-3.22	-3.3	-2.56	-3.44
	-2.87	-3.6	-2.29	-2.52
Empathy				
Q21	-2.92	-3.11	-2.22	-2.67
Q22	-2.92	-3.07	-2.11	-2.75
Q23	-3.14	-3.22	-2.89	-2.62
Q24	-3.1	-3.22	-2.67	-3.11
Q25	-3.02	-3.24	-2.44	-3.125
	-3.02	-3.17	-2.47	-2.86

4.5 INTERNAL CONSISTENCY METHOD

The simplest measure of internal consistency is split-half reliability . The coefficient CronBach Alpha is the appropriate statistic to analyse this . This technique yields the average of all possible split half coefficients resulting from different ways of splitting all scale items. The data were tested for reliability using this technique :

This coefficient varies from 0 to 1 and a value of less than 0.6 generally indicates unsatisfactory internal consistency .

Table 4.10

Reliability Testing By Hub

CRONBACH				
ALPHA				
RELIABILITY				
TESTING	Combined	Durban	Pinetown	Richards Bay
Tangibles	0.62	0.70	0.124	0.42
Reliability	0.77	0.8	0.149	0.84
Responsiveness	0.72	0.66	0.78	0.84
Assurance	0.70	0.73	0.23	0.60
Empathy	0.85	0.86	0.75	0.92

4.6 SUMMARY

The descriptive and inferential analyses used such as means , standard deviations , frequency distribution tables , Cronbach coefficient Alpha to name a few were all conducted on both our demographic and body content of our SERVQUAL instrument The summarized results are tabulated above and will be interpreted and explained in the Conclusions and Recommendations section in Chapter 5.

CHAPTER 5

RECOMMENDATIONS & CONCLUSIONS

5.1 INTRODUCTION

The documentation and data from the previous Chapters will be analysed to draw conclusions, provide recommendations and suggestions.

5.2 THE RESULTS

It is important to see the results in the context of the bigger picture . The population of waste generators constitutes 500 companies and from this we only drew on a sample of 75 which made up 15% of the total number of companies . Although we would ideally have preferred a form of probability sampling which would have ensured a representative sample and hence allowed for solid inferential statistical analysis , this was not possible due to both budget and time constraints and hence we opted for a non-probability sampling technique which involved a combination of quota , convenience and random sampling . This technique did not necessarily constitute a fully representative sample but we did the best with the tools at our disposal . Hence our inferential statistics need to be interpreted in context of this limitation and the fact that the study was only conducted to KZN based companies . Our descriptive demographic statistics reflected that the majority of our companies were private companies (50%) , all our industry types were evenly spread within the survey , 78.7% of the waste generated was under 149 tons , 72% of our companies sampled generated non-hazardous solid waste and 75% of the companies were from the Durban Hub , 12% from the Pinetown hub and the other 12% or so from the Richards Bay hub .

5.2.1 Perceptions minus Expectations (The Combined Results)

Table 5.1 identifies the heart of the perception minus expectation results .

Table 5.1 Summary of Results

PERCEPTIONS				
MINUS				
EXPECTATIONS	Combined	Durban	Pinetown	Richards Bay
Tangibles				
Q1	-1.65	-1.64	-1.56	-2.11
Q2	-1.65	-1.54	-1.67	-2
Q3	-1.68	-1.7	-1.33	-1.67
Q4	-1.64	-1.64	-1.11	-2
Q5	-2.7	-2.7	-2.22	-3.22
Q6	-2.7	-2.7	-2.44	-2.5
	-2	-2.01	-1.72	-2.25
Reliability				
Q7	-3.07	-3.2	-2.33	-2.77
Q8	-2.88	-2.97	-2.67	-2.75
Q9	-2.83	-2.9	-2.67	-2.67
Q10	-3.17	-4.3	-3.2	-3
Q11	-3.21	-3.3	-2.67	-3.33
	-3	-3.33	-2.7	-2.9
Responsiveness				
Q12	-2.82	-2.93	-2.56	-2.67
Q13	-3.08	-3.18	-3	-2.56
Q14	-3	-3.11	-2.44	-2.89
Q15	-2.9	-2.96	-2.67	-3.25
	-2.96	-3.05	-2.67	-2.84
Assurance				
Q16	-2.77	-3.04	-1.78	-2.33
Q17	-2.72	-2.87	-2.33	-2.62
Q18	-2.69	-2.81	-2.67	-2.22
Q19	-2.96	-3.26	-2.11	-2
Q20	-3.22	-3.3	-2.56	-3.44
	-2.87	-3.6	-2.29	-2.52
Empathy				
Q21	-2.92	-3.11	-2.22	-2.67
Q22	-2.92	-3.07	-2.11	-2.75
Q23	-3.14	-3.22	-2.89	-2.62
Q24	-3.1	-3.22	-2.67	-3.11
Q25	-3.02	-3.24	-2.44	-3.125
	-3.02	-3.17	-2.47	-2.86

The above Table 5.1, indicates that the overall levels of *perception* of service delivery is a lot worse than what is *expected* of the industry and this is

apparent across all climatic dimensions (Tangibles , Reliability , Responsiveness , Assurance and Empathy) . It is , however , least apparent in the area of tangibility (-2) and most apparent in the areas of reliability (-3) and empathy (-3.02) with responsiveness (-2.96) and assurance (-2.87) scoring difference levels in the middle of these outer limits .

We recap these five dimensions and the questions that deal with them :

- Tangibles (appearance of physical elements) (Question 1- 6)
- Reliability (dependability , accurate performance) (Question 7- 11)
- Responsiveness (promptness and helpfulness) (Question 12- 15)
- Assurance (competence , courtesy , credibility , and security) (Question 16- 20)
- Empathy (caring and individualized attention the firm provides for its customers) (Question 21- 25)

This implies that the industry is in a very bad state with respect to service levels regarding customer satisfaction . The results in the preceding paragraph reflect the levels of seriousness within each climatic dimension , the more negative the value the more problematic the issue. The industry therefore needs to work at in order :

- a) Empathy (-3.02)
- b) Reliability (-3)
- c) Responsiveness (-2.96)
- d) Assurance and (-2.87)
- e) Tangibility (-2)

Within each of these climatic dimensions we review the questions that make them up , highlighting possible recommendations (Each of the questions with difference scores less than or equal to -3 are highlighted in blue) :

- (1) An excellent Waste disposal company have neat looking equipment , e.g. clean trucks and waste bins , etc.
- (2) The physical facilities, e.g. buildings, signs, yard , offices etc., at an excellent Waste Disposal Company will be visually appealing
- (3) Staff of a Waste Disposal Company will appear neat , e.g. uniform, safety wear grooming etc.
- (4) Documentation associated with the service, e.g. ,delivery notes statements of accounts , corporate profile etc .. will be visually appealing in an excellent Waste Disposal Company
- (5) An excellent Waste Disposal Company will always leave my waste collection area neat after collecting waste .
- (6) An excellent Waste Disposal Company will stack waste neatly into their trucks.
- (7) When an excellent Waste Disposal Company promises to do something by a certain time, it will do so (-3.07)"RELIABILITY"
- (8) When a client has a problem, an excellent Waste Disposal Company will show genuine interest in solving it.
- (9) An excellent Waste Disposal Company will perform service right the first time
- (10) An excellent Waste Disposal Company will provide its services at the time it promises to do so (-3.17)"RELIABILITY"
- (11) An excellent Waste Disposal Company will insist on top quality service in an emergency eg : in the event of a waste spillage . (-3.21)"RELIABILITY"
- (12) Staff at an excellent Waste Disposal Company will tell a client exactly when services will be performed
- (13) Staff at an excellent Waste Disposal Company will give prompt service to a client (-3.08)"RESPONSIVENESS"
- (14) Staff at an excellent Waste Disposal Company will always be willing to help a client (-3) "RESPONSIVENESS"
- (15) Staff at an excellent Waste Disposal Company will never be too busy to respond
- (16) The behavior of staff at an excellent Waste Disposal Company will instill confidence in a client
- (17) Clients of an excellent Waste Disposal Company will feel safe in their transactions
- (18) Staff at an excellent Waste Disposal Company will be consistently courteous with clients
- (19) Staff at an excellent Waste Disposal Company will have the knowledge to answer a clients requests
- (20) A good Waste Disposal Company will keep their client abreast of all legislation pertaining to waste disposal . (-3.22) "ASSURANCE"
- (21) Staff at an excellent Waste Disposal Company will give clients individualized attention
- (22) An excellent Waste Disposal Company will have convenient operating hours
- (23) An excellent Waste Disposal Company will have staff who give its client priority attention in the event of emergencies. (-3.14)"EMPATHY"
- (24) An excellent Waste Disposal Company will have (-3.1)"EMPATHY"

- clients best interests at heart
 (25) The staff of an excellent Waste Disposal Company will understand the specific needs of a client (-3.02)"EMPATHY"

5.2.2 Perceptions minus Expectations (The Results by Hub)

The statistics from this analysis are illustrated in Table 5.1 above . The various hubs that were included in the survey included Durban , Pinetown and Richards Bay . The sample quotas within each hub was reflective of the quota demographics in the population and as such Durban comprised of 75% of the sample , Pinetown 12% and Richards Bay 12% . As can be noted from the results the Durban Hub seems to have a very bad difference score rating relative to the two other hubs namely Pinetown and Richards Bay . All the climatic dimension mean ratings in Durban , excluding tangibles have a mean rating less than -3 and none of the other two hubs have any climatic dimensions with a mean rating below -3. This implies that the levels of customer satisfaction in Durban is a lot worse relative to the remaining Hubs .

5.2.3 Reliability Analysis – Cronbach Alpha (The Combined and Hub Results Together)

The simplest measure of internal consistency is split-half reliability . The coefficient CronBach Alpha is the appropriate statistic to analyse this . This technique yields the average of all possible split half coefficients resulting from different ways of splitting all scale items. The data were tested for reliability using this technique . This coefficient varies from 0 to 1 and a value of less than 0.6 generally indicates unsatisfactory internal consistency . The Cronbach coefficient Alpha results from the reliability analysis are reflected below in Table 5.2

Table 5.2 Reliability Testing – Combined and by Hub

CRONBACH				
ALPHA				
RELIABILITY				
TESTING	Combined	Durban	Pinetown	Richards Bay
Tangibles	0.62	0.70	0.124	0.42
Reliability	0.77	0.8	0.149	0.84
Responsiveness	0.72	0.66	0.78	0.84
Assurance	0.70	0.73	0.23	0.60
Empathy	0.85	0.86	0.75	0.92

As we can see from the above results , the majority of all coefficient values are greater than 0.6 , which implies that the questionnaire has proved to be a reliable measuring instrument , however , there are a few questions over the reliability of the questionnaire amongst the Pinetown based companies which revealed coefficient values less than 0.6 .

5.3 THE RECOMMENDATIONS

This section outlines the various recommendations that may be adopted to improve service levels within the waste disposal industry .

5.3.1 The Climatic Dimensions

Although the difference scores relating to each climatic dimension were extremely low and as such all areas need to be worked on . The data did however , reveal certain facets within each climatic dimension which were weaker than others in the broader context , and it is exactly these facets that

in the initial phases should be worked on . This should be done without removing the importance from any of the remaining facets which make up the climatic dimensions . From inspection the areas which were particularly weak were highlighted in Blue as portrayed in the questionnaire above . Of specific relevance is the question on legislation which performed worse (-3.22) in the entire questionnaire . In other words companies realized that the waste disposal companies were most definitely not keeping them abreast of the necessary legislation to the level that they expected of them . Another two questions which also performed very poorly were questions 10 and 11 , i.e :

(10) An excellent Waste Disposal Company will provide its services
at the time it promises to do so (-3.17)

(11) An excellent Waste Disposal Company will insist on
top quality service in an emergency eg : in the event of a
waste spillage . (-3.21)

Both of the above questions related to *Reliability of Service* , an area within which particular emphasis will need to be applied within the Strategic Marketing Plan which is outlined in the next section .

The worst performing climatic dimension in this survey was the area of *Empathy*

The 3 questions which performed most poorly with regard to this climatic dimension are illustrated below :

(23) An excellent Waste Disposal Company will have staff who give its
client priority attention in the event of emergencies (-3.14)

(24) An excellent Waste Disposal Company will have clients best interests
at heart (-3.1)

(25) The staff of an excellent Waste Disposal Company will understand the
specific needs of a client. (-3.02)

All issues relating to Empathy will also most definitely need to be addressed within the Strategic Marketing Plan with particular focus to the issues raised in the three questions above .

5.3.2 Strategic Options

It is obvious from the above results that the service levels provided to the waste generators in the KZN area is extremely poor . This has been quantified via the difference between what the *expectations* of service levels should be and what the *perceptions* are of those very same service levels are . The industry is weak in all climatic dimensions and needs to adopt a strategic marketing plan with particular emphasis on improving service levels to waste generators .

The strategic marketing plan to be rolled out should include amongst others :

- a) Better communication with Customers
- b) More comprehensive , ongoing market research
- c) The encouragement of upward communication
- d) Decreased layers of management.
- e) Top management needs to commit to the process of improved service levels.
- f) Service quality goals need to be set .
- g) Standardization of tasks needs to be implemented if possible.
- h) Enhanced teamwork
- i) Employee –job-fit
- j) Technology-job-fit
- k) Employee control
- l) A supervisory system
- m) A reduce level of role conflict
- n) A reduction in role ambiguity
- o) Avoid propensity to over – promise

5.3.3 Education of the Polluter Pays Principle

Based on the results of the questionnaire the majority of companies did not have knowledge of the “polluter pays principle”. It is recommended that the regulators of the law , namely The Department of Water Affairs and Forestry, hold workshops in conjunction with the Chambers of Business, provincial departments and local municipalities.

5.3.4 Data base of Waste Generators and Contractors

In terms of the National Environmental Management Act of 1998, a database of all waste generators and waste disposal contractors was to be drawn up by local municipalities. In our focus area of this study the biggest producers of waste are in the boundaries of the eThekweni Municipality . In an effort to enquire whether this data base was in existence, an interview was held with Mr Raymond Rampersad, Head of Cleansing and Solid Waste, eThekweni Municipality , who maintained that the local authority of eThekweni(Durban) is not in compliance with the requirements of the above act as yet. He further stated that there are current mechanisms in place for compliance in terms of establishing the data base.

The recommendation is that this data base should be drawn up as a matter of urgency, so that the information from this can be used to monitor and control all activities of waste generation and disposal, which will certainly ensure a more efficient service being provided.

5.3.5 More funding from Government

Structures need to be put in place to monitor the compliance of the many acts and regulations with respect to laws governing waste management. There seems to be a shortage of manpower to ensure compliance of the law. The recommendation is that Government in an effort to protecting our environment, as stated in the constitution, must make more funds available to the various provinces for establishing structures to enforce our many acts and regulations.

5.3.6 Incentives

Local authorities should provide incentives, such as rebates on certain utility services should industry and waste contractors provide waste disposal services that are efficient and environmentally acceptable. The government should also provide export subsidies to those companies that practice good governance with regard to good waste management practices.

5.4 SUGGESTIONS FOR FURTHER RESEARCH

Post the marketing plan role out within the entire industry , a longitudinal study should be implemented to monitor the improved service levels if any . If funding is available then the study should include a more in depth analysis which would include factors such as :

- a) A more representative sample .
- b) Servqual applications to *both* the waste generators and service providers .
- c) A larger cross sectional analysis to include the other major provinces in the country .

5.5 CONCLUSION

Based on the statistical analysis, the discrepancy between service expectations and service delivery in the waste industry is wide. Urgent attention needs to be focused on service delivery, by waste disposal companies.

Failing to provide good service will compromise a company 's trading opportunities both locally and internationally. The country's economic and industrial policy has also turned towards export promotion as a pillar of South Africa's economic development. Should our companies be compromised then this will surely affect our exports. Environmental issues are at the top of the

agenda in most countries and South Africa may be exposing itself towards a ban of its products.

There are adequate laws in place to ensure that waste is disposed off in an environmentally acceptable way, however there seems to be inadequate structures in place to monitor their implementation.

In spite of company's being accredited in terms of ISO Standards this is not sufficient as these standards are a mere record keeping exercise without any real proof that the waste are properly disposed off. The ultimate responsibility with disposal of wastes rests with the generator of the waste.

There needs to be an urgent improvement in the levels of service that waste companies provide to ensure that South African companies will be provided with waste disposal services that are efficient ,economical, lawful and environmentally acceptable, to the best practices in the world

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