

AN EMPIRICAL INVESTIGATION OF THE EXTENSION OF
SERVQUAL TO MEASURE INTERNAL SERVICE QUALITY IN A
MOTOR VEHICLE MANUFACTURING SETTING.

THESIS

Submitted in partial fulfillment of the requirements for a degree of
Master in Business Administration
MBA

AT

RHODES UNIVERSITY

BY

ARTHUR MZWANDILE BOOI
MARCH 2004

SUPERVISED BY
ROGER ELLIOTT

ABSTRACT

This research explores the role, which the construct, service quality plays in an internal marketing setting. This is achieved by evaluating the perceptions and expectations of the production department with regards to the service quality provided by the maintenance department of a South African motor vehicle manufacturer. This was done using the INTSERVQUAL instrument, which was found to be a reliable instrument for measuring internal service quality within this context.

A positivist approach has been adopted in conducting this research. There are two main hypotheses for this study: the first hypothesis is concerned with the relationship between the overall internal service quality and the five dimensions of service quality namely: tangibles, empathy, reliability, responsiveness and reliability. The second hypothesis focuses on the relationship between the front line staff segments of the production department and the five dimensions of internal service quality.

The results of this research suggest that the perceptions and expectations of internal service customer segments plays a major role in achieving internal service quality. In addition, the importance of the INTSERVQUAL instrument in measuring internal service quality within the motor vehicle manufacturing environment is confirmed.

ACKNOWLEDGEMENTS

Here, finally, is the result of my long journey that started in a project to study Total Productive Maintenance (TPM) at a motor vehicle manufacturing plant and ended up in the world of buzzwords. It was in the search for concepts of how to implement TPM to the production department in the assembly area that I came across the concepts of SERVQUAL. I found the concept very appealing.

I am deeply indebted to my supervisor Roger Elliott without whom this thesis would have read like Edward Lear's *Complete Nonsense*. He has devoted so much time and effort to teaching me both in this research and in writing it that my labours will never be able to match them. I give my special thanks to Professor Sarah Radloff and Dr Phil Court for their insightful and helpful comments and for clarifying various statistical issues.

I am grateful to my classmate, Oswald Mashonganyika for battles fought in and out of class, forcing me to see where my analysis might be inadequate. Masimba Garaba's sympathetic ear deserves special mention, without which writing this thesis would make me age. The maintenance and production department staff without you this research would have been impossible, you have made my journey much more enjoyable and competitive.

My informants the whole MBA 2001 class are god-sent. Their patience and almost masochistic willingness have been amazing. Big thanks to Professor Gavin Staude, and all the lecturers and guest speakers, for sharing the words of wisdom.

Above all, thank you, the Lord Almighty, mummy, my beloved sons Neville and Tafadzwa and darling Zodwa for your love, support and taking over my share of household chores, a huge incentive to thesis writing.

Now this journey has ended and I will travel on...

DECLARATION

This Masters Thesis represents my own work and due acknowledgement is given in the reference whenever information is derived from other sources. No part of this Master's Thesis has been or is being concurrently submitted for other qualification at any University

Signed.....

Date 10 March 2004.

TABLE OF CONTENTS

ABSTRACT.....	II
ACKNOWLEDGEMENTS	III
DECLARATION.....	IV
TABLE OF CONTENTS	V
TABLE OF TABLES.....	VIII
TABLE OF FIGURES.....	VIII
TABLE OF APPENDICES.....	IX
CHAPTER ONE	1
1 INTRODUCTION, PROBLEM STATEMENT AND AIMS OF STUDY	1
1.1 INTRODUCTION	1
1.2 PROBLEM STATEMENT	3
1.3 CLARIFICATION OF CONCEPTS	4
1.3.1 <i>Quality</i>	4
1.3.2 <i>Products, Goods and Services</i>	5
1.3.3 <i>Perceived Quality</i>	6
1.3.4 <i>Service Quality Gap</i>	6
1.3.5 <i>Service users</i>	6
1.3.6 <i>Service Providers</i>	7
1.3.7 <i>INTSERVQUAL instrument</i>	7
1.3.8 <i>Expectations</i>	7
1.3.9 <i>Satisfaction</i>	8
1.4 THIS STUDY	8
1.5 OBJECTIVES OF THE STUDY	9
1.6 CHAPTER ORGANISATION	9
1.7 CONCLUSION.....	10
CHAPTER TWO	11
2 SERVICES.....	11
2.1 INTRODUCTION	11
2.2 WHAT ARE SERVICES?.....	11
2.1.1 <i>Difference between Goods and Services</i>	13
2.3 SERVICE CHARACTERISTICS	14
2.3.1 <i>Intangibility</i>	15
2.3.2 <i>Perishability</i>	15
2.3.3 <i>Simultaneity</i>	16
2.3.4 <i>Heterogeneity</i>	17
2.4 CLASSIFICATION OF SERVICE OPERATION.....	19
2.5 VERIFICATION OF SERVICE CLASSIFICATION SCHEMES	21
2.6 DISTINGUISHING BETWEEN SERVICES	22

2.7	AN ATTEMPTED CLASSIFICATION OF SERVICES.....	23
2.8	CONCLUSION.....	27
CHAPTER THREE		28
3	INTERNAL SERVICE AND INTERNAL MARKETING	28
3.1	INTRODUCTION	28
3.2	THE CONCEPT OF INTERNAL SERVICE QUALITY	28
3.2.1	<i>Grönroos' service quality model.....</i>	<i>30</i>
3.2.2	<i>The Five-Gap Model of Service Quality.....</i>	<i>31</i>
3.3	BENEFITS OF SERVICE QUALITY	36
3.4	RESEARCH INTO SERVICE QUALITY.....	37
3.5	THE CONCEPT OF INTERNAL MARKETING	38
3.6	INTERNAL MARKETING AND SERVICE QUALITY	40
3.7	INTERNAL CUSTOMER SERVICE	41
3.7.1	<i>Internal customers</i>	<i>42</i>
3.7.2	<i>Internal customer segmentation.....</i>	<i>44</i>
3.8	CONCLUSION.....	45
CHAPTER FOUR.....		46
4	MEASUREMENT OF INTERNAL SERVICE QUALITY	46
4.1	INTRODUCTION	46
4.2	MEASUREMENT IS KEY	46
4.3	SERVQUAL	47
4.3.1	<i>Development of SERVQUAL.....</i>	<i>48</i>
4.3.2	<i>Limitations of the model.....</i>	<i>49</i>
4.3.3	<i>Applications and extensions of SERVQUAL.....</i>	<i>50</i>
4.3.4	<i>Applications of SERVQUAL in internal service quality settings.....</i>	<i>53</i>
4.4	MANAGERIAL IMPLICATIONS AND PRACTICAL USE.....	55
4.4.1	<i>Qualitative use of SERVQUAL</i>	<i>56</i>
4.4.2	<i>Quantitative use of SERVQUAL</i>	<i>56</i>
4.5	CONCEPTUAL MODEL IN THE CURRENT STUDY	57
4.6	APPLICATION OF THE RESEARCH.....	58
4.7	INTSERVQUAL MEASURING INSTRUMENT	58
4.8	SOUTH AFRICAN MOTOR INDUSTRY CONTEXT	59
4.9	CONCLUSION.....	60
CHAPTER FIVE		62
5	RESEARCH METHODOLOGY	62
5.1	INTRODUCTION	62
5.2	HYPOTHESIS 1	63
5.3	HYPOTHESIS 2	64
5.4	RESEARCH DESIGN.....	64
5.5	REFLEXIVITY, POWER AND ETHICS.....	66
5.6	RESEARCH POPULATION AND SAMPLE	66
5.7	INSTRUMENTS USED	68
5.7.1	<i>Item generation and Questionnaire Development</i>	<i>68</i>
5.8	PILOT STUDY	70
5.9	THE MAIN STUDY	71

5.9.1	<i>Process of data collection</i>	72
5.9.2	<i>Data capturing</i>	73
5.9.3	<i>Data analysis</i>	73
5.9.4	<i>Cronbach's Alpha Coefficient</i>	73
5.9.5	<i>Factor Analysis</i>	74
5.9.6	<i>Hypothesis Testing</i>	74
5.10	CONCLUSION.....	75
CHAPTER SIX		76
6	RESULTS AND DISCUSSION	76
6.1	INTRODUCTION.....	76
6.2	RESULTS OF THE INSTRUMENT RELIABILITY.....	76
6.3	RESULTS OF FACTOR STRUCTURE.....	77
6.3.1	<i>Expectations items</i>	78
6.4	RESULTS OF THE CORRELATION AND REGRESSION ANALYSIS.....	82
6.4.1	<i>Hypothesis 1</i>	82
6.4.2	<i>Hypothesis 2</i>	82
6.5	T-TEST.....	83
6.5.1	<i>Highest mean expectation scores</i>	84
6.5.2	<i>Lowest mean expectation scores</i>	85
6.5.3	<i>Highest mean perception scores</i>	85
6.5.4	<i>Lowest mean perception scores</i>	86
6.5.5	<i>Average SERVQUAL scores</i>	86
6.5.6	<i>Discussion of Expectation results</i>	87
6.5.7	<i>Discussion of perception results</i>	87
6.6	DISCUSSION OF RESULTS.....	89
6.7	MANAGERIAL IMPLICATIONS AND RECOMMENDATIONS.....	90
	RESEARCH LIMITATIONS.....	91
6.8	RECOMENDATIONS FOR FURTHER RESEARCH.....	93
6.9	CONCLUSION.....	94
REFERENCES		111

TABLE OF TABLES

Table 1 Maister's Service Classification	19
Table 2 Schmenner's Service Classification	19
Table 3 Issues for Service Operations Management.....	20
Table 4 Classifications of Selected Services	25
Table 5 Grouping of Similar Services	26
Table 6 Population, Sample and Respondents from the Production Departmental Segments.	68
Table 7 Unrotated Factor Analysis on Expectation items	77
Table 8 Factor loading matrix following Varimax rotation of four-factor solution S for ISQ scores (Expectations).....	78
Table 9 Unrotated Factor Analysis on Perception items.	80
Table 10 Factor loading matrix following Varimax rotation of four-factor solution S for ISQ scores (Perceptions)	81
Table 11 Summary of Correlation and Regression results.	82
Table 12 Expectation means	84
Table 13 Perception scores	85
Table 14 Summary of segmentation results.....	90

TABLE OF FIGURES

Figure 1 The physical goods - service continuum.	5
Figure 2 Relationship between Maintenance and Production Functions.....	12
Figure 3 Characteristics of services	14
Figure 4 The Perceived Service Quality	31
Figure 5 The Gap Analysis Model of Service Quality	33
Figure 6 The Link of Service Profit Chain	39
Figure 7 Zone of Tolerance.....	52
Figure 8 A Schematic Representation of the General Research Design.....	65
Figure 9 Assembly Plant Layout.....	67

TABLE OF APPENDICES

Appendix 1 Reliability and Validity Results	96
Appendix 2 ISQ against Tangibles (perceptions – expectations).	97
Appendix 3 ISQ against Reliability (perception - expectation).....	98
Appendix 4 ISQ against Responsiveness (perception - expectations).....	99
Appendix 5 ISQ against Assurance (perception - expectation).....	100
Appendix 6 ISQ against Empathy (perception - expectation)	101
Appendix 7 ISQ against Unweighted Average (perception - expectation).....	102
Appendix 8 Dependent T-test Results for testing the difference between perceptions and expectations.....	103
Appendix 9 ANOVA Test Results.....	104
Appendix 10 Breakdown Table of Descriptive Statistics (Position)	105
Appendix 11 Breakdown of Descriptive Statistics (Responsiveness)	106
Appendix 12 Breakdown of Descriptive Statistics (Unweighted Average)	107
Appendix 13 Breakdown of Descriptive Statistics (Position)	108
Appendix 14 Descriptive Statistics.....	110

CHAPTER ONE

INTRODUCTION, PROBLEM STATEMENT AND AIMS OF STUDY

1.1 INTRODUCTION

In these turbulent times of frequent change in the external environment, the notion of having satisfied customers as the key to sustaining a competitive advantage has endured. It is argued that an antecedent to having satisfied customers is having satisfied employees and this can be achieved by internal marketing.

Fierce competition in the service industries has helped to raise standards and so make customers expect even higher standards of services thus exerting more pressure on management to optimise the usage of human resources. Similarly motor vehicle manufacturers, like many other service providers, are experiencing more customer complaints than ever, justifying organisations' attempts in engaging in internal marketing so as to improve internal service quality.

Grönroos (1981) provided the definition of internal marketing as selling the firm to the employees, who are treated as internal customers. The thought is that higher employee satisfaction makes it possible to develop a more customer focused and market-oriented firm. The basic definition is enunciated by Berry and Parasuraman (1991:151) "Internal marketing is attracting, developing, motivating and retaining qualified employees through job-products that satisfy their needs" Internal marketing literature suggests that the "way to satisfied customers is through *satisfied employees*" (Grönroos 1981:326). Oakland, (1993) believes the ability to meet customer requirements is vital, not only between two separate organisations, but also within the same organisation.

There are many definitions of what is meant by service quality. In its simplest form, service quality is a product of the effort that every member of the organisation invests in satisfying customers. In its broadest sense, service quality is defined as superiority or excellence, which is perceived by the customer (Peters and Austin, 1985). It

involves a comparison between expectations and performance (Parasuraman, Zeithaml and Berry, 1985).

In this research and according to Parasuraman, *et al.*, (1985) the five-gap model of service quality will be used to compare the difference between expectation and performance. If perceived performance meets or exceeds expectations, there is some degree of satisfaction and if the score falls short of the expectation, there is dissatisfaction

Parasuraman, *et al.*, (1988) argues that the gap between performance and expectations (disconfirmation) is the basis for measuring service quality. Support for this notion is provided by the limited literature on internal quality service that is available Parasuraman, *et al.*, (1991)

The process by which customers perceive satisfaction and overall quality is regarded as the key to understanding service quality. This has been articulated by Heskett, Sasser and Hart, (1990:25) in his Service Profit Chain model as “internal service quality drives employee satisfaction, which enables the delivery of high value service, resulting in customer satisfaction, leading to customer loyalty, which in turn produces profit and growth”.

In order to ensure that a high level of service quality is provided to its external customers, marketers need to understand how service quality is enhanced among internal stakeholders within the internal marketplace. In order to answer this crucial question service quality needs to be measured.

The work of Frost and Kumar, (2000) explores the part, which the construct of service quality plays in an internal marketing setting. A conceptual model known as the “Internal Service Quality Model – INTSERVQUAL” was designed based on the original gap model developed by Parasuraman, *et al.*, (1985). The model evaluates the dimensions, and their relationships that determine internal service quality (ISQ) among internal customers, service-users and internal suppliers service providers.

The context of this research is a motor vehicle manufacturing firm based in the Eastern Cape. The focus is on two departments, maintenance and production, the maintenance department is the service provider and the production department is the service user. The other focus is on identifying the issues pertaining to internal service quality among the various employee segments of the production department.

The importance of the study is that it will provide senior management with an instrument to assess all aspects of service quality between the maintenance and production departments.

1.2 PROBLEM STATEMENT

Quality of service in the motor vehicle manufacturing industry depends greatly on the quality of employees. Employee satisfaction through increased service quality has become increasingly important (Bateson and Hoffman, 1999), in the highly competitive South African motor vehicle industry, where technological advances make it difficult for motor vehicle manufacturers to differentiate their product offerings (Du Toit, 1984).

While marketers have actively researched service quality, service quality within a service organisation between employees has received much less attention. Employees offer insights into conditions that affect service quality in an organisation as they experience the service-delivery system daily. Employee research serves as an early-warning system to marketers, as employees are able to identify when the system is going to break down. Hence quality assessments are a vital tool for empowering staff and reinforcing organisational vision (Selber and Streeter, 2000).

However, quality is a difficult concept to measure when applied to services. Unlike products, services are intangible with aspects that are difficult to identify and name, let alone quantify. Services are also heterogeneous and difficult to standardise in that the same service may be delivered differently when delivered by different staff members or different service-users. Services are tailored to suit the needs of the service-users and these needs differ from person to person. The inseparability of the

production and consumption of services makes them difficult to control and the consumer's role in co-production affects the process and content of service delivery (Parasuraman, *et al.*, 1985).

One way to measure quality is to conduct an impact evaluation and measure whether the goals of the service program were met (Parasuraman, *et al.*, 1994). This is an objective measure of quality, but it does not indicate whether service-users were satisfied. In the absence of objective measures of whether service-users experienced quality services, one can explore service-users' subjective perceptions of whether they received quality services. This research seeks to explore and describe service-users perceptions of the quality of services performed by the maintenance department of a motor vehicle manufacturer based in the eastern cape

A Company that employs satisfied employees is more likely to satisfy its customers than one where employees are unhappy. Firms, which satisfy their internal customers, are most likely to be the ones where external customers are satisfied too. Successful firms entrust managers and service providing staff with the key task of helping service-user staff to please the customer.

It is clear that customer satisfaction is largely dependent on the level of service quality delivered by employees and that, as argued by Heskett, *et al.*, (1977), employees' satisfaction and customer satisfaction scores run closely together. It can consequently be argued that customer satisfaction is directly influenced by employee satisfaction. Employee satisfaction is affected by internal quality, which in turn is affected by the leadership being practiced within the organisation.

1.3 CLARIFICATION OF CONCEPTS

1.3.1 Quality

The term quality is usually related to products because it is easier to define product quality. Hellriegel, Jackson, Slocum and Staude (2001) defined quality as "how closely and reliably a product satisfies the specifications to which it was built."

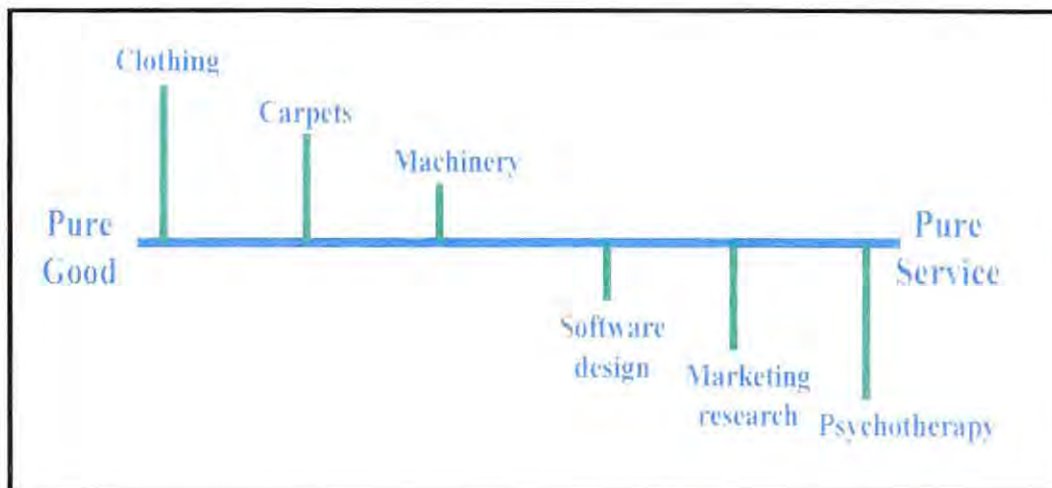
However, in this research, the aim is to measure quality of services. “Service quality is a measure of how well the service conforms to consumer expectations on a consistent basis...” (Parasuraman, *et al.*, 1985:42)

1.3.2 Products, Goods and Services

The definition of products that will be used in this study is that most products are a combination of goods elements and services elements. In some cases, the service element will be the essential element of the service (e.g. hairdressing and management consultancy), while in the other cases the service will simply support the provision of a tangible good. (Palmer, 1994). Maintenance services are there to support the manufacturing of the motor vehicle. According to Palmer, (1994:2) the distinction of products, goods and services is explained by the following reasoning:

All productive activities can be placed on a scale (see figure 1) somewhere between being a pure service (no tangible output) and a pure good (no intangible service added to the tangible good). Hence practice, most products fall between the two extremes by being a combination of goods and services.

Figure 1 The physical goods - service continuum.



Source: Adapted from (Morgan, 2004)

1.3.3 Perceived Quality

This research seeks to measure perceived quality, which is different to actual or objective quality as proposed by Parasuraman, *et al.*, (1988:15) who defines perceived quality as the “consumer’s judgment about an entity’s overall excellence or superiority.” Parasuraman, *et al.*, (1988) defined perceived quality as a form of attitude related to satisfaction. This attitude results from comparison of expectations of service performance with perceptions of service performance. According to the Gap Model, perceived quality constitutes the degree and direction of the discrepancy between service-user perceptions and expectations regarding a service (Parasuraman, *et al.*, 1988)

1.3.4 Service Quality Gap

The service quality gap (denoted as G) is the gap between customer expectations and management perceptions of customer expectations. The measurement of G requires a comparison of responses pertaining to expectations from two different samples: services providers and customers. The service quality gap is computed along the five dimensions by subtracting customers’ expectations score from services providers perception of clients expectations. A negative G score indicates that the service providers underestimate customer’s expectations. A positive G score indicates that service providers overestimate customers’ expectations.

1.3.5 Service users

Service-users in this research are the production employees or the front line staff, who are divided into the following segments: operators, coordinators and team managers. These employees are responsible for the assembling of the motor vehicle into the finished product. This research focuses on quality perceptions and expectations of the operators’, coordinators and team managers so that the concept of service-users will be limited to these employees.

1.3.6 Service Providers

Service providers are the maintenance personnel or the support staff, comprising of artisans, specialists and engineering managers. These employees are responsible for providing the maintenance service of the plant, in order for the production processes to be carried out. The maintenance department is responsible for carrying out tasks that serve the central purpose of ensuring that machines are capable of doing what users want them to do. To build high quality products that meet or exceed customer expectation the maintenance department has to meet an optimum operating time of 97%. This implies that if plant maintenance is not done properly the machines will break down thus compromising on the organisation's strategic objectives namely: (SQDMC) safety, quality, delivery, morale and cost.. This makes the role of maintenance crucial in the manufacturing of motor vehicles.

1.3.7 INTSERVQUAL instrument

The INTSERVQUAL questionnaire measures only quality of the delivery of internal services. This is called functional quality. It does not measure technical quality, which is the level of quality in what is delivered, because usually only professionals can measure technical quality. (Babakus and Mangold, 1992).

1.3.8 Expectations

Expectations are service-users' belief about what the service-provider will (predictive) and should (normative) offer. Parasuraman, *et al.*, (1994) proposed a model of consumer expectations that includes two levels that consumers use as standards in assessing service quality. These levels are the minimum service level and the desired service level, and together they represent the range of an individual's expectations of satisfactory service, called the zone of tolerance (Parasuraman, *et al.*, 1994). Theoretically, internal service-users will be satisfied with service performance if they rate their perceptions of the performance within their own stipulated zone of tolerance (Parasuraman, *et al.*, 1994). The minimum/adequate service level is the minimum level of service performance that the service-user is willing to accept (Parasuraman *et*

al., 1994a). The desired level service level is the level of service performance that the consumer desires (Parasuraman, et al., 1994b).

1.3.9 Satisfaction

Satisfaction is “a psychological state which results when emotion surrounding disconfirmed expectation is coupled with the service-user’s prior feelings regarding the consumption experience” (Oliver in Parasuraman, *et al.*, 1988:16). Incidents of satisfaction, over time, results in a perception of high quality (Parasuraman, *et al.*, 1988).

1.4 THIS STUDY

This study investigates how service quality operates inside a motor vehicle manufacturer based in the Eastern Cape, whose dedication to service quality has gained international recognition and is a major factor in its success story. This motor vehicle manufacturer is typical of many organisations, which have service-users backed by service providers. The quality of the service provided by the service-users depends greatly on the help of dedicated service providers. This research examines the production department’s expectations and perception of the maintenance department’s service quality.

Maintenance is a function in an organisation that operates in parallel with production. The primary output of production is the desired product and its secondary input is demand for maintenance, which is in turn an output for the maintenance function. Maintenance results in a secondary input to production in the form of production capacity. While production manufactures the product, maintenance produces the capacity for production. Therefore maintenance affects production by increasing production capacity and controlling the quality and quantity of output.

The simplest test of internal service quality and the subsequent employee satisfaction is readily measurable by asking the service-users how they feel about the service providers and the attitudes displayed by these employees (Freeman, 1992). However,

the interaction between the service users and the service providers, known as the service encounter, can be considered as an interaction. It is also a compromise between different parties: the customer, the provider, and the service firm, (Czepiel, Solomon and Surprenant, 1985).

1.5 OBJECTIVES OF THE STUDY

1. To introduce and test if the INTSERVQUAL instrument can be applied for regular assessment of employee satisfaction in a motor vehicle manufacturing plant.
2. To identify the gaps between the expectations and perceptions of the service-users towards the service providers in a motor vehicle manufacturer in the Eastern Cape.
3. To examine the relationship between the overall Internal Quality and the five service quality dimensions, namely: tangibles, reliability, responsiveness, assurance and empathy
4. To determine whether different internal service-user segments vary in the importance they place in the five dimensions of internal service quality.

1.6 CHAPTER ORGANISATION

The report begins with the definition of services and later focuses on the internal services and internal marketing in a motor vehicle manufacturing context. It explores the concepts of internal marketing, service quality and the internal customer. It discusses the measurement of internal service quality and introduces the SERQUAL instrument. An outline of the research methodology is presented and concludes with the presentation of the research results and recommendations for further research. This research consists of six chapters dealing with the following aspects.

The first chapter starts with an introduction, which gives a brief overview of the major literature. The background issues of the research and the problem definition are also presented. The problem definition, importance and definition of concepts are presented in this chapter, as is the aim of the research.

Chapter two of this research discusses the importance of services when service users are attempting to satisfy the external customers. This chapter also discusses the service characteristics and the classification of service operations. It further explores the verification of services and the distinction of services.

Chapter three provides a broad overview of internal service and internal marketing first by giving definitions and later by identifying the link between the two. It presents the gap model by Parasuraman and the service quality model by Grönroos. The chapter then alludes to internal customer service and its segmentation.

Chapter four discusses the concept of measuring internal service quality, the development of SERVQUAL and its limitations are presented. It then discusses the extension of SERVQUAL to INTSERVQUAL and its application in the present study. The chapter also captures the application of INTSERVQUAL in the motor industry context.

Chapter five presents the research methodology and the hypothesis in this study. It provides the research design and the research population and sample. This section presents questionnaire design and how the research will be conducted. The pilot study and main study are outlined in this chapter. In the conclusion the chapter presents the data capturing analysis.

1.7 CONCLUSION

Chapter six provides a summary of the research findings that have been established, as a result of the statistical analysis conducted in an attempt to establish and assess the relationships identified in the hypothesis of this research. This chapter also discusses the aforementioned findings in relation to the hypotheses identified by this research. The research limitations are discussed and recommendations for further research given.

CHAPTER TWO

SERVICES

2.1 INTRODUCTION

This chapter discusses the nature and characteristics of services. The consequences of the process of how services are consumed and used as well as the difference between process consumption and outcome consumption are also covered.

The purpose of this chapter is to discuss what are services and how customers perceive service quality. The difference between services and goods is also explored as well as service classification and service characteristics. To conclude a brief account on the verification and distinction between services is given.

2.2 WHAT ARE SERVICES?

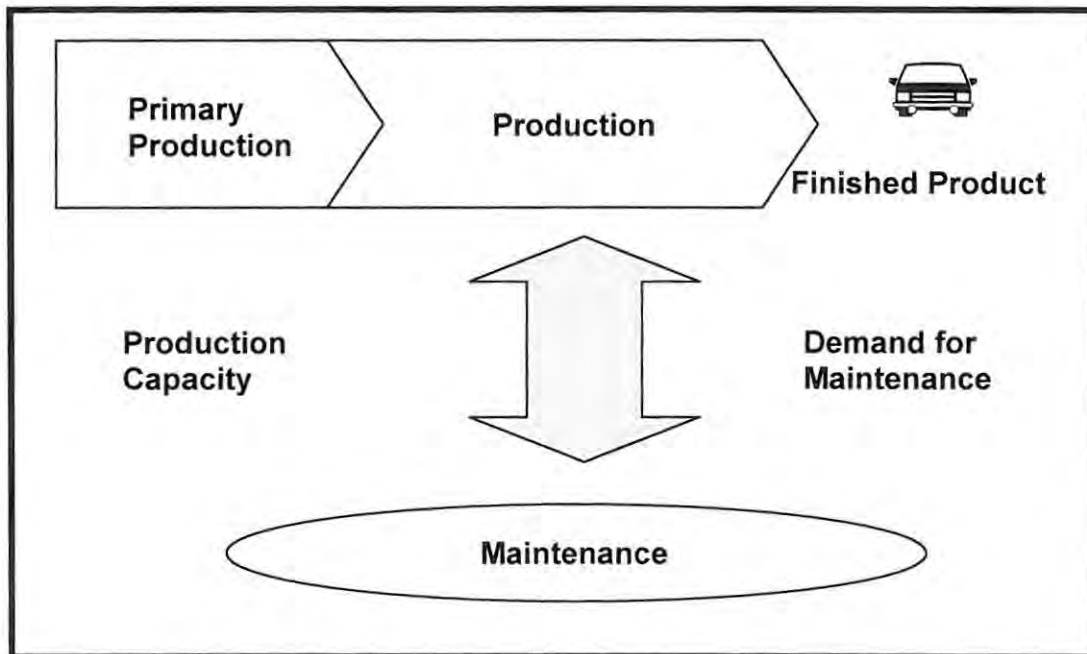
A service is a complicated phenomenon. The word is used with many meanings, ranging from personal service to a service as a product (Grönroos, 1988; Kotler and Armstrong, 1991:1) provide a contemporary definition of services:

A service is an activity or benefit that one party can offer to another that is essentially intangible and does not result in the ownership of anything. Its production may or may not be tied to a physical product.

This study focuses on the services provided by a maintenance department, to a production department. Maintenance is a function in an organization that operates in parallel with production. The primary output of production is the desired product and its secondary output is demand for maintenance. This in turn is an input for maintenance function. Maintenance results in a secondary input to production in the form of production capacity. While production manufactures the product,

maintenance produces the capacity for production. This relationship is shown in figure 2:

Figure 2 Relationships between Maintenance and Production Functions



Source Adapted from (Nakajima, 1982:30)

From this relationship it is apparent that for any production to take place there should be an effective production capacity and primary inputs. This argument justifies the importance of maintenance as a service provider in a manufacturing environment.

The definition of service that will be used for the scope of this study is:

The production of an essentially intangible benefit, either in its own right or as a significant element of a tangible product, which through some form of exchange satisfies an identified consumer need.

(Palmer, 1982:20)

In other words, a service is provided when maintenance is responsive to production requests. Therefore, the factors that affect production operations are the service provided by maintenance department and raw materials needed to manufacture the motor vehicle.

2.1.1 Difference between Goods and Services

Ruston and Carson (1985) observed that the marketing literature approaches the issue of the differences between goods and services from three viewpoints. The first view is widely held, and was typified by Kotler (1980), who said that marketing of goods and services should conform to the same fundamental rules. The second is that there is a need for a different approach to marketing services because of the differences that can be recognised in goods and services themselves. Several writers have taken this approach including Lovelock (1989) and Grönroos (1984). A third view is apparent in what actually happens in service businesses. Service industries seem to adopt every individual method and practice. Selection of methods is often restricted by the decision-makers' experience being limited to only a single business or profession. Although Ruston and Carson (1985) confined their discussion to marketing examples, it is readily apparent that this issue applies in both marketing and operations. Furthermore, the first and second views also seem to have parallels in the operations literature. They (Ruston and Carson, 1985) argued that there should be a single body of operations management knowledge that embraces goods and services, as expressed by Lockyer and Oakland (1987). They (Ruston and Carson, 1985) recognised a spectrum of operations, which range from pure goods to pure service (see figure 1). They (Ruston and Carson, 1985) noted that either extreme is equally uncommon, and that the majority of operations combine aspects of both goods and services. They (Ruston and Carson, 1985) concluded that a distinction between services and manufacturing is untenable on close examination and that although processes may appear different when the end product is a service rather than goods, they are in fact identical, in that both involve the use of facilities to act on inputs to satisfy the needs of the customer. They (Ruston and Carson, 1985) acknowledged, however, that inputs differ, taking the form of ideas and materials in the case of product manufacture, and materials, ideas and information in the case of service, but asserted that it is the study

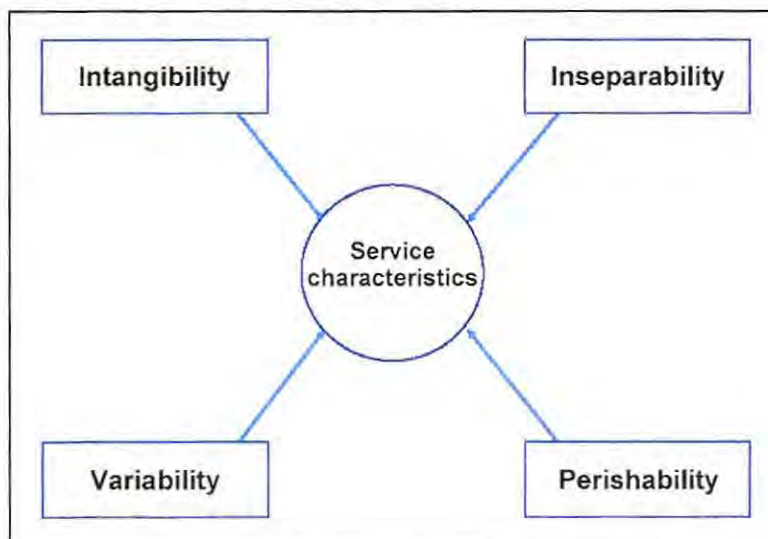
of similarities not of differences, which is important. Sasser, Olsen and Wyckoff (1978:20): took a different view

It is useful to understand the distinct characteristics of services that make the management tasks of service executives different from their counterparts in manufacturing firms.

Sasser, *et al.*, (1978) recognised that a pure service is seldom supplied to the consumer, and concluded, as did Shostack (1977), that whether what firms offer is regarded as goods or service is a question of emphasis, or dominance, among the various elements that comprise the service package. Shostack (1977) placed the distinction between goods and services primarily in intangibility; however, she also recognised that there are few pure services and described *market entities* as being combinations of discrete elements that are linked similarly to molecules. This analogy to chemical compounds is used to emphasize that changing a single element may completely change the entity. Shostack (1977) recognised that wholes could have certain dominance, tangible or intangible, without diminishing the importance of either characteristic, but that the greater the *weight* of intangible elements: the *greater* will be the divergence from product marketing priorities and approaches”.

2.3 SERVICE CHARACTERISTICS

Figure 3 Characteristics of services



Source: Adapted from (Morgan, 2004:5)

A whole range of characteristics of services has been suggested in the literature (Langeard, Bateson, Lovelock and Eiglier, 1981; Lovelock, 1983; Norman, 1984; Parasuraman, *et al.*, 1985). Four basic characteristics can be identified for services (see figure 3):

2.3.1 Intangibility

Services are activities or benefits that essentially are intangible, cannot be prefabricated in advance, and do not involve ownership or title (York, 1993). They may include the traditional personal assistance, for instance, baby-sitter, gardener, etc., the mechanic and repairman, and finally the value-added service, as the least tangible of all (Cotter, 1993). Since service is not an object but a phenomenon, it is difficult for customers to evaluate the quality of services as they evaluate physical goods. Services cannot be counted, measured, inventoried, tested and verified in advance of sale to assure quality. Because of its intangibility, organisations may find it difficult to understand how customers perceive (Zeithaml, 1981).

2.3.2 Perishability.

In manufacturing, finished good stocks are used to decouple production from variable demand, and component and raw material stocks are used to simplify planning and control (Wild and Cassell, 1981), but it is impossible to hold stocks of the explicit service element of the service package, and this raises some particular issues for service management. Clearly the facilitating goods element of the service package can be stocked in readiness for use, but a medical consultation, haircut, or train journey cannot be produced in advance of requirement. However, the services offered by the maintenance department can be offered in advance in the form of preventative maintenance.

Preventative maintenance (PM) is periodic inspection to detect conditions that might cause breakdowns, production stoppages, or detrimental loss of function combined with

maintenance to eliminate, control, or reverse such conditions in their early stages.

(Nakajima, 1982:219)

Preventative maintenance justifies that maintenance services are not as pure as consulting services. This forces services to deal with demand and capacity more directly than is usually the case in manufacturing situations by:

1. Increasing and decreasing resources;
2. Influencing demand, for example by adjusting price or controlling access; or
3. Retaining excess capacity to be able to cope with fluctuations in demand (Sasser, *et al.*, 1978).

Also requires that service production and service delivery always must exist simultaneously. In terms of this study service production and service delivery happen separately.

2.3.3 *Simultaneity*

This occurs because the consumer has to be present before many services can take place. In consequence, services tend to form in small and dispersed units, and it is difficult to take advantage of economies of scale (Regan, 1963). There is evidence that the emergence of computer and communications technologies is changing this in some service sectors, like banking, for example (Quinn, Brauch and Paquette, 1989:45; Segal-Horn, 1988), but personal contact continues to be necessary for the majority (Berry, 1981; Johnston, 1989). A significant consequence of customer participation in the delivery of services is that perceptions of quality are influenced by observation of the environment, and the systems used. Service facilities, procedures and systems should be designed with the customer in mind, as well as the *product* and the workforce Sasser, *et al.*, (1978) and Grönroos (1984) noted that consumption and production are *broad overlapping processes*. Interactions emerge so that production, and to some extent administrative functions and finance, are more influential in buyer-seller interaction in services than they are in goods production. The consequence of

this, according to Grönroos (1984) is that managers need a picture of the total span of the operation so that factors, which are crucial to success, are not neglected. This means that the functions of marketing and production (operations) cannot be separated in services, and that operational controls must tolerate coincident revenue and cost-generating processes. Morris and Johnston (1987) argued that the participation of the customer in the service process represents a fundamental difference between material processing operations (MPO) and customer processing operations (CPO). The difference arises because of the extent to which, in the case of CPO, it is necessary to manage intangible elements within the production process itself.

In this study the employee providing the service must first diagnose individual customer expectations, then customise the service on the basis of the diagnosis. The employee must also assess the quality of his or her performance, as it takes place, against their assessment of the customer's expectations, while remaining ready to detect and respond to any adverse customer reactions, which may occur.

2.3.4 Heterogeneity

Heterogeneity of services occurs in consequence of explicit and implicit service elements relying on individual preferences and perceptions. Differences exist in the outputs of firms producing the same service, and within the same firm, and even the same employee on different occasions (Sasser, *et al.*, 1978). Although unnecessary variation may occur which needs to be controlled, the variety attributed to estimating, and then matching, the consumer's requirement is essential to customer satisfaction (Morris, *et al.*, 1987). This inherent variability makes it difficult to set precise quantifiable standards for all of the elements of service. Lovelock's (1984:20) description of intangible service provided an excellent summary of the characteristics of services. Services are:

The deeds, actions and efforts performed by either a person or a machine, but which exist at one point in time and cannot be stored for later use ... services are usually complex in that they are composed of different parts, some of which may or may not be

employed for reasons which cannot be decided in advance, with the consequence that measuring services in their entirety can only be achieved with great difficult”.

From the above literature on the characteristics of services it is apparent that a service is normally perceived in a subjective manner. When customers describe services, expressions such as experience, trust, feeling and security are used.

Since services have a high degree of intangibility, it is frequently difficult for the customer to evaluate a service. How do you give a distinct value to *trust* or a *feeling* for example? Therefore, it is often suggested in the literature that one should *tangibilize* a service for the customer by using concrete, physical evidence such as cards and various kinds of documents

Since a service is not a thing but a series of activities or processes, which moreover are produced and consumed simultaneously at least to some extent, it is difficult to manage quality control and to do marketing in the traditional sense. There is no preproduced quality control before the service is sold and consumed. The situation varies depending on what kind of service is considered. A hair stylist's service is almost totally produced at the same time as the customer is present and receives it i.e. consumes the service. When delivering goods, only part of the service production process is experienced and thus simultaneously consumed by the customer. Most of the production process is invisible.

Quality control and marketing must take place during service production and consumption. If the firm relies on traditional quality control and marketing approaches only, the part of production activities where the customer is involved may go uncontrolled and include negative marketing experiences for the customer (Grönroos, 1987).

2.4 CLASSIFICATION OF SERVICE OPERATION

An important contribution to understanding service operations was made by Maister (1983) who classified services according to where value is mainly added, either “back room” or “front office”, and by the nature of the control system which is used; that is, whether it is programmed or non-programmed (Table I).

Table 1 Maister's Service Classification

Where value is added		
	Back room	Front office
Programmed	Service factory	Mass service
Non-programmed	Job Shop	Professional service

Source: Adapted from (Maister, 1983:30)

Table 2 Schmenner's Service Classification

Interaction and customization		
	Low	High
Low	Service factory	Service shop
Labour intensity		
High	Mass service	Professional service

Source: Adapted from Schmenner, (1986:43)

Table 3 Issues for Service Operations Management

Condition	Emphasis
Low Labour intensity	Choice of plant Implementing technology Managing demand (because of capacity is fixed in the short term) Scheduling
High labour intensity	Hiring employees Training Employee welfare Methods and control procedures Control of remote locations
Low interaction and customization	Appearance of surrounding (to compensate for lack of human contact) Standards Reporting structure (multiple-level hierarchy)
High interaction and customization	Cost control Response to customer needs Maintaining quality Employee development Internal relationships and communications

Source: Adapted from (Schmenner, 1988:23)

Schmenner (1986) also used a two-way classification with a similar result (see Table 2), but used different, although possibly correlated dimensions. He used labour intensity and customisation. Labour intensity was defined as a ratio of labour costs to capital equipment costs. The extent of customisation of service was taken together with the degree of interaction for the second dimension. This presented some problems in classifying certain types of service, for example maintenance tasks, where customisation is achieved despite minimal interaction. In most cases this classification

provided useful insights to the relative emphasis for operations management and quality control.

Table 3 reproduces those classifications suggested by Schmenner (1988). He also argued that, to simplify and improve the nature of control, services will tend to evolve, taking up a position closer to a notional diagonal joining professional service to the service factory, and that services on the diagonal will move towards lower labour intensity, as a consequence of the introduction of technology, and towards lower customisation if specialisation develops. (Dotchin and Oakland, 1994) This migration towards the service factory does not, however, preclude new firms continuing to emerge, as service shops, mass services or professional services, to satisfy new demands for personal and customised service. Haywood-Farmer (1988) drew on the Schmenner classification but separated three dimensions: labour intensity, customisation, and the extent of contact and interaction between customer and service employee. Haywood-Farmer reverted to interpreting the latter as Chase's concept of *contact*, meaning time in the system, rather than as interaction. He suggested that this scheme could be easily related to the established productivity improvement strategies of reducing labour, standardising tasks, and standardizing output. He also, similarly to Schmenner, used the classification to recognise the methods of control that are appropriate to different positions on the matrix.

2.5 VERIFICATION OF SERVICE CLASSIFICATION SCHEMES

Little empirical work has been reported to confirm or deny these theories, but (Johnston, Voss, Fitzgerald and Silvestro, 1989) drew on several schemes in a study of control information in services. They used data from detailed case studies to classify 11 service organizations along each of six dimensions:

- (1) Equipment/people: (Thomas 1978).
- (2) Customer contact: (Chase, 1978).
- (3) Customisation: (Lovelock, 1983).
- (4) Judgment: (Lovelock, 1983).
- (5) Front/back office: (Maister, 1983).

(6) Product/process: (Johnston, 1985)

These were taken together with a measure of volume based on the frequency of customer interactions per period. As volume increased a pattern was recognised:

- (1) Transaction time decreased;
- (2) Customisation decreased;
- (3) Discretion (judgment) decreased;
- (4) Value added moves to back office;
- (5) Focus moves to product orientation.

Three clusters of service organizations, ranging from low to high volume, emerged from this work. They coincided with Maister's groupings: professional service, jobbing, and mass service. Causality is not proved, however, and more comprehensive treatment of this important research area, drawing on a larger sample, with many more cases representing each service category, would be valuable and might provide additional understanding (Dotchin and Oakland 1994).

2.6 DISTINGUISHING BETWEEN SERVICES

It has been shown in this chapter that there is wide agreement in the literature that classification of services helps to provide insights for the improvement of management and control. Also in the operations management literature (Oakland, 1993) several sources point to a grouping that places services in one of four categories: the service factory, service shop, mass service, and professional service. Opinions vary about which methods and approaches will be successful in delivery service quality in each of these groups, however, and the groupings are not consistently defined and some contradictions arise. Irrespective of these differences, several service attributes can be selected from the preceding discussion, which have particular significance for management and control of service operations. These are defined as low by drawing on the concepts described by the originators.

1. Labour intensity is taken from Schmenner (1986) who defined it as the ratio of labour costs incurred, to the value of plant and equipment that is used. It is

also similar to the distinction made by Thomas, (1978) between people- and equipment-based services.

2. Contact was defined by Chase (1978), as the proportion of the total time required to provide the service for which the consumer is present in the system.
3. Interaction was distinguished from contact by Schmenner (1986:21-32) and defined as the extent to which the consumer actively intervenes in the service process to change the content of the service. Here, intervention is interpreted as also including customer participation to provide information, from which needs are being assessed, and also customer feedback, from which satisfaction can be inferred.
4. Customisation as described by Lovelock, (1984) and Haywood-Farmer, *et al.*, (1988) is defined here in two main parts:
 - Choice, which is defined as meeting customers' needs by supplying one or more selections from a fixed range of options.
 - Adaptation is defined as the interaction process in which the customer's requirement is decided upon, designed, and delivered to match the individual's needs. Low customisation is referred to as fixed, and can be thought of as a special case of *choice*, which, in the extreme, is limited to a single option.
5. The nature of the service act is taken from Lovelock (1984) and can be either tangible, meaning perceptible to touch and capable of being possessed, or intangible, in being insubstantial and eluding the grasp of the mind.
6. The direct recipient of service is also taken from Lovelock (1984), and can be either people or things.

2.7 AN ATTEMPTED CLASSIFICATION OF SERVICES

The definitions are made operational, as recommended by Grönroos (1984), by preparation of a list of particular services. These have been selected to represent several of the standard industrial classifications of services. They are presented in table 4. This does not purport to be a comprehensive list of services, but only to be

representative of a subset of those services that are directed to the consumer and are provided for profit.

These classifications coincide very closely with the few examples given by Schmenner (1988), Maister (1983), Chase (1978) and Lovelock (1989). An interesting difference occurs in classifying on the labour intensity attribute. Here the definition is interpreted so that the ratio of interest is labour used to deliver the service compared to mechanization. This places hotels as being high in labour intensity because, despite high investment by these firms in property and land, their operations, room and food preparation, cleaning, and even decoration, are relatively labour intensive. Schmenner, however, classified hotels as low in labour intensity. This highlights the problems of subjective, opinion-based classification and the need for objective measures.

Table 4 Classifications of Selected Services

Service	Labour Intensity	Contact	Interaction	Customisation	Nature of act	Recipient of Act
Accountant	High	Low	High	Adapt	Intangible	Things
Architect	High	Low	High	Adapt	Intangible	Things
Bank	Low	Low	Low	Fixed	Intangible	Things
Beautician	High	High	High	Adapt	Tangible	People
Bus service	Low	High	Low	Choice	Tangible	People
Cafeteria	Low	High	High	Choice	Tangible	People
Cleaning	High	Low	Low	Fixed	Tangible	Things
Clinic	Low	High	High	Adapt	Tangible	People
Coaching	High	High	Low	Choice	Tangible	People
Courier	High	Low	Low	Adapt	Tangible	Things
Consultancy	High	Low	High	Adapt	Intangible	Things
Hairdresser	High	High	High	Adapt	Tangible	Things
Accountant	High	Low	High	Adapt	Intangible	Things
Architect	High	Low	High	Adapt	Intangible	Things
Bank	Low	Low	Low	Fixed	Intangible	Things
Beautician	High	High	High	Adapt	Tangible	People
Bus service	Low	High	Low	Choice	Tangible	People
Cafeteria	Low	High	High	Choice	Tangible	People
Clinic	Low	High	High	Adapt	Tangible	People

Source: Adapted from (Schmenner, 1988:31)

Close examination of Table 4 suggested five groupings, which are set out in Table 5. Four of these were established by Schmenner and by Maister, which they follow with minor exceptions

Table 5 Grouping of Similar Services

Personal services		
Driving School		Sports Coaching
Beautician		Dental Practice
Hairdresser		Optician
Service Shop		
Clinic		Cafeteria
Leisure Center		Service Station
Professional Service		
Accountant		Architect
Financial Consultancy		Solicitors
Veterinary		
Mass Services		
Hotel		Restaurant
College		Bus Service
Coach Service		Rail Service
Take-away		Nursery
Courier Firm		
Service Factory		
Cleaning Firm		Postal Service
Repair Firm		Equipment Hire
Maintenance		Bank

Source: Adapted from (Mills, 1986:40)

The additional group has been called personal service here and is similar to personal-interactive service organisations as described by Mills (1986). He considered them to include professional services, which they follow in respect of most attributes. The distinguishing attributes are the recipient of the service and the amount of contact the consumer has with the system of service supply. Personal services are directed at people and are high contact, while professional services are directed to things this is

where maintenance services follow, and, although they require input from the consumer, this is mainly achieved without much time in face-to-face contact.

2.8 CONCLUSION

The reasons for the emergence of services, and the growth which has made them the major employer and contributor to GDP in advanced economies, have been examined. It is apparent that services are part of almost all organisations, and not just confined to the service sector. The arguments for differentiating management of services from that of manufacturing have been reviewed and the characteristics of services have also been explored. Several schemes for classifying services have been examined and, drawing on these schemes, certain attributes defined and used to classify selected services. Based on this classification, five groups emerge. Four of these correspond to the *service shop*, *professional service*, *mass service*, and *service factor* described in the literature. The fifth group has been labeled *personal services*, and is similar to professional services in many respects, but is invariably directed towards people rather than things, and requires extensive contact between service users and service providers. These attributes form a basis for the analysis of the survey of consumer perceptions of service quality, which is described in chapter three of this study. This study is mainly concerned with professional service offered by the maintenance department in a motor vehicle manufacturing plant.

CHAPTER THREE

INTERNAL SERVICE AND INTERNAL MARKETING

3.1 INTRODUCTION

The previous chapter discussed the nature and characteristics of services and the following chapter is concerned with the literature on service quality and internal marketing (IM). The chapter attempts to show the importance and benefits of service quality and how service quality can be achieved. Also included is literature on the service quality models, namely the Internal Service Quality Model and the Gap Analysis Model of Service Quality. After highlighting the importance of internal service and internal marketing the chapter further discusses how internal service quality can be measured. In chapter six, the results will be tested for validity in order to conclude if the SERVQUAL method can be extended to measure internal customer satisfaction or respectively employee satisfaction. As stated before, the purpose of this chapter is to explore the dimensions of quality offered by an internal service provider, and to examine how different internal user segments might vary in the importance they place on different service dimensions.

3.2 THE CONCEPT OF INTERNAL SERVICE QUALITY

In today's world of fierce competition, rendering quality service is key for subsistence and success (Parasuraman, *et al.*, 1985; Reichheld and Sasser, 1990; Zeithaml, 1990). Cronin and Taylor (1992, 1994), Teas (1993, 1994) and Zeithaml (1996) noted that the cardinal accent of both academia and business focused on ascertaining the customer's perceptions of service quality and subsequently contriving strategies to meet and surmount customer expectancies. Numerous organisations have started venturing into a variety of approaches to improve the quality of their services.

The credit for heralding service quality research (Schacherer, 2001) goes to Parasuraman, *et al.*, (1985). Since the 1930s quality has been identified as a factor for competitive advantage, but it was not until after the Second World War that it became important. In advising Japanese companies on restructuring after the war, North

American managers devised new concepts of quality, which began to be accepted as being of universal application. The important pioneers in this field were W. Edwards Deming, Joseph M. Juran and Kaoru Ishikawa (Hofman and Worsfold, 1997). Early quality models concentrated on goods.

Defining and modeling the quality of services is generally acknowledged to be more difficult than modeling the quality of goods because of the intangible nature of services themselves (Bergman and Klefsjö, 1994). Service quality is a concept that has aroused considerable interest and debate in the research literature because of the difficulties in both defining and measuring it, with a consensus for both (Parasuraman, *et al.*, 1985; Lewis and Mitchell, 1990; Dotchin and Oakland, 1994; Gaster, 1995; Asubonteng, McCleary and Swan, 1996).

The following are definitions of quality by various authors:

Quality is behaviour - an attitude - that says you will never settle for anything less than the best in service for your stakeholders, whether they are customers, the community, your stockholders or colleagues with whom you work every day.

(Harvey, 1995:26).

When we want to be effective and deliver good quality to the customer - we must produce services that meet "as much as possible" the needs of the consumer.

(Boomsma, 1991:33).

"Quality is providing a better service than the customer expects" (Lewis, 1989:10). Juran (1988:13) suggested that quality should be seen as "fitness for use".

Another short definition views quality as *conformance to requirements* rather than "goodness, or luxury, or shininess, or weight" (Crosby, 1979). The most commonly used definition defines service quality as the extent to which a service meets customers' needs or expectations (Lewis and Mitchel, 1990; Dotchin and Oakland,

1994; Asubonteng, *et al.*, 1996; Wisniewski and Donnelly, 1996). Today there are two popular models of service quality in use.

3.2.1 Grönroos' service quality model

The model created by Grönroos (1984) attempts to illustrate how the quality of a given service is perceived by customers. It divides customer's perception of any particular service into two dimensions:

3.2.1.1 Technical quality

What the consumer receives is the technical outcome of a process. This dimension is referred to as, outcome quality by Parasuraman, *et al.*, (1985) and physical quality by Lehtinen and Lehtinen (1982).

3.2.1.2 Functional quality

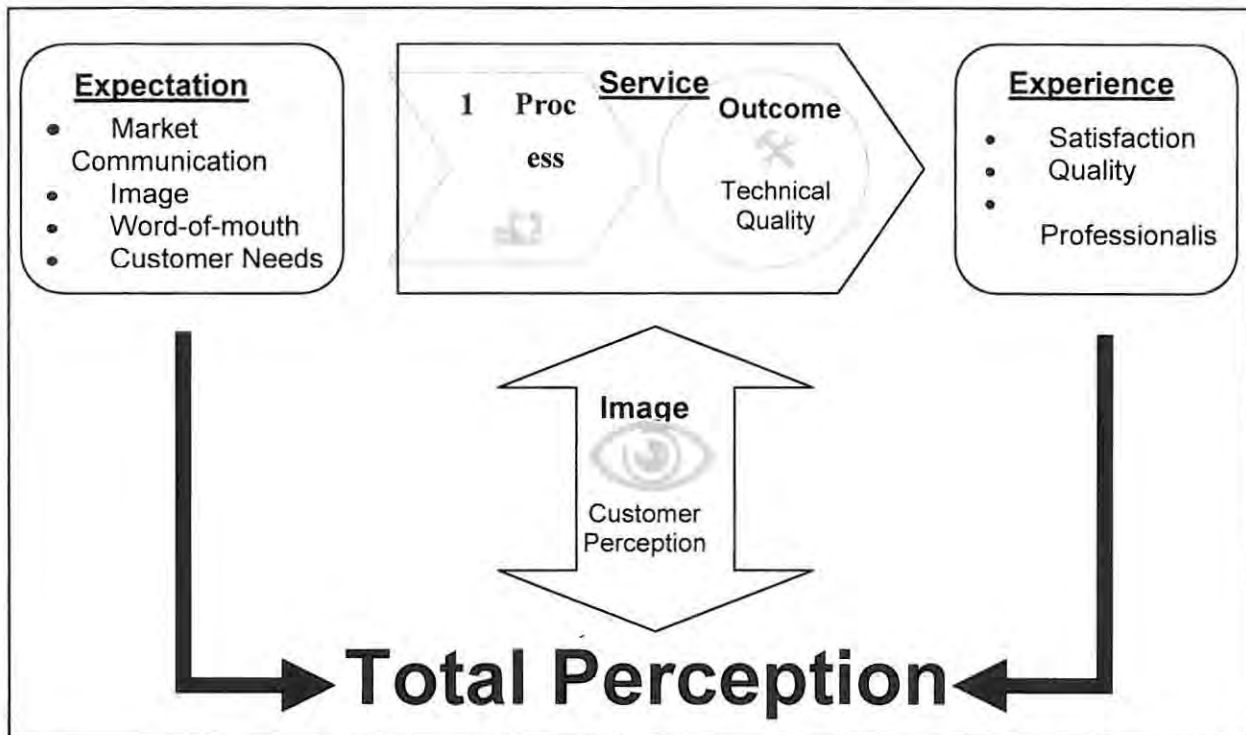
How the consumer receives the technical outcome, what Grönroos (1984:39) calls the "expressive performance of a service", is a dimension termed process quality by Parasuraman, *et al.*, (1985) and interactive quality by Lehtinen, *et al.*, (1982).

How the service is delivered is evaluated during delivery (Swartz and Brown, 1989,190). Grönroos (1984) suggested that, in the context of services, functional quality is generally perceived to be more important than technical quality, assuming that the service is provided at a technically satisfactory level. He also points out that the functional quality dimension can be perceived in a very subjective manner.

According to the Perceived Service Quality Model (see figure 4), the quality of a service, as perceived by the customer, is the result of a comparison between the expected of the customer and his or her real life experiences. If the *experienced quality* exceeds *expected quality* the total perceived quality is positive. If expectations are not met by performance or the actual experience, the perceived quality is low.

There are multiple customers in a motor vehicle manufacturing process: quality department, logistics department and maintenance department. Final success is dependent on initial expectations compared to actual performance.

Figure 4 The Perceived Service Quality



Source: Adapted from (Grönroos, 1991:90)

3.2.2 The Five-Gap Model of Service Quality

Another widely used model of service quality is known as the five-gap model by Parasuraman, *et al.*, (1985) see figure 5. Knowing what customers expect is the first and possibly the most critical step in delivering service. Thus, organisations must know what customers expect to be able to provide services that customers perceive as excellent, this should also be exercised in the internal settings. This is an extension of the marketing concept and consultative selling approach that

- Learns through thorough questioning to find out what customers need and want.

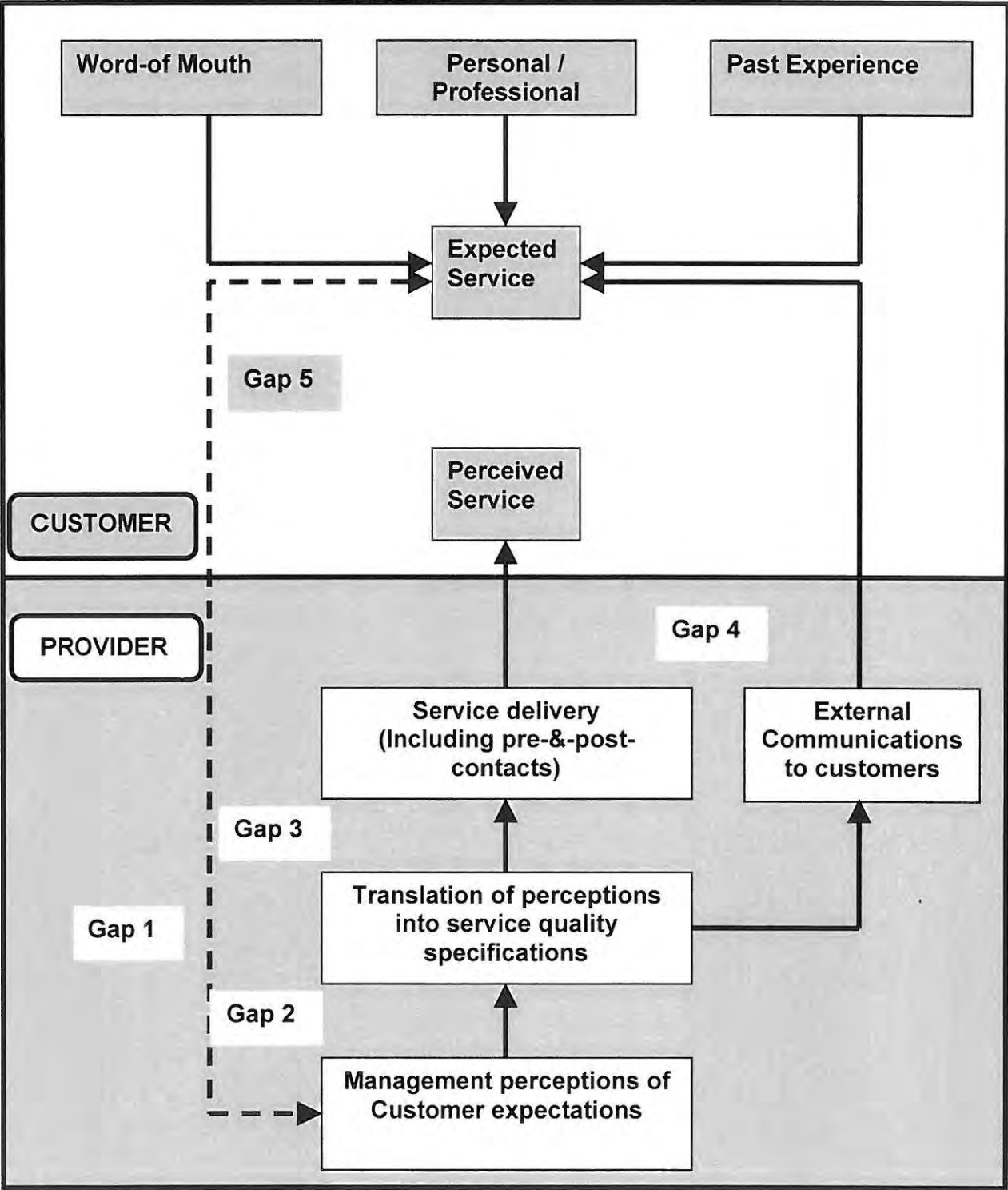
- Delivers the product/service benefits that will solve the problem.

Parasuraman, *et al.*, (1985) suggest three underlying themes in the academic literature on services:

- Service quality is more difficult for the consumer to evaluate than goods quality,
- Service quality perceptions result from a comparison of consumer expectations with actual service performance, and “Quality evaluations are not made solely on the outcome of service; they also involve evaluations of the process of service delivery” (Parasuraman, *et al.*, 1985:42).

Zeithaml, *et al.*, (1988) defined perceived service quality in their model as the difference between consumer expectations and their perceptions. The service quality model by Parasuraman, *et al.*, (1985) indicates further that consumer perceptions of quality are influenced by four gaps occurring in the internal process of service delivery: These gaps are described within the context of the maintenance and production departments of a motor vehicle manufacturing plant.

Figure 5 The Gap Analysis Model of Service Quality



Source: Parasuraman (1985:98)

3.2.2.1 *Gap 1: Consumer Expectations vs. Management Perceptions*

Often maintenance managers fail to understand what production personnel expect in the offered service (Nakajima, 1982). This includes understanding which features (of the service) are necessary to deliver high-quality service. Gap 1 occurs when this breakdown of understanding occurs. For example, a manager might develop a system to ensure that production operations will not stop more than 10 minutes if there is a machine failure. If the production personnel's target requires them not to stop for more than 5 minutes to achieve their daily production targets, then Gap 1 exists.

Often maintenance department's targets must be aligned to production department's targets to avoid this situation. In the case of expectations is difficult for management to understand their expectations since expectations are constantly changing. If the service does not adapt to these changes, then Gap 1 widens.

3.2.2.2 *Gap 2 Management Perception vs. Service Quality Specifications*

When maintenance managers know what their production counterparts expect, but cannot or will not develop services and systems to deliver it, then Gap 2 occurs. Several reasons for Gap 2 are:

1. Inadequate commitment to service quality.
2. Lack of perception of the feasibility of addressing customer expectations.
3. Inadequate task standardisation (within the internal settings).
4. Absence of goal setting by management and inability to get employee *buy-in*.

As a result of technological advancements in production, service users have become more difficult to satisfy and more demanding, and competition amongst products in the same market has increased dramatically (Zeithaml and Bitner, 2000).

3.2.2.3 *Gap 3 Service Quality Specification vs. Service Delivery*

When maintenance managers know what customers expect and have developed services, systems, and specifications to deliver it but employees are unable or unwilling to deliver the service, then Gap 3 occurs. Several reasons for Gap 3 are:

1. Employees are not given the tools and working conditions to do the job.
2. Employees are not correctly selected, trained and motivated.
3. Employees are not properly *led* by managers (Are managers really leaders).

3.2.2.4 *Gap 4: Service Delivery vs. External Communications*

When maintenance management promises more in its external communications than it can deliver then Gap 4 occurs. External communications includes, but is not limited to, advertising and public relations.

Maintenance management must ensure that operations can deliver what they have promised. Managers must fully understand the marketing process as well as the operational processes. These two areas must *seamlessly* work together to meet customer expectations.

3.2.2.5 *Gap 5: Expected Service vs. Perceived Service*

Gap 5 is the core of the model. The size of the Gap is dependent on all of the other gaps. This research will be based on Gap 5 since it is the function of gap 1 to 4.

1. Expected Service is what the service users expect to receive from the maintenance department, the service providers.
2. Perceived Service is what the customer believes or perceives that he or she has actually received from the maintenance department (after the service experience).
3. Gap 5 is the Difference between the above. Service user satisfaction and quality dependent upon this gap being reduced or eliminated. Maintenance management is responsible for managing the absence or presence of this gap.

The perceived service quality model and the gap analysis model significantly affect the service industry. These models offer ways for management to think about the way that they manage service quality.

3.3 BENEFITS OF SERVICE QUALITY

The South African Motor Vehicle Manufacturing Industry is relatively small but highly competitive (Kruger, 1990). After the democratic elections in 1994, import tariffs and trade barriers were reduced. South African vehicle manufacturing organisations now have to compete in both local and international markets. This has placed extreme pressure on local manufacturers to prepare themselves for the invasion of potentially cheaper motor vehicles, components, and high quality parts (Browne, 1996). Therefore, motor vehicle manufacturers will have to focus their efforts on building differences into their product / service offerings (Du Toit, 1984).

According to Bateson, *et al.*, (1999), since technological advancements in many industries have made products almost indistinguishable from one another, marketers have to focus their efforts on delivering exceptional levels of service quality in an attempt to differentiate their offering from that of competition. Those motor vehicle manufacturers that deliver service quality escape the *commoditisation* of the motor industry, they *standout* from their competitors. This differentiation leads to competitive advantage as well as other benefits. Some major benefits of delivery service quality are:

1. Retaining customers – This means *repeat business*
2. Referrals – Satisfied customers are happy to generate positive word-of-mouth.
3. Avoidance of *Price Competition*. If an organisation is seen by customers as the same as others, then their product/service is essentially undifferentiated. Price strategy is another way to compete, however this may not always be possible or desirable. Attaining service quality allows competition based on differentiation strategy.

4. Retention of Good Employees – Employees like to work for a *quality* organisation.
5. Reduction of Costs – When quality is achieved; costs of correcting problems (after they have occurred) are reduced. Since a focus on quality stresses preventative maintenance, then these costs are reduced. Many other costs are reduced such as lower employee turnover and the cost of having to motivate uninspired employees (Kotler, *et al.*, 1996).

Services are unique in the sense that they are intangible and thus service users must trust before they request these services. In predominantly selling services, as in the motor industry manufacturing industry, quality and perception of quality is essential. Service quality has many benefits, including the ability for the organisation to compete with a *differentiation* strategy in a world of *look-alike* products and services.

3.4 RESEARCH INTO SERVICE QUALITY

In order to develop service management and marketing models, it is important to understand what customers are really looking for and what they evaluate. Eiglier and Langeard (1981:58) observed that:

It is rather difficult to relate a good service idea to a stable, widespread, well-identified customer benefit. And it is extremely difficult to implement the service idea as a well-structured offering of service.

What is needed is a model of service quality, a model of how quality of services is perceived by customers. When the service provider understands how the users will evaluate the services, it will be possible to provide quality service.

3.5 THE CONCEPT OF INTERNAL MARKETING

The constantly changing competitive environment forces enterprises to identify new opportunities for claiming competitive advantages and to adapt these changes into their overall strategy. Therefore a number of respected service organisations have identified the need for understanding and implementing programs for the internal marketplace. (Green, Walls and Schrest, 1994). A key assumption underlying this view of internal marketing is based upon the notion that “to have satisfied customers, the firm must also have satisfied employees” (George, 1977: 91). Sasser and Arbeit (1976) took this line of argument a step further by contending that human resource is the most important market of a service company. The deployment of marketing techniques in the personnel area, is also indicated by Sasser and Arbeit (1976), by their depiction of jobs as products and employees as customers:

Viewing their job offerings as products and their employees as customer forces managers to devote the same care to their jobs as they devote to the purchasers of their services

(Sasser, *et al.*, 1976, 65).

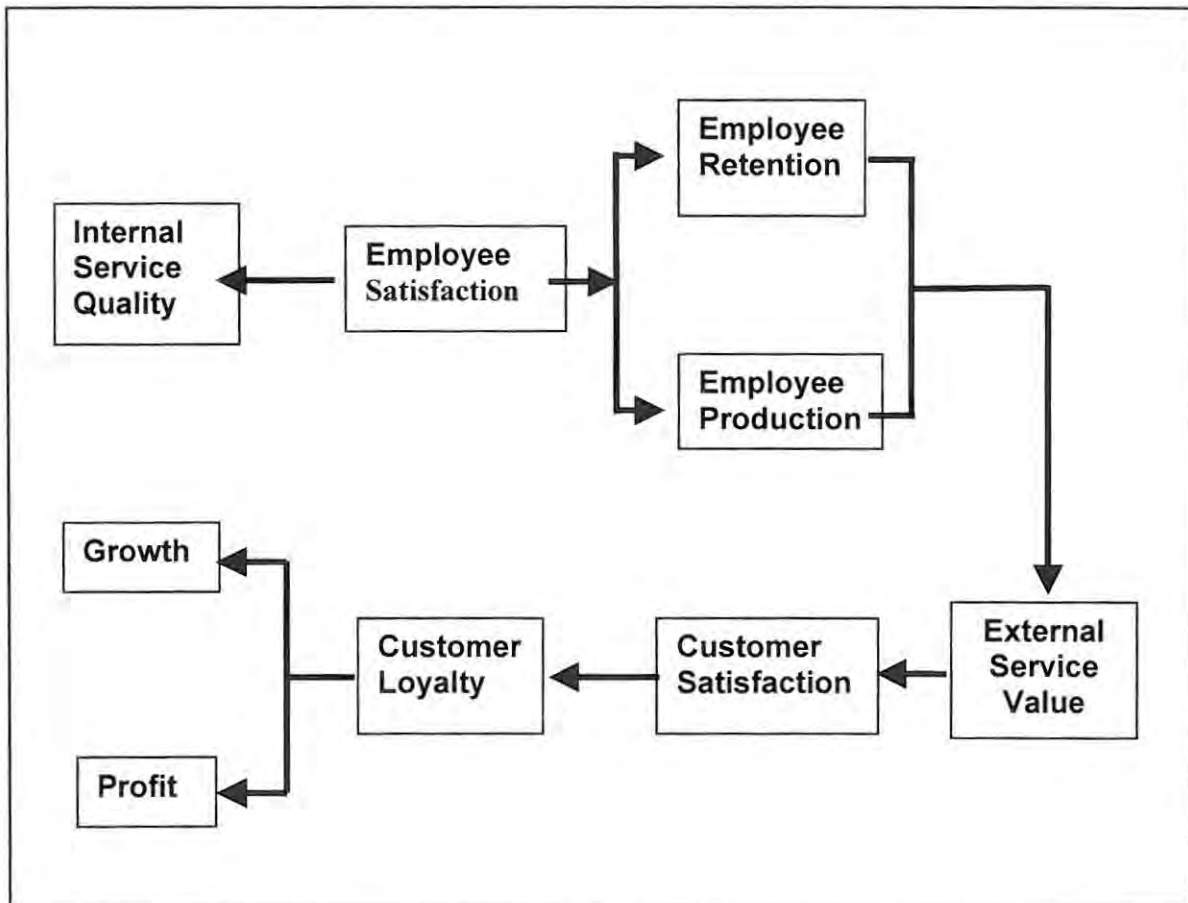
The oldest definition of internal marketing is provided by Grönroos (1981a, 1981b): *selling the firm to the employees* who are treated as *internal customers*. The thought is that the higher employee satisfaction – which will result – will make it possible to develop a more customer-focused and market-oriented firm. In a more recent article on the subject, Grönroos (1994:57) states that:

The internal marketing concept asserts that: the internal market of employees is best motivated for service mindedness and customer-oriented performance by an active, marketing-like approach, where a variety of activities are used internally in an active, marketing-like and coordinated way.

The basic definition is enunciated by Berry (1981) and Parasuraman, *et al.*, (1991:151), who stated that:

Internal marketing is attracting, developing, motivating, and retaining qualified employees through job-products that satisfy their needs. Internal marketing is the philosophy of treating employees as customers – indeed, *wooing* employees – and is the strategy of shaping job-products to fit human needs”

Figure 6 The Link of Service Profit Chain



Source: Heskett (1994:166)

Having analysed how various authors have defined internal marketing in this study, the latter is defined as a management philosophy where the employees are treated as customers by the organisation and one another, since, so often, service encounters are dealt with by a succession of employees. The basic definition enunciated by Berry, *et al.*, (1991) is defined as: Internal marketing is attracting, developing, motivating, and

retaining qualified employees through job products that satisfy their needs. Internal marketing is a philosophy of treating employees as customers and is the strategy of shaping job-products to fit human needs. The focus on employee satisfaction can largely be attributed to the fact that in the marketing of services much of what customers buy is labour and internal service quality is necessary for superior external service quality. Heskett, *et al.*, (1997) has provided a model of a service profit chain (see figure 6), which shows linkages between internal service quality, employee satisfaction, their productivity, and external customer satisfaction as well as organisational growth and profitability.

3.6 INTERNAL MARKETING AND SERVICE QUALITY

In consideration of the differences and the difficulties of defining the concept of internal marketing (Piercy and Morgan, 1991, Rafiq and Ahmed, 1993), most writers seem to accept that internal marketing should create quantitative and qualitative improvements in terms of service quality through the observation and control of service output that is executed by employees (George, 1990; Gummesson, 1987, Berry, *et al.*, 1991; Grönroos, 1985; Piercy, 1995). The need for sustainable improvement in the organisational capability to deliver high service quality that fits with customers needs and wants, as a basis of competitive advantage has drawn the attention within the academic and professional management literature (Christopher, 1992; Wilson, Gilligan and Pearson, 1992).

This focus has directed the observation mainly in the field of service providers like health care, financial service, logistics and professional services (George, 1986; Grönroos, 1983 and Gummesson, 1991). It will be the first time that such focus is directed on the field of motor vehicle manufacturing in an internal setting. More general researchers have also emphasized that actually all suppliers are service providers and that their service competence is an important factor in creating customer loyalty and distinct competitive advantages (Van der Merwe and Rada, 1988).

As mentioned before, the limited focus on customers and competitors only seems not to satisfy an organisation's goal to determine a long-term market share and profitability. Gummesson (1991) argues that the management of service quality has to take into account external influences from the market space and internal factors from the organisation. Other authors, Greenley (1995) and Foss (1997) have pointed out the unapologetic approach of marketing strategy that can adequately satisfy the idea that both internal and external factors have to be considered on an equal. This is in contrast to the conventional understanding of marketing strategies which are executed by executives and managers who primarily focus on the external environment: customers, competitors, suppliers and markets. The balanced approach brings to the discussion the internal marketing program that considers the internal marketplace and internal customers to carry out essentially the same process for the internal marketplace (e.g. Grönroos, 1982; Piercy and Morgan, 1991; Foreman and Money, 1995; Varey and Lewis, 1999).

3.7 INTERNAL CUSTOMER SERVICE

The service quality requirements of external customers have been the focus of much research (Parasuraman, *et al.*, 1985, and subsequent work), but we rarely see systematic processes applied to understanding the service requirements of internal customers moreover, much of the prior work on service quality has focused primarily on consumer markets, not business-to-business markets. Indeed, a number of leading contemporary authors in the fields of quality improvement and leadership have asserted that internal service quality is one of the most important and least understood concepts in modern business (Albrecht, 1990; Berry, *et al.*, 1995; Cespedes, 1995). As stated before, the purpose of this chapter is to explore the dimensions of quality offered by an internal service provider, and to examine how different internal user segments might vary in the importance they place on different service dimensions.

3.7.1 *Internal customers*

Internal exchange, referring to methods used to satisfy needs within the organisation, is an overlooked part of the marketing discipline that should be systematically studied (Lusch, Brown and Brunswick, 1992). An important part of internal exchange is the way in which organisational units provide service to their internal customers. Organisational units should provide a high level of service quality to internal customers for some of the same reasons they provide it to external customers – more effective performance, lower waste, and lower costs moreover, according to the service-profit chain concept, improvements in internal service quality should also be expected to result in improved external service quality (Hart, 1995; Heskett, *et al.*, 1994).

The concept of an internal customer is not new. Van der Merwe and Gilbert (1989) argued for a customer-driven system that matches internal services to users' needs. The result should be efficient internal exchanges among the various organisational members and departments. A successful internal customer service system is a key tenet of most Total Quality Management (TQM) initiatives, in which all organisation members are taught to view co-workers up and down the value-adding-chain as important customers (for an extensive treatment of quality improvement and internal customers (Marshall and Miller, 1991a, 1991b).

Internal customer service is different from the idea of *internal marketing*, in that the former focuses on how employees serve other employees, while the latter focuses on how the company serves the employees (George, 1990; Grönroos, 1981). The concept of internal customer service used throughout this article reflects Heskett, *et al.*'s (1994) assertion that internal service quality is characterized by the attitudes that people have toward one another and the way people serve each other inside the organisation. Thus, internal customer service is viewed as a two way exchange process between individuals in different functional departments of an organisation in which the provider is charged with responding to the needs of his/her internal customer, resulting in a satisfied internal exchange partner.

Within this overall internal customer service perspective, an organisation may be portrayed as a chain of individual functional units, linked together for the purpose of satisfying external customers. In the context of this study the manufacture of a vehicle is a result of interdepartmental collaboration. Each unit is an independent producer, turning inputs (e.g. materials received from suppliers) into outputs (e.g. products) for the direct use of the next function, or internal customer. Thus, at each functional interface, customer needs, reciprocal obligations, and satisfaction is determined. Dodson (1991) has suggested that this perspective can be applied both laterally (to the flow of work) and vertically (to the management chain).

Another difference between external and internal customers is that, although external customers typically have a choice about where to do business, internal customers may have little or no choice. However, internal customers often can decide not to comply with prescribed procedures or standards; they can choose whether or how to cooperate, and they may even be able to go around an internal department to an external source (Lusch, *et al.*, 1992).

A third potential difference between external and internal customers is that internal customers are paid, professional consumers of the services they use. As such, they are more familiar with and knowledgeable about the services that are provided than are most external customers. In this respect, the difference between internal and external customers may be analogous to differences between consumer and business markets, with internal customers behaving much like one would expect a business market customer to behave. It is likely that these various potential differences result in different service requirements for internal customers versus external customers. It follows that the dimensions and characteristics of service quality for internal customers may be unique. It would be quite useful to have a measurement tool specifically designed to capture internal users' perceptions of the service quality of internal providers. Thus, the first research question addressed in this article is as follows: What are the issues for an internal user of a production department that are indicative of high levels of service quality?

3.7.2 *Internal customer segmentation*

Because internal customers may vary in the importance they place on different service quality dimensions, it is reasonable to suggest that management could segment internal customers on the basis of their service expectations. Tsui, *et al.*, (1987) identified four constituencies, or segments, of personnel departments: line executives, professional employees, managers, and hourly workers. In this study the production department employees were segmented into the following classifications operators, coordinators and team managers. These segments exhibited differences in their service expectations of the maintenance department. In subsequent studies, Tsui (1988, 1990) also found differences in what various internal segments considered important for effective personnel departments. The fact that needs may vary for different internal customer *segments* has implications for designing successful internal customer service strategies

Given the importance of segmentation to the successful implementation of customer service strategies, the second research question addressed in this article is as follows: do segments of internal customers of a production department exist that can be identified based on their service desires or needs from the maintenance department?

The setting for the study reported in this article is a major motor vehicle manufacturing company operating in the business-to-business sector internationally. The organisational engineering unit (maintenance department) for the company served as the internal service provider under study, and the production department served as internal users of maintenance services. A maintenance department provides a particularly good context for studying internal service quality because a maintenance department's services directly impact on production operations. From a strategic perspective, maintenance is a critical link in the internal value chain of the manufacturing function (Dumond, 1994).

3.8 CONCLUSION

Summarising the concepts of the internal market just stated, it can be said that employees are internal customers having a service quality relationship with their employing organisation as well as with other employees. Taking the service profit chain into account, the *first* customer served by the organisation is the employee who then delivers service quality to internal or external customers, although this does not imply that employees have superiority to the external customer.

Internal marketing of services has been defined and service quality has been explored, resulting in the revealing of the significance of internal service quality. What arises is the need to measure service quality in an internal setting. Parasuraman et al., developed SERVQUAL instrument for measuring external service quality. After identifying the employee as a customer of an organisation, SERVQUAL provided valid data for managers to use in an internal setting, though not comparing cross-functional quality of service, but the overall quality of the job-product offered by the employer to the employees themselves. For the purpose of this study SERVQUAL is adapted to suit internal settings and the resultant tool from the adaptation will be referred to as INTSERVQUAL.

CHAPTER FOUR

MEASUREMENT OF INTERNAL SERVICE QUALITY

4.1 INTRODUCTION

The following section describes the SERVQUAL tool shortly and reviews the wider discussion on the method and its limitations. Since its development, SERVQUAL has been extensively applied (Asubonteng, *et al.*, 1996; Buttle, 1996) and this led Robinson (1999) to state that there would seem to be little doubt that SERVQUAL is the most favoured instrument for measuring service quality. In the broader application of the model it has also been extended to measure service quality in internal settings, e.g. Brysland and Curry (2001) or Frost and Kumar (2000). This extension has been named INTSERVQUAL, which is the main focus in this study.

The chapter highlights the importance of internal service quality, which has been mentioned in the previous chapter, and the need for it to be measured. Also included are the reasons for employee research and hence the measurement of internal service quality.

4.2 MEASUREMENT IS KEY

Numerous organisations have started venturing into various approaches to improve the quality of their services. Reichheld and Sasser (1990) described the true quality upheaval that has come to services. Service companies are beginning to grasp the truth behind what their manufacturing counterparts learned in the past few decades—that is, quality does not improve unless it is measured.

Prior research on internal customer service has focused on providing a descriptive and conceptual basis for the process. However, little work has been done to measure levels of internal service quality. A key concern in attempting to apply existing measures of external customer service quality to internal customer settings is the likelihood that important differences may exist between these two groups. Of course, external and

internal customers are similar in some respects (e.g. users of goods and services). However, unlike external customers, who consume both goods and services, many internal customers consume mainly services provided by other departments. For example, the production department's inputs are raw materials and the services from the maintenance department as stated in paragraph 2.1. Logistics supplies the raw materials and the quality department ensures that the production department manufactures quality products. Each output in this chain is a service. It then becomes important that production meets or exceeds customer expectation, hence the need for an excellent internal service quality. What gets measured gets managed, hence the importance of measuring internal service quality.

4.3 SERVQUAL

Service quality is used to measure customers' perception of services rendered (Zeithaml, *et al.*, 1990). Customers are ideal for appraising how well employees have provided quality service because they are in a better position to observe employee performance than employees' supervisors (Bowen and Schneider, 1988). In Parasuraman, *et al.*, (1988) developed a 22-item instrument named SERVQUAL based on the Gap Model, for measuring service quality. The instrument assesses customers' perception of quality by comparing their expectation with their perception of the services received, across various service quality dimensions. The techniques used to develop the measuring instrument were thorough and rigorous, with the validity and reliability of the scales well documented (Parasuraman, *et al.*, 1985, 1988, 1991; Zeithaml, *et al.*, 1990).

In their first report, Parasuraman, *et al.*, (1985) found ten overlapping dimensions of which five behavioural dimensions of tangibles, reliability, responsiveness, assurance, and empathy tended to improve the customer's perception of service quality.

4.3.1 Development of SERVQUAL

Parasuraman, *et al.*, (1985), conducted a research in which, out of 100 questions, they concluded that consumers perceived service quality by comparing expectations to performance and evaluate the quality of the service in different dimensions. The first set comprised ten dimensions. Factor analysis was used to provide a means of determining which questions measure dimension number one, which questions measure dimension number two and so on, as well as which questions do not distinguish between dimensions and the number of dimensions in the data. Questions that were not clearly related to a dimension were discarded. A revised scale was used in a second sample, questions were tested and the result was a 22-question (item) scale measuring five basic dimensions:

- Reliability: the ability to perform a promised service dependently and accurately.
- Responsiveness: a willingness to help customers and to provide support services.
- Assurance: the knowledge and courtesy of employees and their ability to inspire trust and confidence.
- Empathy: the caring, individualised attention a firm provides its customers.
- Tangibles: the physical facilities, equipment, and appearance of personnel.

The recipients of the questionnaires were later asked to allocate 100 points among these five dimensions in order to be able to rank the importance of the respective dimensions. During their investigation Parasuraman, *et al.*, (1988) identified that reliability was the most important dimension used by customers in evaluating service quality, with responsiveness being next. Tangibles had the lowest influence on overall service quality.

Based on these quality dimensions Parasuraman, *et al.*, (1988) developed a series of standard questionnaires to measure the stated gaps and to what extent they exist respectively in a given organisation. These questionnaires address the different roles like customers (gap 5), management (gap 1 and 2) and service contact personnel (gap

3 and 4). The standard questionnaire measures firstly the respondent's expectation of a service then the actual perception of the service delivered by the organisation. Since both expectations and perceptions are measured, using 22 parallel questions, a total of 44 questions are inquired. The answers are measured on a seven-point Likert scale with 7 indicating *strongly agree* and 1 *strongly disagree*.

Service quality is measured, as perceptions minus expectations for each pair of questions and the summary score across all questions are the measure of service quality. Parasuraman, *et al.*, (1988) also tested their SERVQUAL scale for reliability and validity. The major test of reliability is coefficient alpha or Cronbach's Alpha.

The coefficient measures the extent of internal consistency between, or correlation among, the set of questions making up each of the five dimensions, such as the five reliability questions. The suggested cut-off point for coefficient alpha values is 0.70 indicating that the scale exhibits desirable levels of internal consistency. High reliabilities, such as 0.90 or above, are favourable.

4.3.2 Limitations of the model

Debate concerning the validity and reliability of the SERVQUAL methodology itself has been lively in recent years (Buttle, 1995, 1996; Carman, 1990; Cronin, *et al.*, 1992, 1994; Teas, 1993, 1994). Asubonteng, *et al.*, (1996) summarise the main points of the numerous academic studies and conclude that there are problems with relying on this method of measurement. However SERVQUAL has been widely examined for its validity and reliability (Bolton and Drew, 1991; Brown and Swartz, 1989; Carman, 1990; Cronin and Taylor 1992, 1994). Even though some of these studies would not support the five dimensions, the use of those dimensions has been kept based on conceptual and practical grounds. An important area of criticism of SERVQUAL has been the use of gap scores in the measurement of service quality (Cronin, *et al.*, 1992, 1994). Cronin, *et al.*, (1992) compare these expectation-perception gaps versus perceptions only, which they call SERVPERF and conclude that measurement of service performance (perception) alone is adequate.

Some authors have also raised issues regarding the relative importance of the five dimensions, which Parasuraman, *et al.*, (1988) initially determined by inference. In their later refinements, they explicitly asked customers to allocate points among the five dimensions. Cronin, *et al.*, (1992) tested an importance weighted SERVPERF and found a high correlation between weighted and unweighted measures. They concluded that unweighted SERVPERF is sufficient.

There are more disagreements with the instrument (Carman, 1990), which involve the issue of whether a scale to measure service quality can be universally applicable across industries. Another field of disagreement between studies and researchers has concentrated on the linkage between satisfaction and quality. Although there is no agreement on the exact linkages, attributes and dimensions of quality and satisfaction, most researchers agree that service quality comprises attributes that are both measurable and variable.

Carman (1990) notes that it takes more than the simple adaptation of the SERVQUAL items to address service quality effectively in some situations. Managers are advised to consider which issues are very important to service quality in their specific environments and to modify the scale as needed. The collected experience in the use of the model and the critics have led to some further amendments in the later work of Parasuraman, *et al.*, (1991,1994) and Zeithaml *et al.*, (1990).

4.3.3 Applications and extensions of SERVQUAL

Although SERVQUAL is far from being generally accepted by academics, it has been adapted to measure service quality in a variety of settings – probably more than any other service quality measurement method. The following are examples of industries and organisations where SERVQUAL has been applied, published studies include tyre retailing (Carman, 1990), hotels (Saleh and Ryan, 1992) travel and tourism (Fick and Ritchie, 1991), car servicing (Bouman and van der Wiele, 1992), business schools (Rigotti and Pitt, 1992), information services (Pitt and Rigotti, 1995), higher education (McElwee and Redman, 1993), hospitality (Johns, 1993), business-to-business channel partners (Kong and Mayo, 1993), accounting firms (Freeman and

Dart, 1993), architectural services (Baker and Lamb, 1993), recreational services (Taylor, *et al.*, 1993), airlines (Frost *et al.*, 2000), airline catering (Babakus, *et al.*, 1993a), ocean freight services (Durvasula and Mehta, 1999; Mehta and Durvasula 1998), banking (Newman, 2001; Kwon and Lee, 1994; Wong and Perry, 1991), apparel retailing (Gagliano and Hathcote, 1994), large retail chains such as Kmart, WalMart, and Target (Teas, 1993); and local government (Bryceland and Curry, 2001; Wisniewski 2001; Scott and Shieff, 1993). Health care applications are numerous (Babakus *et al.*, 1992; Bebkko and Garg, 1995; Clow, Fischer and O'Bryan, 1995; Headley and Miller, 1993; Licata, Mowen and Chakraborty, 1995; Lytle and Mokwa, 1992; Reidenbach and Sandifer-Smallwood, 1990; Woodside, Frey and Daly, 1989). Other settings include a dental school patient clinic, a business school placement center, a tire store, and acute care hospital (Carman, 1990) and independent dental offices (McAlexander, Kalsdenberg and Koenig, 1994). Further it was applied at AIDS service agencies (Fusilier and Simpson, 1995) and with physicians (Brown and Swartz, 1989). There have also been many unpublished SERVQUAL studies (Buttle, 1996). In addition, a number of organisations, such as the Midland and Abbey National banks have adopted it for regular assessment of service quality.

However, only a few studies could be found which address service-quality measurement in the internal marketing of services by using the SERVQUAL approach (Frost, *et al.*, 2000). Research on the extension of the SERVQUAL scale has been successfully undertaken resulting in variations of SERVQUAL either dedicated to a distinct type of organisation or to a certain kind of organisational setting. An extension constructed for a distinct type of organisation would be the Banking Service Quality (BSQ) measure (Bahia and Nantel, 2000) which has been especially dedicated to measure service quality in banking. INTSERVQUAL is an example of an extension that will be used to measure internal service quality between departments in a motor vehicle manufacturing setting.

A significant extension was undertaken by Zeithaml, *et al.*, (1993). They addressed an issue that has been considered to provide a lack of consensus among other researchers in the understanding of customer service quality and customer satisfaction. Their approach expanded the SERVQUAL technique to include the relationships between customer service expectation, service level antecedents, perceived service, service

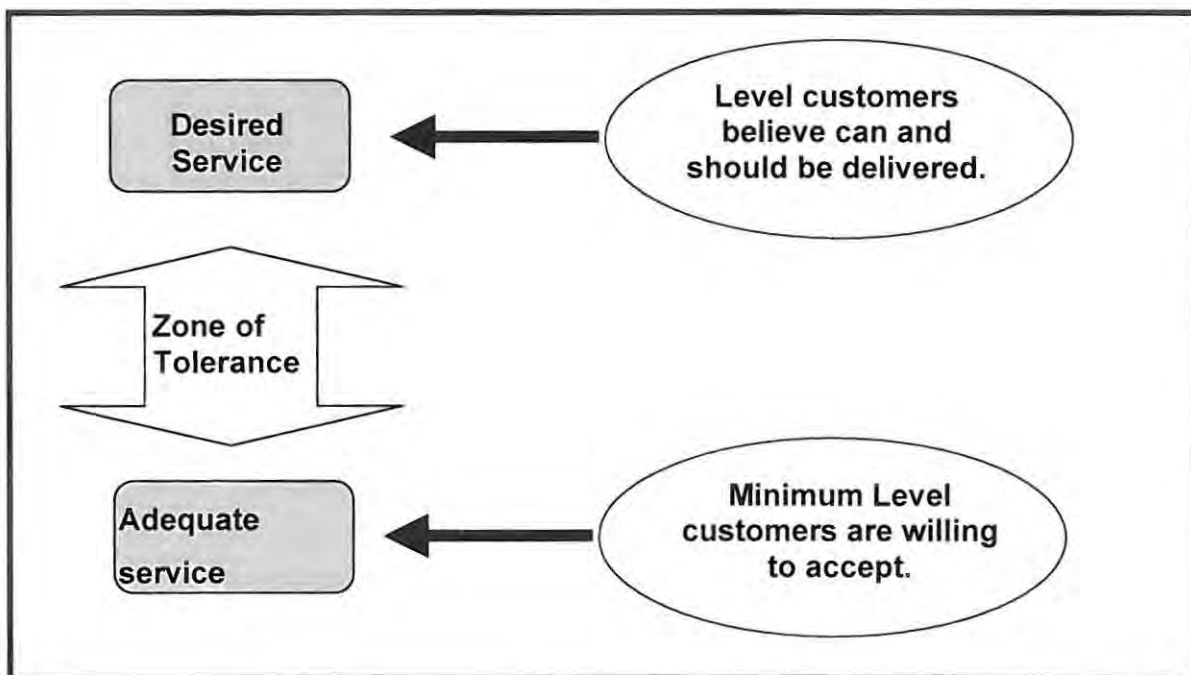


quality, customer satisfaction, and other depending parameters. They extended the gap 5 concept and called it the zone of tolerance (see figure 7). In this case the customer's expectancy of service quality is measured at two levels, namely:

Desired Service: the level of service representing a blend of what customers believe can be and should be provide;

Adequate Service: the minimum level of service customers are willing to accept during the process of service delivery.

Figure 7 Zone of Tolerance



Source: Adapted from (Zeithaml, 1993:6)

However this extension of SERVQUAL has not been applied widely in practice and has not led other researchers to further extend the gap model. The extension of SERVQUAL has especially been undertaken in the field of assessing internal service quality in the internal supply chain of consumer-supplier relationships (Farner and Luthans, 2001) as well as front-line employees and support staff (Frost, *et al.*, 2000) as described in the following section.

4.3.4 Applications of *SERVQUAL* in internal service quality settings

The work of Frost, *et al.*, (2000) explores the extent to which the construct of service quality plays in an internal marketing setting. A conceptual model known as the Internal Service Quality Model - INTSERVQUAL was designed based on the original gap model developed by Parasuraman, *et al.*, (1985).

In this study the INTSERVQUAL model evaluates the internal service quality dimensions, and their relationships, that determine service quality between internal customers – front-line staff – and internal suppliers – support staff – at a motor vehicle manufacture based in the eastern cape. The dependent variable in this study is internal service quality (ISQ), while the independent variables are tangibility, reliability, responsiveness, assurance, and empathy as proposed in the early chapters of the study.

The extension of *SERVQUAL* is based on the adaptation of the gap model to the internal setting. The internal gap 1 is defined as the difference in the perception of the support staff (internal supplier) of the expectation of the front-line staff (internal customers). To find the extent of this gap, the service quality construct is used. Internal gap 3 is the significant difference between service quality specifications and the service actually delivered resulting in an *internal service performance gap* (Frost *et al.*, 2000). Gap 5 focuses in this research on the front-line staff (internal customers). The gap is based on the difference between front-line staff's expectations and perceptions of support staff's (internal supplier) service quality.

The results suggest that the perceptions and expectations of internal customers and internal suppliers play a major role in recognising the level of internal service quality perceived.

The acceptance of the postulated hypotheses has confirmed the importance of the internal service quality construct, thus acknowledging the usefulness of the INTSERVQUAL instrument and the conceptualised Internal Service Quality Model proposed in this research study.

The SERVQUAL model has also been used in a number of public service environments to assess quality of service provision in terms of what consumers expect and what they actually receive. In the study of Brysland, *et al.*, (2001) two-service case examples illustrate the use of the SERVQUAL instrument to improve both process management and strategic planning in the North Lanarkshire Council. This particular study has indicated that SERVQUAL can be applied successfully to internal customers of a local authority. The work also confirms the need to tailor the SERVQUAL instrument to the environment in which it is being applied, not only in terms of wording of expectations and perceptions statements, but also in distribution of the statements (Curry, 1999). Curry conclude that if services get the intra-organisational supply chain right, this would help expedite service improvements and reconfiguration with consequent benefits to end users of the service.

Auty and Long (1999) argue that because of the similarity between internal and external service quality internal quality can be assessed without too much regard to differences between organisational customers and fee-paying customers. Auty and Long (1999) explore the gaps in service quality arising from the conflict between departmental and organisational loyalties using SERVQUAL. They consider the value of internal research into service quality and suggest that organisational power struggles and lack of communication lead to misunderstandings about the priorities and resources available for internal service exchanges. Advice is given that the exact definitions of the original gaps need to be modified to take account of organisational hierarchies and quality structures.

Thus the conclusion is that Parasuraman, *et al.* (1985), provide a useful starting point for any research into service quality, so long as its origin in an external environment is kept in mind. Using SERVQUAL in an internal context requires a re-definition of the concept of the customer to take into account the complexity recognised in the organisation. A model of parallel Gaps 1 to 4 for measuring internal service quality between departments is provided and the existence of these gaps is at least partially identified (Figure 5 Internal Gap Model). Further, the research indicates the need for an additional set of gaps to reflect the gaps in knowledge and power between departments that were found. These are gaps that arise from organisational interaction rather than shortcomings on the part of either the supplier or customer.

Further research assessing internal service quality using SERVQUAL focuses on the perceived quality-oriented climate for determining the internal organisation's service quality (Kuei, 1999). Marshall, (1998) explore the dimensionality of customer service quality as perceived by a set of internal customers of an organisational buying unit and examine the potential for segmentation of internal customers. While Farner, *et al.*, empirically examine the impact that internal customer service has on external customer service.

4.4 MANAGERIAL IMPLICATIONS AND PRACTICAL USE

Following Parasuraman, *et al.*, (1985) SERVQUAL can be adapted to any service organisation after customising it to the organisational setting. Further, the information on internal and external service quality gaps will help managers diagnose where performance improvements can best be targeted. The largest negative gaps, combined with assessment of where expectations are highest, facilitate prioritisation of performance improvement. Equally, if positive gap scores are obtained expectations are not just met but exceeded. This allows management to conclude whether the organisation may be *over-supplying* a particular service-feature and whether there is potential for re-deployment of resources into other features or whether positive gaps display a competitive advantage based on certain aspects of service quality.

The practical use of SERVQUAL is ascribed to the duo-dimensionality of the results; first, on a qualitative basis, knowing what service quality constitutes and second, on a quantitative basis, as a measurement of quality which can provide specific data useful for quality management.

SERVQUAL will be of more value to managers if the measures are reliable and valid. Asubonteng, *et al.*, (1996) have reported in their review on SERVQUAL literature that the reliability of SERVQUAL has been reported for a wide set of industries and as an overall measure of service quality across all 22 pairs of questions. Reliability has been consistently quite high suggesting that any change over time in the overall

quality score is not likely to be just fluctuations in measurement. Generally reliability has been high enough to provide useful insights.

4.4.1 Qualitative use of SERVQUAL

It has been suggested in the literature that the SERVQUAL dimensions are likely to be industry specific. Because of the wider application of SERVQUAL, a first step for practitioners is to check if their focal industry has been included in a recent research, in order to adapt the identified dimensions. Otherwise the dimensions for SERVQUAL and their relating gaps, which are to be evaluated, have to be identified first.

When knowledge of the dimensions has been acquired, the second step is to judge the expectations of customers and how well the firm performs on each of the dimensions. The sources of qualitative data are Contact-personnel feedback, actively talking to customers, customer complaints and other communication with managers.

In a third step, performance is compared with expectations to identify strengths and weaknesses. Dimensions in which performance is short of expectations are weaknesses, whereas strengths are those dimensions where performance meets or exceeds expectations. Strategies can then be designed to reduce weaknesses and use strengths to gain a competitive advantage.

4.4.2 Quantitative use of SERVQUAL

The same generic steps are employed for the quantitative evaluation of SERVQUAL results:

1. Determine the dimensions for the focal industry based on the literature or perform a study in which the dimensions are identified.
2. Measure the firm's customer expectations and performance on the dimensions.
3. Compare expectations with performance to identify strengths and weaknesses in service quality.

4. Take action to correct weaknesses and capitalise on strengths.

Additionally, a framework has to be installed for judging quality data over time and in comparison with other firms. Measuring quality over time is useful in order to see if improvements have been made or if expectations have changed. Comparable data could be obtained for competing firms in order to benchmark the focal firm (Asubonteng, *et al.*, 1996).

4.5 CONCEPTUAL MODEL IN THE CURRENT STUDY

The SERVQUAL instrument has been widely applied in the measurement of external service quality, as stated above. In the studies conducted, the degree of service quality being delivered by organisations to their external customers is evaluated. With recognition of the importance of the internal supply chain in the overall delivery of service quality, the model has been extended to evaluate service quality in intra-organisational settings. Thus the aim of these extensions of SERVQUAL has been to measure the level of service quality gaps between front-line staff and support personnel. Following the concept of internal marketing, employees are also defined as customers of their organisations.

Therefore the aim of this study is a further extension of the SERVQUAL scale to measure the service quality delivered between departments. The purpose is to identify gaps between employee expectations of the organisation and their perceived performance of the service quality.

The study introduces the Employee Service Quality Model, which is based on the original Gap Model shown in Figure 5. The original gap model nomenclature will be used in this study with relevant modifications for the intended extension.

In Parasuraman, *et al.*, (1985) Gap Model, gap 5 is the main gap, where customers' expectations of a service provided is compared with their perception of that service. In the current research, this gap focuses on the employee (internal customers). The gap is based on the difference between employees' expectations and perceptions of the

employer's (internal supplier) service quality. The service quality construct, with its five dimensions is also used here. Figure 4 shows the relationship between internal gap 1 and internal gap 3. The perceived service quality is linked to internal gap 1 on one side and internal gap 3 on the other.

This study used a modification of an existing service quality concept and applied it internally within a service organisation. Central to any effective management of customer service has to be the measurement of service quality performance and the response of customers to that performance (Christopher, *et al.*, 1991). Similarly, the response of front-line staff members (internal customers) is sought to measure the service quality performance of support staff members (internal suppliers).

4.6 APPLICATION OF THE RESEARCH

This research has been conducted primarily to help improve the understanding of how the construct, service quality, plays a role in an internal marketing setting. This research is significant to all service-oriented organisations, especially those that have front-line customer contact staff who require assistance from a pool of support staff providing backroom services not visible to the external customer. Specifically, the main purpose is to investigate empirically an internal service quality model INTSERVQUAL. This is an adaptation of the GAP Model, (Parasuraman, *et al.*, 1985, 1988, 1991).

4.7 INTSERVQUAL MEASURING INSTRUMENT

The three main objectives of this research study are:

1. To verify the validity and reliability of the INTSERVQUAL instrument;
2. To test the theoretical linkages of the hypotheses formulated based on the proposed model.

4.8 SOUTH AFRICAN MOTOR INDUSTRY CONTEXT

A South African motor vehicle manufacturer was chosen for this study largely because of the high service element involved. In the motor vehicle industry, the production of motor vehicles is becoming more technologically alike as a result of progress in the field of *air dynamics* (Du Toit, 1984). As a result of these technological advancements in production, consumers have become more difficult to satisfy and more demanding, and competition amongst products in the same market has increased dramatically (Zeithaml, *et al*, 2000). In order to get a better share of the market, motor vehicle manufacturers have had to differentiate their offerings by providing better service quality (Gourdin and Kloppenbourg, 1991) offering higher product quality (Gourdin, 1988) or by cutting cost (Labich, 1994).

In today's global economy and fierce competition, quality has been recognised as the major edge for competitiveness and long-term profitability. The role of service providers in this endeavour cannot be neglected. In general terms, equipment that is not well maintained and fails periodically experiences speed losses and/or lack of precision and, hence, tends to produce defects. More often, such equipment drives manufacturing processes out of control. A process that is out of control produces defective products and therefore increases the production cost which amounts to less profitability, which endangers the survival of the organisation

Hence the quality of service provided by the front line staff members is largely dependent on the assistance of dedicated support staff working in the background (e.g. artisans, artisan's assistance maintenance specialists and team managers). The motor vehicle manufacture based in the eastern cape was specifically chosen to assist in this research project for several reasons:

1. its size permitted research of this nature.
2. it was possible to make a clear distinction between front-line staff (customer contact personnel) and support services staff within the organisation, differentiating between the internal customer and the internal supplier.
3. the researchers had permission and support from the management of the motor vehicle manufacturer to conduct the research project.

4.9 CONCLUSION

Motor vehicle manufacturers employ many people (e.g. the researched organisation employs 365,000 staff world-wide with manufacturing plants in 37 countries). As the organisation expands, so too does the population of their staff. Generally, when this happens, employee matters somehow fall by the wayside and are replaced by more pressing issues such as company growth and maximising profits (Heskett, *et al.*, 1994).

Subsequently, the organisation loses touch with the individual worker within the organisation. Berry, *et al.*, (1994), however, remind management that, in order to achieve growth and profit objectives, research into employee issues cannot be ignored. Berry, *et al.*, (1994) provide three reasons why service organisations need to conduct employee research first, employees themselves are customers of internal services; a internal service quality affects external service quality, measuring internal service quality is essential; it is found that, while marketers have actively researched service quality, service quality within a service organisation between employees has not received much attention. Second, the employees offer insights into the conditions that affect service quality in an organisation as they experience the service delivery system on a daily basis; employee research helps reveal why certain service problems occur and how to overcome them. Third, employee research serves as an early warning system to management, as employees are able to identify when the system is going to break down. The justification for the use of an external model which is most frequently advanced is that the interaction between the company and the customer is simply one link in a large network of relationships, many of which occur within the boundaries of the company. The implication is that the principles and techniques for the creation and measurement of service quality can be transferred to the internal environment. Perhaps the most obvious consequence of considering the organisational customer is that the complexity observed within the original model relating to the supplier in terms of Gaps 1-4 needs to be reflected in modeling the customer, who in an internal context has parallel *gaps* generated by hierarchy and role. These are gaps that can be predicted because of inherent differences between organisational relationships and ordinary consumer relationships

In a narrower sense, this study serves the purpose of giving senior management an instrument to assess all aspects of service quality along the service quality chain proposed by Heskett, *et al.*, (1994) beginning with the smallest entity – the relation between employees. Therefore it will be necessary to test if the extension of the SERVQUAL instrument is applicable and produces reliable and valid data.

If this should be the case, the results can then be used for determining the current degree of service quality provided by the maintenance department to its customer, the production department, and for designing appropriate measures for improving weaknesses and capitalising on strengths.

Finally, Employee INTSERVQUAL can be instrumentalised for regular assessment of employee satisfaction at the motor vehicle manufacturer as well as generalised for application in other organisational settings.

CHAPTER FIVE

RESEARCH METHODOLOGY

5.1 INTRODUCTION

Research methodology is a “structured set of guidelines or activities to assist in generating valid and reliable research results” (Mingers, 2001: 242). It is always desirable to select a methodology that maximises *generalisability*, realism, and precision (McGrath, 1982); all research methodologies are inherently flawed in some respect (Dennis and Valacich, 2001). For the purpose of this research quantitative methods will be used.

Quantitative research is “generally characterised by a methodology of formulating hypotheses that are tested through controlled experiment or statistical analysis” (Kaplan and Duchon, 1988:580). Examples of quantitative methods include survey methods, laboratory experiments, formal methods (e.g. econometrics) and numerical methods such as mathematical modeling (Myers, 1997). The underlying assumption in quantitative research is that research designs should be based on the positivist approach. Positivism assumes an objective reality, which can be described by measurable properties that are independent of the researcher and research instruments. The positivist approach “has its origins in a school of thought within the philosophy of science known as ‘logical positivism’ or logical empiricism” (Lee, 1991:343). Logical positivism advocates a research approach that satisfies the standards of the *natural science model* of scientific research, dealing with positive facts and observable phenomena. On the other hand, qualitative research involves the use of qualitative data to understand and explain social phenomena (Myers, 1997).

The quantitative part of this study included the collection and analysis of survey data from production department employees to test the proposed research framework and hypotheses. In this section, the research methodology and data collection process utilised in the quantitative study are explained. First, the research methodology is justified. Then the sample, unit of analysis and respondents are introduced. Thereafter,

the questionnaire development process is discussed in detail. Finally, the data collection process and analysis strategy are explained.

The preceding chapters have reviewed the literature pertaining to services, internal marketing and internal service quality. The importance of the internal service encounter (Heskett, *et al.*, 1994) and the measurement of internal service quality have been discussed. The adaptation of SERVQUAL to INTSERVQUAL has been presented and fully explored. The Gap Model and the service profit chain have been analysed and discussed.

Internal quality and service encounters have been related to the specific research context of the South African motor vehicle industry. Stemming from the review of related literature, the broad objectives of this study have been formulated, and an explanation of their relevance presented.

The main objective of this study is concerned with the importance of internal service quality and its measurements. The specific research hypotheses have been formulated from the identification of the broad objectives of the research. There are two main hypotheses for this study: the first hypothesis is concerned with the relationship between the overall internal service quality and the five dimensions of internal quality, which have been mentioned in the literature review; the second hypothesis focuses on the relationship between internal customer segments of production department and the five dimensions of internal service quality. Therefore, the hypotheses of the research are defined as follows.

5.2 HYPOTHESIS 1

Ho: There is no significant correlation between Internal Service Quality and the five dimensions of service quality.

Ha: There is a significant correlation between Internal Service Quality and the five dimensions of service quality.

5.3 HYPOTHESIS 2

Ho Internal customer segments do not vary in the importance they place on the five independent dimensions of service quality.

Ha Internal customer segments vary in the importance they place on the five independent dimensions of service quality.

5.4 RESEARCH DESIGN

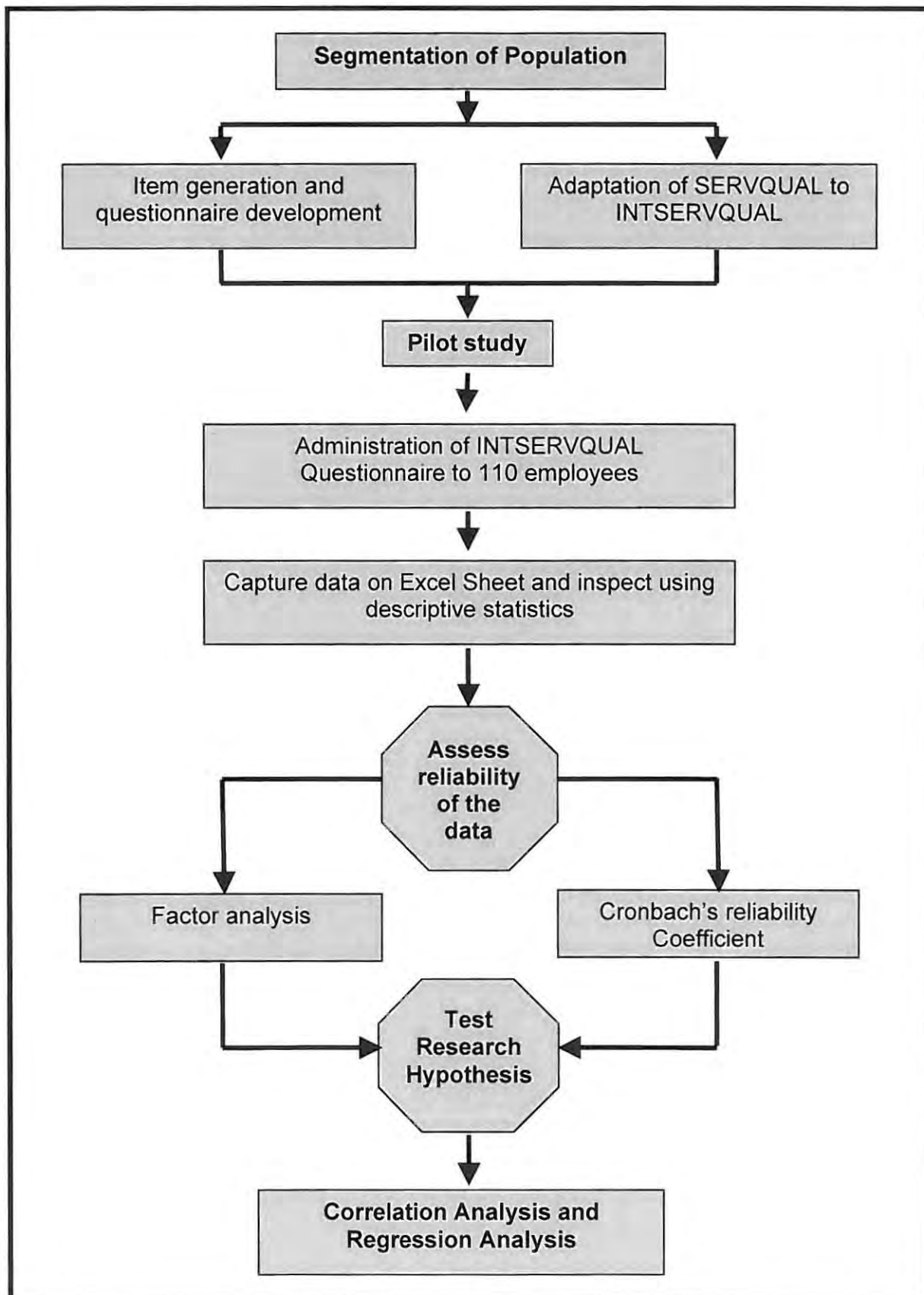
According to Adams and Schvaneveldt (1985:1030)

Research design refers to a plan, blueprint, or guide for data collection and interpretation – set of rules that enable the investigator to conceptualise and observe the problem under study”.

It is evident from the hypothesis that this research is of quantitative nature and it will be conducted in an exploratory paradigm. The purpose of exploratory research is to determine whether or not a phenomenon exists and to gain familiarity with such a phenomenon (Welman and Kruger, 2000).

As a starting point in describing the research design, (see figure 8) is a diagrammatic representation of the research design employed for the purpose of this study, and will be referred to during the course of this section.

Figure 8 A Schematic Representation of the General Research Design.



5.5 REFLEXIVITY, POWER AND ETHICS

Since this study is not exploring very private or sensitive issues, as in most quantitative studies, the ethical power and reflexivity issues are limited. It will be necessary to explain the research procedure and what the respondent requires and why the research is being conducted (De Vos, 1998). This will be done in the meetings with respondents when the questionnaires are handed over for answering. All potential respondents will then have the choice whether they wish to participate in the research or not, as is their right (De Vos, 1998).

Confidentiality was assured so that respondents knew that their names were not revealed to management. All results were presented or published as averages of all of the individual's responses; hence no individual response was singled out. In this way individuals were protected from this evaluation to be used against them or their department (De Vos, 1998).

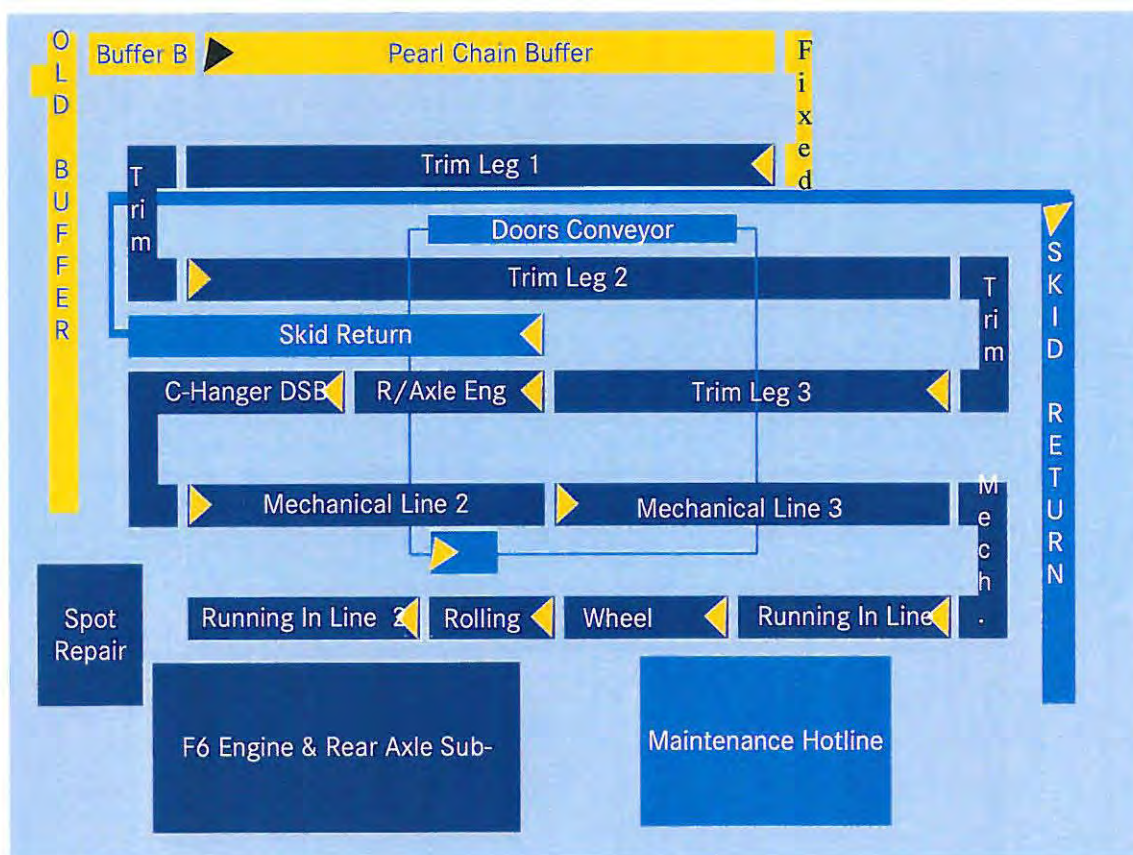
It would be unethical to not report back the findings to the department and employees who participated in the study. A simple presentation of the outcomes of the research will be put together and delivered to the departmental head who will be expected to filter it down to all employees who participated in the study. This would validate that their voices have been heard and it would continue to build relationships among employees. An important issue in the data analysis stage is that statistical methods be selected honestly and accurately to reflect the data collected. Statistics have the potential to be used to manipulate outcomes, so the analyst needs to be committed to honesty.

5.6 RESEARCH POPULATION AND SAMPLE

A population encompasses the entire relevant unit of analysis or data (Frankfort-Nachmias and Nachmias, 1996). A population is considered to be any group of people who share a common set of traits and are therefore of interest to the researcher (Black, 1999).

In this research, the population consisted of 110 employees from the assembly area where the vehicle is assembled. This department is divided into four areas namely the Trim lines, Mechanical lines, Final Finishing lines and Aggregates (see figure 9). The layout provided indicates how these sections are located and how the production flows. The table 6 provided presents the segmentation of the sample according to location.

Figure 9 Assembly Plant Layout



Adapted from (NOSA Presentation, 2003:5)

Table 6 Population, Sample and Respondents from the Production Departmental Segments.

Location	Population	Sample	Respondents	Response rate
Mechanical 1	80	34	34	100%
Mechanical 2	80	27	27	100%
Road Test	50	16	16	100%
Final Finish	50	16	16	100%
Aggregates	50	17	17	100%
Total	310	110	110	100%

The sample was stratified according to the location of the sections in which the assembly areas is divided.

5.7 INSTRUMENTS USED

The instrument used in this study is INTSERVQUAL adapted from SERVQUAL. Since its development the SERVQUAL model has been extensively applied (Asubonteng et al., 1996; Buttle, 1996) leading Robinson (1999) to state that there would seem to be little doubt that SERVQUAL is the most favoured instrument for measuring service quality. In the broader application of the model it has also been extended to measure service quality in internal settings, e.g. Brysland and Curry (2001) or Frost and Kumar (2000) who conducted their research in the airline industry.

Therefore the main goal of this research is not to examine SERVQUAL in an instrument to measure but to adapt it to suit the motor industry settings where service quality has become the differentiating success factor.

5.7.1 Item generation and Questionnaire Development

To determine the process of identifying internal users' service quality requirements, interviews were conducted with 20 people from the segments mentioned in the literature review. The results of the interviews show that regardless of the service, the front line employees use basically similar criteria in evaluating internal service quality.

It is important to note that the researcher conducting the interviews approached the process without any prior bias that SERVQUAL items might or might not be relevant within the current research context. As stated earlier this is because the goal of the research is not to examine SERVQUAL in an internal setting, but rather to explore the development of an instrument appropriate to measure the service quality offered to the production department as an internal customer by the maintenance department as an internal supplier. As a result, in the initial interviews the researcher did not begin probing for SERVQUAL dimensions until all other discussion had ceased. The interview process resulted in the identification of 10 key categories, covering a wide range of service issues that were viewed as generally important to the production department. These items were incorporated into a questionnaire to be administered to the internal customers of the maintenance department.

Reliability:	Which involves consistency of performance and dependability.
Responsiveness:	Concerns the willingness or readiness of employees to provide service. It involves timeliness of service.
Competence:	Means possession of the required skills and knowledge to perform the service.
Access:	Involves approachability and ease of contact.
Courtesy:	This involves politeness, respect, consideration and friendliness of contact personnel.
Communication:	Means keeping front line staff informed in language they can understand and listening to them.
Credibility:	Involves trustworthiness, believability and honesty. It involves having the customer's best interests at heart.
Security:	Is the freedom from danger, risk or doubt.
Understanding:	Knowing the customer involves making the effort to understand the customer's needs.
Tangibles	Include the physical evidence of the service, such as physical facilities and appearance.

A further examination of the content of the 10 service quality items allowed a construction of five dimensions identical to the dimensions in SERVQUAL, of which three are original list items (tangibles, reliability, responsiveness) and two are

combined dimensions: (assurance including communication, credibility, security, competence and courtesy; empathy including understanding / knowing the customer and access). Then a final list of five dimensions as stated by Parasuraman, *et al.*, (1985) and their concise definitions surfaced.

Tangibles	Appearance of physical facilities, equipment, personnel, and communication materials
Reliability	Ability to perform the promised service dependably and accurately
Responsiveness	Willingness to help (internal) customers and provide prompt service
Assurance	Knowledge and courtesy of employees and their ability to convey trust and confidence
Empathy	Caring, individualised attention the employees provide to each other

Source: Adapted from Zeithaml, *et al.*, (1990).

Only two of the ten determinants, tangibles and credibility, can be known in advance of a service offered to the front line staff, the other determinants often being evidenced only once a service transaction has taken place. While the front line staff may possess some information based on their experience, they are likely to re-evaluate these determinants each time a service is offered, because of the heterogeneity of services. Two of the determinants, competence and security, consumers can evaluate even after the service has been offered.

5.8 PILOT STUDY

A pilot study involves the pre-testing of instruments in an attempt to identify unforeseen problems of administration, coding, and analysis (Guy, Edgley, Arafat, and Allen, 1987).

After determining the five dimensions of internal service quality, a pilot study was conducted in order to identify any possible problems, questions, or issues of ambiguity before sending the questionnaires off to the relevant sections.

From the results of the pilot study a factor analysis was used to provide a means of determining which questions do not distinguish between dimension number two and so on, as well as which questions do not distinguish between dimensions and the number of dimensions in the data. Questions that were not clearly related to a dimension were discarded. A revised scale was used in a second sample, questions were tested and the result as a 22-question (item) scale measuring five basic dimensions.

5.9 THE MAIN STUDY

The main study was preceded by a pilot study in order to check that the modifications made to the INTSERVQUAL instrument were understood. The original 7-point Likert scale was maintained.

A random sample of 114 employees from the assembly area was asked to complete a self-administered *Front Line Service Quality Questionnaire*. This sampling design was used because it had the least bias. To maintain anonymity, completed questionnaires names were not included in the questionnaire demographics section. The questionnaires were administered after a Total Productive Maintenance (TPM) training session, which was held every Saturday. This facilitated a 100% response rate since all questionnaires were handed back after completion. A total of 6 questionnaires were rejected because of errors or incomplete responses, representing a 5% percent response rate. From the research results the main reason for the errors and incomplete responses is attributed to literacy as indicated on the questionnaire in the academic well being of the respondents

The questionnaire called the *Front Line Service Quality Questionnaire* was divided into three sections: the first section was the perceptions section; the second was the weighting section where the recipients of the questionnaires were asked to allocate

100 points among these five dimensions in order to be able to rank the importance of the respected dimensions; the last third was the expectations section. During their investigation Parasuraman, *et al.*, (1988) identified that reliability was the most important dimension used by customers in evaluating service quality, with responsiveness being next. Whereas tangibles has the lowest influence on overall serviced quality. In this study responsiveness came out as the most important dimension followed by tangibles.

This study is concerned with Gap 5, which is a function of gap 1 to gap 4 and focuses on the difference between perceptions and expectations. The questionnaire measures firstly the respondents' expectation of a service then the actual perception of the service delivered by the department being investigated. Since both expectations and perceptions are measured using the 22 parallel questions a total of 44 questions is required. The answers are measured on a seven-point Likert scale indicating 7 "strongly agree" and 1 "strongly disagree".

Quality is measured, as performance minus expectations for each pair of questions and the summary score across all questions was the measure for quality. Parasuraman, *et al.*, (1988) also tested their SERVQUAL scale for reliability and validity. The major test of reliability is coefficient alpha or Cronbach's Alpha. The results of the pilot study were calculated using the Cronbach's Alpha and the reliability was 0.6, which is considered poor. This necessitated the modification of the instrument to include semantic changes to suit the needs of the study. To provide better understanding, the language was simplified. Two Cronbach alphas were calculated one for the pilot study and the other for the main study.

5.9.1 Process of data collection

According to Bless and Higson-Smith (1995), there are three common methods of data collection, namely: observation, interviews, and questionnaires. For the purpose of this research, questionnaires utilised and administered after A Total Productive Maintenance (TPM) workshop that was organised by management. This training presented a good opportunity to conclude the workshop by asking the production

department to give their perceptions and expectations with regards to maintenance service delivery.

The method used to collect data is a personal technique where the respondents complete the questionnaires with the interviewer being present. Such questionnaires are known as self-administered questionnaires (Bless and Higson, 1995). This technique of data collection was used in order to overcome issues such as cost, time, clarity and education etc.

5.9.2 Data capturing

Once the questionnaires had been returned to the researcher, the researcher then coded the responses in each questionnaire. A data capturer then captured these codes, onto a Microsoft Excel spreadsheet, so that they could be statistically analysed.

5.9.3 Data analysis

The literature surrounding each research instrument provides evidence in support of the validity and reliability of the instruments. Although this is so, the original research design outlined in figure 8, makes provision for testing the validity and reliability of the instruments through factor analysis and Cronbach Alpha respectively, before testing for the hypotheses.

5.9.4 Cronbach's Alpha Coefficient

Cronbach's Alpha coefficient is typically equated with internal consistency (De Vellis, 1991). The Cronbach Alpha is interpreted as a coefficient Alpha and its values range from 0 to 1 (Coakes and Steed, 1997). When calculating Cronbach's reliability coefficient, reliabilities less than 0.6 are considered poor, reliabilities within the 0.7 ranges are considered acceptable, and those coefficients over 0.8 are considered good (Sekaran, 1992). The closer the reliability coefficient is to 1.0 - the greater the reliability of the instrument (Sekaran, 1992).

5.9.5 *Factor Analysis*

According to Bless and Kathuria (1993), a factor analysis simply observes whether the actual repetition of a particular phenomenon corresponds to the repetition that should be recorded, or is expected to be recorded. A factor analysis determines the repetition of similar items and consequent factors, in order to compare the observed factors against the factors identified by the theory (Bless and Kathuria 1993). Therefore, it was originally intended that a factor analysis be conducted, in an attempt to establish how many factors emerged from the data, and to compare observed repetition and expected repetition, in order to establish whether or not the facts support the theoretical considerations (Bless, *et al.*, 1993). However, De Vellis (1991) states that a minimum of at least 5 respondents for each item is needed in order to test the construct validity of a particular research instrument by using factor analysis. For the *Front Line Service Quality Questionnaire* 120 questionnaires were returned, 6 of these contained missing data and therefore, only 114 could be included in the final statistical analysis. There are 22 items in the *Front Line Service Quality Questionnaire* and so; the criterion of at least 5 respondents per item was achieved.

5.9.6 *Hypothesis Testing*

As mentioned previously, there are two hypotheses in this research. The first hypothesis is concerned with establishing a relationship between the internal service quality and the five dimensions of quality, as discussed in the literature review. The second hypothesis is concerned with the segments of internal customers and their relationship with the five dimensions of internal service quality.

Correlation analyses were conducted, using Statistica (StatSoft, 1999) in order to establish if a relationship exists between the internal quality, and the five dimensions of quality in a motor vehicle manufacturing environment. Correlation analysis measures the degree of a relationship between two variables, and expresses the extent of this relationship by means of a correlation coefficient (Bless, *et al.*, 1993). Due to the fact that the hypotheses of this research are focused on establishing a relationship between two variables, it is necessary to use statistical tests that will test the

relationship between the two variables in each hypothesis. It is not enough to establish whether or not the relationship between these variables exists, it is also important to investigate the extent to which each variable influences the other within this relationship.

Correlation coefficients represent the nature of the relationship between more than one variable, whereby a coefficient of above 0.8 represents a strong relationship, a coefficient of between 0.5 and 0.8 represents a moderate relationship, and a coefficient of below 0.5 represents a weak relationship (Devore and Peck, 1993). The results of the correlation analysis are presented in the following chapter.

5.10 CONCLUSION

This chapter has presented the methodology of the research and the process of data collection and analysis. The two hypotheses of the research were presented, and the research design outlined. The population included the employees in the assembly area of the motor vehicle manufacturer. The process of data collection began with a meeting between the researcher and the manufacturing manager of the motor vehicle manufacturer, where a sample was agreed-upon.

Thereafter, questionnaires were coded with the relevant area code and physically administered by instructors responsible for the Total Productive Maintenance (TPM) training, along with a covering letter. The questionnaires were returned immediately after the TPM training. This method facilitated a 100% response rate.

This research makes use of the INTSERVQUAL instrument. This chapter discusses the instrument in brief since it has been explored in the literature review, and presents the reliability and validity of the instrument. The previous chapters discussed the theoretical background of the research topic, and this chapter discusses the research process and methods of obtaining both the relevant information and the subsequent results. The following chapter presents the results obtained from the correlation analysis conducted in an attempt to test the research hypotheses.

CHAPTER SIX

RESULTS AND DISCUSSION

6.1 INTRODUCTION

The previous chapter focused on the method of data collection and the issues surrounding the process of data collection. Once the data was collected from the employees, statistical analysis was used to test the data. The Cronbach reliability coefficients were calculated for the instrument used in this research, and an attempt was made to confirm the reliability of the instrument. A factor analysis was conducted to determine whether the five service quality dimensions grouped themselves as proposed by Parasuraman, et al., (1985) and to also prove the stability of the INTSERVQUAL instrument. Also included is a discussion on perceptions and expectations in the context of the researched company.

The hypotheses were then tested using correlation analysis. This statistical test was conducted in order to establish the extent to which a relationship exists between the two variables identified in each of the two hypotheses – internal quality and internal customer segmentation. The results of the correlation analyses are presented in this chapter. After presenting the results of the correlation analyses in Appendices 2 to 7, the implications of these results are discussed in light of the literature reviewed in the previous chapters of this research. Research limitations are identified, and recommendations for further research are also made in this chapter.

6.2 RESULTS OF THE INSTRUMENT RELIABILITY

Coefficient alphas (Cronbach, 1951) were conducted on the 44 items (22 expectations and 22 perceptions) forming the internal service quality scale (INSERVQUAL). The overall alpha for the expectations is 0.917 and perceptions are 0.961, which comfortably exceeds the suggested cut-off point of 0.70 (Nunnally, 1978). It is important to ensure that the high alpha score obtained is not simply coming from the instrument having a large number of items. To achieve this, the standardised item

alpha was also computed. At 0.926 and 0.961 respectively, the results obtained do not differ significantly from the Cronbach alpha score, thereby confirming reliability of the instrument.

6.3 RESULTS OF FACTOR STRUCTURE

Table 7 Unrotated Factor Analysis on Expectation items

Factor Loadings (Unrotated) Extraction				
	Factor1	Factor2	Factor3	Factor4
E1		-0.701826		
E2				
E3		-0.752783		
E4		-0.783969		
E5	-0.584559			
E6	-0.668871			
E7	-0.720583			
E8	-0.706510			
E9	-0.770226			
E10	-0.696247			
E11	-0.784438			
E12	-0.788355			
E13	-0.722004			
E14	-0.789079			
E15	-0.643394			
E16	-0.827289			
E17	-0.766097			
E18	-0.626011			
E19	-0.632029			
E20		-0.687060		
E21	-0.760364			
E22		-0.695310		
Expl. Var				
Prp. Total				

Principal components (Marked loadings are >0.50000)

ISQ scores = internal service quality scores; Factors loading that are 0.50 or less are not shown in the matrix.

Table 8 Factor loading matrix following Varimax rotation of four-factor solution S for ISQ scores (Expectations).

Factor loading (Varimax rotation)				
	Factor 1	Factor 2	Factor 3	Factor 4
E1		0.797099		
E2		0.161471		
E3		0.811008		
E4		0.855912		
E5			0.742880	
E6			0.788388	
E7			0.772061	
E8			0.370146	
E9			0.544822	
E10	0.763129			
E11	0.831432			
E12	0.665820			
E13	0.487112			
E14	0.740912			
E15	0.645476			
E16	0.491991			
E17	0.794600			
E18	0.661684			
E19		0.158557		0.628782
E20		0.722686		
E21		0.097126		0.628476
E22		0.714285		

Principal components (Marked loadings are >0.50000)

ISQ scores = internal service quality scores; Factors loading that are 0.50 or less are not shown in the matrix.

6.3.1 Expectations items

The expectations and perceptions item were separated to determine which items fell within each respective dimension. This section will deal with the expectations items separately. Before the four-factor solution was rotated table 7, there was no clear pattern as to where the expectations dimensions belonged. Many of the items had high loadings on several factors, thereby implying that the factors may not be independent.

Once the four-factor solution was rotated orthogonally (Varimax) table 8, a clear pattern emerged. Tangibles grouped themselves on factor 2 and also indicated that question E2, *which states that Plant and equipment at excellent maintenance department will be in operating condition*, had a very low loading and had to be removed. This item has a very low loading mainly caused by the fact that respondents did not consider this item important because of the low breakdown rate; hence machinery is always in working order. The other items grouped themselves in other factors. The orthogonally (Varimax) rotated matrix is shown in table 8. With very few exceptions, items assigned to each dimension had high loadings on one or two of the four factors extracted. This suggested that the factor structure of ISQ scores generated by the INTSERVQUAL scale was fairly stable.

Table 9 Unrotated Factor Analysis on Perception items.

Factor Loadings (Unrotated) Extraction				
	Factor 1	Factor 2	Factor 3	Factor 4
P1				
P2				
P3				
P4	-0.67641			
P5	-0.77855			
P6	-0.77570			
P7	-0.81995			
P8	-0.82325			
P9	-0.65486			
P10	-0.85390			
P11	-0.85809			
P12	-0.72230			
P13	-0.79880			
P14	-0.80153			
P15	-0.79166			
P16	-0.76537			
P17	-0.74462			
P18	-0.76138			
P19	-0.72566			
P20	-0.77080			
P21	-0.70131			
P22	-0.69583			

Principal components (Marked loadings are >0.50000)

ISQ scores = internal service quality scores; Factors loading that are 0.50 or less are not shown in the matrix.

Table 10 Factor loading matrix following Varimax rotation of four-factor solution S for ISQ scores (Perceptions)

Factor loading (Varimax rotation)				
	Factor 1	Factor 2	Factor 3	Factor 4
P1			0.793352	
P2			0.825233	
P3				0.648470
P4				0.510305
P5	0.812497			
P6	0.781471			
P7	0.635808			
P8	0.821395			
P9				
P10	0.695554			
P11	0.808348			
P12	0.696727			
P13	0.583775			
P14		0.607		
P15		0.647075		
P16		0.560852		
P17				
P18		0.752376		
P19		0.696094		
P20		0.823030		
P21		0.706740		
P22		0.677535		

Principal components (Marked loadings are >0.50000)

ISQ scores = internal service quality scores; Factors loading that are 0.50 or less are not shown in the matrix.

The same process for determine the factor analysis was followed for perception items and they grouped themselves as above table 9 and 10, this was according to the dimension proposed by Parasuraman, *et al.*, (1985), the pattern still indicated the same groupings although they appeared on different factors as opposed to expectations items. No items were discarded because of very low loading on the perception section. This result also proved that INTSERVQUAL was fairly stable.

6.4 RESULTS OF THE CORRELATION AND REGRESSION ANALYSIS

6.4.1 Hypothesis 1

The regression of overall internal service quality items to the five service quality dimensions shows a significant relationship, with R^2 of 0.64, which is significant at $p < 0.01$ (see table 9). This result supports the rejection of the null hypothesis, which states that there is no significant relationship between internal service quality and the five dimensions of service quality and the acceptance of the alternative hypothesis.

Table 11 Summary of Correlation and Regression results.

Dimension	R-Value	P-Value	% Variation
Tangibles	0.58	0.01	33.6%
Reliability	0.93	0.01	85.6%
Responsiveness	0.90	0.01	80.2%
Assurance	0.83	0.01	68.3%
Empathy	0.67	0.01	45.1%
Unweighted	0.97	0.01	94.8%

6.4.2 Hypothesis 2

The second hypothesis is concerned with establishing a relationship between the employee segmentation and the five dimensions of internal service quality, between the two departments previous mentioned.

An ANOVA was performed to test the significance of the various segments on the five dimensions of service quality. The results of the ANOVA test are presented in appendix 9. These results indicate that, there is a significant relationship between employee segments and the five dimensions of service quality.

Appendix 10 shows that operators with the lowest mean of 4.95 are more concerned about tangibles than other segments. It will be expected that coordinators and team managers will concentrate on achieving their daily production target, thus their attention is focused on dimensions that will help achieve their targets which are (quality, quantity, delivery, morale and cost) and modern machinery in the short run is not important in realising these objectives.

Appendix 11 shows coordinators with the lowest negative mean of -9.64706 on responsiveness, indicating that the coordinators are more interested in the way maintenance personnel responds to call-outs (to repair breakdowns on malfunctioning machinery). This process results in down time; hence it has a direct impact on production and helps them achieve their daily targets

Appendix 13 indicates that operators have the lowest negative mean of -1.03 indicating that their perceptions are more than expectations. Proving that operators are not satisfied with the overall service quality provided by the maintenance department. The biggest dissatisfaction comes from the reliability and responsiveness dimensions as indicated by the results of this research (see table 12).

6.5 T-TEST

Welman and Kruger (2002) stated that:

A t-test determines whether an observed difference in the means of two groups is sufficiently large to be attributed to a change in some variable or if it merely could have taken place according to chance.

The results of the t-tests are presented in appendix 8 the discussion of these results will focus on the following facets of perceptions and expectations namely:

1. Highest mean expectations scores
2. Lowest mean expectation scores
3. Highest mean perception scores
4. Lowest mean perception scores

6.5.1 Highest mean expectation scores

Table 12 Expectation means

Dimension	Mean
Reliability	6.18
Responsiveness	6.07
Assurance	6.04
Tangibles	5.78
Empathy	5.66

From the Front Line Service Quality survey the highest expectation score (see table 8) related to the production employees is reliability. The question that had the highest mean score was question E6 appendix 14, which states that, *When production department have a problem an excellent maintenance department will show sincere interest in solving it.* Time is also an important factor in motor vehicle manufacturing this is shown by the second highest expectation score E8 which states “ An excellent maintenance department will provide their service at the agreed time. Delivery is an important dimension in the manufacturing world given the competition that exists in this industry.

6.5.2 *Lowest mean expectation scores*

The Front line Service Quality survey yielded low expectations in the empathy dimension appendix 8 with a mean of 5.66 indicating that expectations in the motor vehicle manufacturing industry are more focused on quality quantity and delivery rather than empathy, the question that had the lowest mean was question E18 (see appendix 14) with a mean of 5.33. E18 which states that *excellent maintenance department will give production employees individualized attention* and question E20, which states *maintenance department employees will give personal attention* were regarded as unimportant, probably because the focus in business is the bottom line rather than concentrating on personal and individual attention.

6.5.3 *Highest mean perception scores*

Table 13 Perception scores

Dimension	Mean
Assurance	4.87
Empathy	4.76
Tangibles	4.75
Responsiveness	4.69
Reliability	4.46

Three of the highest perception scores related to the production employees came from the following questions:

1. P15, Production department employees feel safe in dealing with the maintenance department.
2. P16 employees in the maintenance department are consistently courteous.
3. P15 employees in excellent maintenance department have knowledge to answer questions.

The above perceptions are in line with the motor vehicle manufacturing company's primary objectives namely: safety, quality, delivery, morale and costs (SQDMC).

These perceptions indicate that production employee would like to work safely with courteous service providers who have the knowledge to attend to their grievances.

6.5.4 *Lowest mean perception scores*

The Front Line Service Quality survey revealed low perceptions with respect to:

1. Maintenance personnel doing their work at the promised time,
2. The maintenance department does their work right the first time.
3. Maintenance department informing production department exactly when services will be completed.

The above perception were low indicating that production department employees are not satisfied with the time keeping and promises made by maintenance personnel about when and how they perform their services.

Perceptions overall seemed to be highlighting the need for maintenance department to improve on the their time keeping and stick to the promises they give to the production department. While the production department recognise that the maintenance department is always busy, they nonetheless still need their requests fulfilled and done at the promised time.

6.5.5 *Average SERVQUAL scores*

There is a significant difference in mean perceptions and expectations for each of the five dimensions of service quality and $p < 0.001$. Perceptions (see appendix 8) are significantly lower than expectations in all cases, indicating that they are negative gaps. This calls for management intervention to rectify the situation by closing the gaps.

The highest negative gap score was recorded in the reliability dimension, what is interesting here is production personnel would like a maintenance department that is reliable and they (production department) have indicated from the research that the

maintenance department they have is not reliable. To the production department reliability is the most important facet that will help them achieve their objectives.

6.5.6 Discussion of Expectation results

Mean expectations scores were high (see table 9), ranging from 6.18 in the reliability dimension to 5.66 (out of a potential maximum of 7) in the empathy dimension. The manner in which sincere interest is shown in solving problems (see appendix 14) question E6 is the most important expectation of the production department personnel in their evaluation of service quality. It is the interpersonal aspects of sincere interest that require human contact that appear to be appreciated more than the aspects of the service determined by financial resources, such as tangibles (Curry and Sinclair, 2002.)

Reliability was regarded as an important service dimension. Doing the job right the first time is important in motor vehicle manufacturing since there is no time to rework on the product. Having to rework on the products costs the organization, hence the goal is to do it right the first time. In the case of maintenance department having re-occurring problems, this costs the organization in terms of production time, which can never be recovered.

Empathy is very important in health care and “the importance attributed to empathy embodies the need to be treated in a caring environment” (Curry and Sinclair, 2002:202). This, however does not apply to motor vehicle industry where the emphasis is on volumes and quality, this dimension (empathy) is absolutely irrelevant in this setting.

6.5.7 Discussion of perception results

Mean perception scores ranged from 4.46 in reliability to 4.87 in the assurance dimension, which was well perceived by the production department employees. They felt that they feel safe when dealing with maintenance personnel, the maintenance personnel are courteous and that they have the knowledge to answer questions.

Empathy also received high perception scores 4.76, employees felt that maintenance department operating hours are convenient to production requirements and that maintenance personnel had production employees' best interest at heart.

Tangibles, where close to empathy with a score of 4.75, employees expressed satisfaction in the facilities operating condition and indicated that the maintenance personnel is neat in appearance. They were also satisfied with the equipment and the tools and spares in the maintenance department.

Responsiveness was however, a cause for concern, it revealed that maintenance personnel do not inform production personnel when services would be performed and on most occasions did not provide prompt service, do not make time also to listen to production personnel questions or anxieties regarding plant down time.

Reliability had the lowest recorded scores, indicating that production personnel felt that maintenance personnel did not show sincere interest in solving their problems and did not provide their services at the time promised.

Overall, the largest discrepancy between expectations and perceptions was in the reliability dimension 1.712, and this was particularly the case for the high quality standards and the pressure to delivery placed on the production personnel. Responsiveness was the second most critical dimension, followed by assurance, tangibles and finally empathy.

Emphasis needs to be shifted to the more critical service dimension to improve overall service quality. The large expectations/perceptions discrepancy found at this motor vehicle manufacturing plant could be attributed to employee motivation and the awareness of the importance of service quality and the Service Profit Chain among both the maintenance employees and their management. It would be interesting to see if later INTSERVQUAL exercise would yield more favourable results.

6.6 DISCUSSION OF RESULTS

The first hypothesis looked at the relationship between ISQ and the five dimensions of service quality from the results presented the null hypothesis is rejected. It is found that there is a positive relationship between the ISQ and the five dimensions of internal service quality. In the motor industry where delivery and quality are priorities, responsiveness followed by reliability were not surprising to be the most sought after dimensions in this industry. The service expectation of today's customers in the motor industry is extremely high, resulting in excessive demand being placed on the production employees. To meet this expectation, production employees have had similarly to demand more from their internal service providers. From the above results, it is apparent that the support staff should acknowledge the high expectation required of them to provide internal service quality especially on the area of reliability and responsiveness to the needs of the front line staff. Even though the support staff acknowledges the high expectations placed on them, the results from the hypothesis clearly showed that these expectations were not being met. This has caused a negative internal gap in the delivery of internal service quality.

In terms of specific dimensions, responsiveness was found to influence internal service quality the most. This does not concurs with the findings of Parasuraman, *et al.*, (1988, 1991), whose research found reliability to have the most significant influence of all the SERVQUAL dimensions on the overall perception of service quality. Which segment emphasised more on reliability

Empirical evidence from extant research has consistently shown that reliability is the foremost criterion customers consider in evaluating a company's quality of service even in internal settings (Parasuraman, *et al.*, 1991).

The second research question asked whether differences exist among perceptions of importance of various service issues among segments of maintenance department's internal customers (see table 11).

Table 14 Summary of segmentation results

Demographics	Highest in Segment	Mean	Dimension	p-Value
Position	Operators	-4.954023	Tangibles	0.0107
Position	Coordinators	-9.64706	Responsiveness	0.0383
Position	Coordinators	-8.76471	Unweighted	0.04000
Position	Team Manager	-2.0880	ISQ	0.0138

6.7 MANAGERIAL IMPLICATIONS AND RECOMMENDATIONS

Engineering managers who want to offer a high level of service quality must first understand what aspects of their services mix are important to their customers (mainly the production department), because internal customers will rate service quality on how well those important needs are met. This study offers a starting point for developing evaluation measures by identifying components of internal measures service quality for a maintenance department.

This study has attempted to measure user's perceptions and expectations of the maintenance department's performance gap 5 in the Gap Model. With such performance measures, greater diagnostic value is made possible by using a gap analysis approach in which two sets of questions were asked on each service quality item. The gaps between these sets of ratings highlight areas for improvement, e.g. reliability of maintenance functions must be improved to satisfy the production department.

When all respondents rate only one department, as is the case in this study, in order to provide diagnostic information one must look for differences among respondents. Thus, a key question is how people differ in their service quality requirements. In this study there was an opportunity to have access to a variety of users of the production department. The respondents included operators, team managers and co-coordinators. So that a reasonable variety of service delivery needs could be assessed.

The present research adapted SERVQUAL into INTSERVQUAL in order to measure internal service quality. Clearly, more research is necessary to help organisations to a better understanding of the nature and determinants of internal service. In order to develop a “generalisable” scale for maintenance departments, more data will need to be collected across several companies.

An important finding for maintenance managers is that groups of internal users can be conceptualised as segments, and that different needs may be revealed and logically explained among these segments. It is clear that for any given user segment, a proper prioritisation of the service mix and subsequent effective execution of the service, both tailored to the needs of that segment, will be necessary to maximise the satisfaction of the user. All individuals in the maintenance department can be trained to recognise the differing priorities and needs of the user segments, and then to adapt their service delivery effort appropriately.

Following an internal customer segmentation approach to internal service delivery opens the door to internal departments’ better customising their service offerings to the unique needs of different user groups. This customisation could take the form of different ways of communicating service offerings within the organisation (e.g. training via video, Web page, face to face) varying maintenance strategies (e.g. offering preventative and predictive maintenance) and alternative means of service delivery (e.g. phone and scada system). Such an approach ultimately contributes to the value-adding capability of that department’s position in the organisation’s service profit chain, resulting in not only greater efficiencies for the organisation but also more satisfied internal and external customers.

RESEARCH LIMITATIONS

One of the greatest limitations of SERVQUAL is that it measures service-users’ perceptions of functional quality only and not technical quality also. Functional quality is how the service is rendered and technical quality is what service is rendered. (Babakus and Mangold, 1992). An outcome evaluation or an evaluation of the technical quality of the services would complement this research well. The scale

measures overall perceptions of service quality, so that it is not transaction-specific and does not tell the researcher which services have strengths or weaknesses.

Another concern is that the Gap Model and SERVQUAL were developed in a marketing environment and SERVQUAL is a general framework tool for measuring service-user perceptions of quality. SERVQUAL needs to be adapted to suit the specific context of the service organisation for which it will be used. Words have been changed to make the scale make more sense to the respondents and, in the process; items might be omitted or added (Babakus and Mangold, 1992). The dilemma is that SERVQUAL in its original state is a reliable, and valid instrument; whenever the scale is revised a new variable is introduced, so that the scale should be checked for reliability and validity again. Consequently, this might affect the integrity of the scale (Parasuraman, *et al.*, 1991).

In this respect, another limitation to this study is in regard to the researcher's expertise in adapting this instrument and checking for its validity. In this research this has been done and the validity was found to be 0.91, which is high enough to suggest that the adapted instrument is valid. Care had to be taken to change few words and omit few items in order not to compromise the validity of the instrument. The dilemma here is that the respondents might find the questionnaire difficult to understand.

Another dilemma faced is that there was a high rate of non-response and errors in filling the questionnaire especially to the perceptions ratings as Babakus, *et al.*, (1992) experienced. The authors hypothesised that the high non-response rate revealed that service-users find it easy to rate their expected service level, but difficult to rate the actual service level. This may be due to a time lapse or the unique nature of the service. This problem was experienced in this research. This can compromise the integrity of the results.

Criticisms of SERVQUAL include the length of the questionnaire (that is the, repetitive nature of the questionnaire with two sections that are almost identical) and the validity of the five dimensions that the (Parasuraman, *et al.*, 1985) claim is used by service-users to evaluate service quality.

Another debate regarding the SERVQUAL scale is the difference-score, rather than direct measurement of service-user perceptions of quality. Critics claim that direct measurements will be psychometrically superior and less biased (Parasuraman, *et al.*, 1993, 1994). The SERVQUAL authors refute these arguments, claiming that it is necessary to evaluate expectations, that the five dimensions are valid, and that the difference-score has not been proven to be unreliable and biased (Parasuraman, *et al.*, 1993, 1994).

Another concern is the 2-column format used in the questionnaire design. It was a bit complicated for respondents to use. The SERVQUAL authors claim that the 3-column format was high in respondent ease and confidence when they compared it to the other formats (Parasuraman, *et al.*, 1994). A less complicated version would exclude the zone of tolerance and measure expectations with one point. The importance of measuring the zone of tolerance has already been highlighted in the literature review.

6.8 RECOMENDATIONS FOR FURTHER RESEARCH

As stated earlier, INTSERVQUAL as well as SERVQUAL measure functional quality and not technical quality. Research that would evaluate or a technical evaluation of quality of the services would be of great benefit and would complement this research also. Further research should include questions on what services the respondent has requested since this will provide more information that might lead to identification of weak services.

INTSERVQUAL has been adapted to suit the specific context of the service organisation the motor vehicle manufacturer based in the Eastern Cape. Words had to be changed to make the scale more comprehensible to the respondents and some items were omitted or added (Babakus, *et al.*, 1992). The limitation in this regard is the expertise to carry out such changes without tempering with the reliability and validity of the instrument, hence the need to focus on standardisation of the instrument to cater for all service sector analysis. Further research could focus on the possibility of coming up with a tool that would present researchers with a high level of expertise in

quantitative research and statistics in order to facilitate more advanced statistical manipulation of available data.

Further research could focus on the length of the questionnaire by making it short and easily understandable. For further research the questionnaire could be presented in Xhosa since the majority of the employees in this company are Xhosa speaking.

It is clear that more research needs to be conducted into the true form of the INTSERVQUAL quality construct. This research might begin with a focus on expectations. Little is known about the expectations of the employees in the motor vehicle manufacturing environment. A better understanding of expectations would help increase the understanding of the service quality construct. Research should focus on different types of study populations such as internal versus external customers, front line staff versus support staff, and differences based on varying levels of experience within the motor vehicle manufacturing industry and across other industries. Such research would constitute an important step in the development of an improved measure of motor industry internal service quality.

6.9 CONCLUSION

The tables in this chapter represent the results of the statistical analysis conducted on the information gathered by the INTSERVQUAL instrument. The results obtained from the reliability analyses, conducted on this instrument, are reported on in chapter six of this research. After obtaining the results from the reliability studies, the hypotheses of this research were tested using correlation analysis, the results of which are included in this chapter. As is evident from the correlation scores, presented in the previous tables in this chapter, there is a significant relationship between internal service quality, and the five dimensions of service quality.

There is need for valid and reliable measures of the service quality of motor vehicle manufacturer service providers, both internal and external, to the organisation. Frost and Kumar (2000) made an important contribution to this effect with the adaptation of SERVQUAL into the INTSERVQUAL instrument. However, earlier studies raised

several important questions concerning the SERVQUAL instrument (Carman, 1990; Babakus and Boller, 1992; Cronin and Taylor, 1992; Teas, 1994, 1995; Peter, 1993). But the findings of the current study indicate that the revised INTSERVQUAL (Frost, *et al.*, 2000) instrument is a valid and reliable measure of perceived service quality in the motor industry. Those choosing to use any version of the SERVQUAL should however be cautioned. Scoring problems aside, the consistently unstable dimensionality of SERVQUAL instrument intimates that further research is needed to determine the dimensions underlying the construct of service quality. Moreover there is the question of the content validity of all current versions of the SERVQUAL instrument. Given the importance of improved measures of service quality for a motor vehicle manufacturer, SERVQUAL and INTSERVQUAL (as internal service quality measuring tools) deserve attention in further theoretical and empirical research.

APPENDICES

Appendix 1 Reliability and Validity Results

Reliability and Validity

Expectation items (22 items)

Summary for scale: Mean=130.87, Std. Dev.=20.12, Valid N:110

Cronbach alpha: 0.917, Standardized alpha: 0.926

Average inter-item correlation: 0.38

Perception items (22 items)

Summary for scale: Mean=103.43, Std. Dev.=29.52, Valid N:110

Cronbach alpha: 0.961, Standardized alpha: 0.961

Average inter-item correlation: 0.54

The Cronbach alpha values are high supporting the reliability and validity of the questionnaire.

Correlation and Regression Analysis

Appendix 2 ISQ against Tangibles (perceptions – expectations).

Regression Summary for Dependent Variable: ISQ				
	B	Std. Error.	t(108)	p-level
Intercept	-0.685789	0.122817	-5.58385	0.000000
Tangibles	0.123367	0.016674	7.39876	0.000000

Regression Summary for Dependent Variable: ISQ

R= 0.57997540 R²= 0.33637146 Adjusted R²= .33022675

F(1,108)=54.742 p<.00000 Std. Error of estimate: 1.064

Analysis of Variance; DV: ISQ					
	Sums of squares	df	Mean squares	F	p-level
Regress.	62.0594	1	62.05944	54.74165	0.000000
Residual	122.4373	108	1.13368		
Total	184.4968				

There is a significant correlation between ISQ and average tangibles ($r=0.58$, $p<0.01$).

However, only 33.6% of the variation in ISQ is explained by average tangibles.

Appendix 3 ISQ against Reliability (perception - expectation).

Regression Summary for Dependent Variable: ISQ				
	B	Std. Error.	t(108)	p-level
Intercept	-0.146875	0.062916	-2.33447	0.021421
Reliability	0.122649	0.004843	25.32475	0.000000

Regression Summary for Dependent Variable: ISQ

R= 0.92513443 R²= 0.85587371 Adjusted R²= .85453921

F(1,108)=641.34 p<0.0000 Std. Error of estimate: .49620

Analysis of Variance; DV: ISQ					
	Sums of square	df	Mean squares	F	p-level
Regress.	157.9059	1	157.9059	641.3428	0.00
Residual	26.5908	108	0.2462		
Total	184.4968				

There is a significant correlation between ISQ and average reliability (r=0.93, p<0.01). 85.6% of the variation in ISQ is explained by average reliability.

Appendix 4 ISQ against Responsiveness (perception - expectations).

Regression Summary for Dependent Variable: ISQ				
	B	Std. Error.	t(108)	p-level
Intercept	-0.354580	0.068482	-5.17770	0.000001
Responsiveness	0.152951	0.007306	20.93635	0.000000

Regression Summary for Dependent Variable: ISQ

R= 0.89572182 R²= 0.80231758 Adjusted R²= .80048719

F(1,108)=438.33 p<0.0000 Std. Error of estimate: .58112

Analysis of Variance; DV: ISQ					
	Sums of squares	df	Mean squares	F	p-level
Regress.	148.0250	1	148.0250	438.3308	0.000000
Residual	36.4718	108	0.3377		
Total	184.4968				

There is a significant correlation between ISQ and average responsiveness (r=0.90, p<0.01). 80.2% of the variation in ISQ is explained by average responsiveness.

Appendix 5 ISQ against Assurance (perception - expectation)

Regression Summary for Dependent Variable: ISQ				
	B	Std. Error	t(108)	p-level
Intercept	-0.472330	0.084664	-5.57886	0.000000
Assurance	0.155128	0.010158	15.27200	0.000000

Regression Summary for Dependent Variable: ISQ

R= 0.82674159 R²= 0.68350165 Adjusted R²= .68057111

F(1,108)=233.23 p<0.0000 Std. Error of estimate: .73531

Analysis of Variance; DV: ISQ					
	Sums of squares	df	Mean squares	F	p-level
Regress.	126.1038	1	126.1038	233.2340	0.000000
Residual	58.3929	108	0.5407		
Total	184.4968				

There is a significant correlation between ISQ and average assurance (r=0.83, p<0.01). 68.3% of the variation in ISQ is explained by average assurance.

Appendix 6 ISQ against Empathy (perception - expectation)

Regression Summary for Dependent Variable: ISQ				
	B	Std. Error	t(108)	p-level
Intercept	-0.640809	0.109619	-5.84577	0.000000
Empathy	0.122162	0.012970	9.41848	0.000000

Regression Summary for Dependent Variable: ISQ

R= 0.67153710 R²= 0.45096207 Adjusted R²= .44587839

F(1,108)=88.708 p<.00000 Std. Error of estimate: .96846

Analysis of Variance; DV: ISQ				
	Sums of squares	df	Mean squares	F
Regress.	83.2010	1	83.20104	88.70772
Residual	101.2957	108	0.93792	
Total	184.4968			

There is a significant correlation between ISQ and average empathy (r=0.67, p<0.01).

Only 45.1% of the variation in ISQ is explained by average empathy.

Appendix 7 ISQ against Unweighted Average (perception - expectation)

Regression Summary for dependent Variable; ISQ				
	B	Std. Error.	t(108)	p-level
Intercept	-0.067657	0.037941	-1.78324	0.077356
Unweighted	0.205780	0.004611	44.62687	0.000000

Regression Summary for Dependent Variable: ISQ

R= 0.97394076 R²= 0.94856060 Adjusted R²= .94808431

F(1,108)=1991.6 p<0.0000 Std. Error of estimate: .29644

Analysis of Variance; DV: ISQ					
	Sums of squares	df	Mean squares	F	p-level
Regress.	175.0064	1	175.0064	1991.558	0.00
Residual	9.4904	108	0.0879		
Total	184.4968				

There is a significant correlation between ISQ and Unweighted average (r=0.97, p<0.01). 94.8% of the variation in ISQ is explained by unweighted average.

Appendix 8 Dependent T-test Results for testing the difference between perceptions and expectations.

T-test for Dependent Samples								
	Mean	Std. Dv.	N	Diff.	Std. Dv.	t	df	p
Tangibles Exp	5.786364	1.257927						
Tangibles Per	4.750000	1.403632	110	1.036364	1.529090	7.108461	109	0.000
Reliability Exp	6.180000	1.119944						
Reliability Per	4.467273	1.682566	110	1.712727	1.962684	9.152381	109	0.000
Responsiveness Exp	6.075000	1.098660						
Responsiveness Per	4.697727	1.593096	110	1.377273	1.904770	7.583571	109	0.000
Assurance Exp	6.045455	1.152471						
Assurance Per	4.877273	1.509809	110	1.168182	1.733411	7.068143	109	0.000
Empathy Exp	5.669091	1.228839						
Empathy Per	4.758182	1.429209	110	0.910909	1.430362	6.679216	109	0.000
Expectations Perceptions	5.951182	0.911989						
	4.710091	1.338313	110	1.241091	1.395549	9.327277	109	0.000

There is a significant difference in mean expectations and perceptions for each of the above variables ($p < 0.01$). Perceptions are significantly lower than expectations in all cases.

Appendix 9 ANOVA Test Results

ANOVA to test the significance of Position effect on the variables.

Analysis of Variance								
	SS effect	df	MS effect	SS error	df	MS error	F	p
Tangibles exp	0.8306	2	0.4153	169.979	106	1.60358	0.258971	0.772332
Reliability Exp	6.0177	2	3.0089	127.501	106	1.20284	2.501474	0.086792
Responsiveness Exp	3.1285	2	1.5643	125.937	106	1.18808	1.316631	0.272384
Assurance Exp	0.9989	2	0.4994	141.364	106	1.33362	0.374500	0.688539
Empathy Exp	2.6816	2	1.3408	160.288	106	1.51215	0.886683	0.415054
Expectations	1.0021	2	0.5010	87.412	106	0.82464	0.607594	0.546545
Tangibles Per	17.6120	2	8.8060	197.075	106	1.85920	4.736456	0.010709
Reliability Per	5.5508	2	2.7754	302.920	106	2.85773	0.971188	0.381976
Responsiveness Per	10.7373	2	5.3687	265.807	106	2.50762	2.140938	0.122600
Assurance Per	5.9900	2	2.9950	242.462	106	2.28738	1.309361	0.274323
Empathy Per	1.2870	2	0.6435	221.231	106	2.08709	0.308327	0.735332
Perceptions	6.6276	2	3.3138	188.600	106	1.77924	1.862482	0.160333
Tangibles	172.6954	2	86.3477	3887.635	106	36.67580	2.354351	0.099903
Reliability	541.8408	2	270.9204	9842.600	106	92.85471	2.917681	0.058414
Responsiveness	374.1715	2	187.0857	5896.416	106	55.62656	3.363245	0.038356
Assurance	188.7216	2	94.3608	5019.022	106	47.34926	1.992868	0.141379
Empathy	192.0703	2	96.0352	5362.168	106	50.58649	1.898435	0.154861
Unweighted	240.9930	2	120.4965	3849.359	106	36.31471	3.318118	0.040019
ISQ	14.1738	2	7.0869	168.296	106	1.58770	4.463617	0.013766

Appendix 10 Breakdown Table of Descriptive Statistics (Position)

Significant position effect on Tangibles Perceptions ($p=0.0107$).

Breakdown Table of Descriptive Statistics			
Position	Tangibles Per mean	n	Tangibles Per Std dev
Operator	4.954023	87	1.376996
Coordinator	3.985294	17	1.396062
Team manager	3.850000	5	0.840387

Appendix 11 Breakdown of Descriptive Statistics (Responsiveness)

Significant position effect on average responsiveness (expectations – perceptions)
($p=0.0383$).

Breakdown of Descriptive Statistics			
Position	Responsiveness mean	n	Responsiveness Std dev
Operator	-4.66667	87	7.341609
Coordinator	-9.64706	17	7.729337
Team manager	-7.60000	5	8.734987
	-5.57798	109	7.619776

Appendix 12 Breakdown of Descriptive Statistics (Unweighted Average)

Significant position effect on unweighted average (expectations – perceptions)
($p=0.0400$).

Breakdown Table of Descriptive Statistics			
Position	Unweighted mean	n	Unweighted Std dev
Operator	-4.81149	87	5.943013
Coordinator	-8.76471	17	6.494319
Team manager	-7.44000	5	5.853888
	-5.54862	109	6.154156

Appendix 13 Breakdown of Descriptive Statistics (Position)

Significant position effect on ISQ (expectations – perceptions) ($p=0.0138$)

Breakdown Table of Descriptive Statistics			
Position	ISQ mean	n	ISQ Std dev
Operator	-1.03000	87	1.230586
Coordinator	-1.87424	17	1.286133
Team manager	-2.08800	5	1.702680
	-1.21020	109	1.299821

Appendix 30 Factor Loadings.

FACTOR LOADINGS								
	Factor	Factor	Factor	Factor	Factor	Factor	Factor	Factor
E1	-0.46391	-0.016757	0.466624	-0.303405	-0.297245	-0.352709	-0.080786	-0.032119
E2	-0.20286	-0.414836	-0.180301	-0.059949	0.036698	-0.670094	-0.128958	-0.101514
E3	-0.53567	-0.037033	0.550592	-0.126473	-0.002367	-0.233525	0.212019	-0.227141
E4	-0.55614	-0.045347	0.620174	-0.128780	-0.200854	-0.082515	0.078060	-0.034599
E5	-0.32685	-0.482219	-0.216159	-0.491332	0.141505	-0.183403	-0.038086	0.046665
E6	-0.26096	-0.620549	-0.252962	-0.454891	0.080623	0.086111	-0.061883	-0.032008
E7	-0.20320	-0.716493	-0.131717	-0.317331	-0.238893	0.055824	-0.263574	-0.045886
E8	-0.19244	-0.700702	-0.089357	-0.111457	-0.440379	-0.067317	0.029820	-0.000157
E9	-0.25038	-0.740152	-0.200558	-0.127451	0.087245	0.098040	0.047682	-0.068516
E10	-0.30682	-0.636664	-0.089699	0.366690	-0.227662	-0.148655	-0.153860	0.063997
E11	-0.34152	-0.719465	-0.112716	0.309704	-0.255418	0.087361	0.001147	0.019432
E12	-0.27136	-0.757313	-0.103737	0.090952	-0.003046	0.199513	0.057950	-0.107392
E13	-0.15622	-0.738066	0.002699	0.007053	0.171314	0.151349	-0.007604	-0.020571
E14	-0.35755	-0.694809	-0.076831	0.128572	-0.038316	-0.064432	0.302887	-0.010131
E15	-0.29970	-0.553321	-0.005835	0.145676	0.042019	-0.000951	0.584611	-0.046003
E16	-0.33870	-0.748834	0.155479	-0.174629	0.092457	0.015182	0.174881	-0.000952
E17	-0.29945	-0.711516	-0.002749	0.283003	-0.034595	0.123007	0.136734	-0.102619
E18	-0.37013	-0.505529	0.043617	0.472728	0.213174	-0.098961	0.059531	0.309129
E19	-0.32785	-0.542198	0.055238	-0.151741	0.303611	0.088944	-0.244225	0.200518
E20	-0.49136	-0.132023	0.498800	0.115798	0.064262	-0.277125	-0.094577	0.414650
E21	-0.33621	-0.686019	0.039130	-0.031661	0.319354	0.191220	-0.179652	0.068450
E22	-0.46312	-0.190537	0.634438	-0.081528	0.290816	-0.052487	0.069140	0.119804
P1	-0.52437	0.207974	-0.298559	0.058611	0.329688	-0.414901	0.052981	-0.310913
P2	-0.51514	0.167630	-0.252471	0.327740	0.266091	-0.336849	-0.109146	-0.362351
P3	-0.60447	0.227470	0.189066	-0.038861	0.486881	0.129254	0.001372	-0.202492
P4	-0.59648	0.392529	0.059411	0.051753	0.162034	0.052125	0.114000	0.149394
P5	-0.68850	0.347473	-0.326217	-0.152782	-0.071281	-0.104143	0.030027	0.213723
P6	-0.68631	0.332490	-0.328773	-0.058121	-0.074510	-0.044808	0.159007	0.083628
P7	-0.77940	0.192473	-0.236073	-0.172883	0.089463	0.104250	0.009596	0.070097
P8	-0.75126	0.312913	-0.251725	-0.145926	-0.071124	-0.032670	0.165602	0.218019
P9	-0.56168	0.370748	-0.117339	-0.148581	0.070203	0.247105	0.322553	0.010513
P10	-0.79518	0.301474	-0.146174	0.033856	0.063330	-0.017909	0.014415	0.263216
P11	-0.80892	0.237694	-0.257922	-0.033103	-0.138693	-0.059372	0.049461	0.189756
P12	-0.68112	0.173953	-0.296614	-0.070305	-0.084021	-0.085807	0.119778	-0.023454
P13	-0.71513	0.346024	-0.157545	0.055128	0.016263	0.079466	-0.096813	0.053642
P14	-0.81156	0.088839	-0.010972	0.063487	-0.120573	0.031003	-0.033418	-0.193912
P15	-0.77611	0.215924	0.175594	-0.066320	-0.156065	0.132495	0.045822	-0.099641
P16	-0.73686	0.250463	0.143679	0.074947	0.015534	0.160202	0.115564	-0.023193
P17	-0.71529	0.272508	0.249289	-0.016392	-0.173403	0.153626	0.063001	-0.145120
P18	-0.74588	0.150182	-0.015268	0.246594	-0.100664	-0.048280	-0.317107	0.126412
P19	-0.75596	-0.014797	-0.048416	0.147609	-0.159232	0.056036	-0.077991	-0.119698
P20	-0.80447	0.014974	0.099999	0.103116	0.058618	0.122288	-0.425709	-0.007169
P21	-0.71490	0.047408	0.061169	-0.067223	0.051448	0.253991	-0.323935	-0.235815
P22	-0.67430	0.181008	0.109554	0.143455	-0.235959	0.175809	-0.094284	-0.173161
Expl. Var	13.72508	8.644417	2.716004	1.718404	1.571359	1.530897	1.405250	1.120362
Prp.T otl	0.31193	0.196464	0.061727	0.039055	0.035713	0.034793	0.031938	0.025463

Appendix 14 Descriptive Statistics.

Descriptive Statistics					
	Valid N	Mean	Minimum	Maximum	Std Dev.
E1	110	5.963636	2.000000	7.000000	1.596598
E2	110	6.236364	3.000000	7.000000	1.132726
E3	110	5.354545	1.000000	7.000000	1.850298
E4	110	5.590909	1.000000	7.000000	2.019608
E5	110	6.081818	1.000000	7.000000	1.533311
E6	110	6.281818	1.000000	7.000000	1.249821
E7	110	6.218182	1.000000	7.000000	1.315970
E8	110	6.245455	2.000000	7.000000	1.272045
E9	110	6.072727	1.000000	9.000000	1.566326
E10	110	6.172727	2.000000	7.000000	1.195244
E11	110	6.272727	2.000000	7.000000	1.172382
E12	110	6.018182	1.000000	7.000000	1.544340
E13	110	5.836364	1.000000	7.000000	1.378254
E14	110	5.890909	1.000000	7.000000	1.552420
E15	110	6.227273	1.000000	7.000000	1.246346
E16	110	5.900000	1.000000	7.000000	1.387692
E17	110	6.163636	1.000000	7.000000	1.316983
E18	110	5.327273	1.000000	7.000000	1.812845
E19	110	6.072727	1.000000	7.000000	1.366097
E20	110	5.300000	1.000000	7.000000	1.960855
E21	110	6.109091	1.000000	7.000000	1.287523
E22	110	5.536364	1.000000	7.000000	2.021342
P1	110	4.709091	1.000000	7.000000	1.803897
P2	110	5.236364	1.000000	7.000000	1.555855
P3	110	4.409091	1.000000	7.000000	1.897828
P4	110	4.645455	1.000000	7.000000	1.993505
P5	110	4.154545	1.000000	7.000000	2.077341
P6	110	4.900000	1.000000	7.000000	1.837180
P7	110	4.218182	1.000000	7.000000	2.029063
P8	110	4.409091	1.000000	7.000000	1.940848
P9	110	4.654545	1.000000	7.000000	1.917741
P10	110	4.263636	1.000000	7.000000	1.980072
P11	110	4.672727	1.000000	7.000000	1.777066
P12	110	5.127273	1.000000	7.000000	1.648514
P13	110	4.727273	1.000000	7.000000	1.816889
P14	110	4.790909	1.000000	7.000000	1.776996
P15	110	4.972727	1.000000	7.000000	1.747654
P16	110	4.909091	1.000000	7.000000	1.645374
P17	110	4.836364	1.000000	7.000000	1.779224
P18	110	4.481818	1.000000	7.000000	1.749085
P19	110	5.127273	1.000000	7.000000	1.729979
P20	110	4.472727	1.000000	7.000000	1.717204
P21	110	4.690909	1.000000	7.000000	1.816062
P22	110	5.018182	1.000000	7.000000	1.520392

REFERENCES

- ADAMS, G.R. and SCHVANEVELDT, J.D. 1985. **Understanding Research Methods**. New York: Longman.
- ALBRECHT, K. 1990. **Service Within**. Dow Jones-Irwin. Homewood. IL.
- ALBRECHT, K. and ZEMPE, R. 1985. **Service America**, Dow Jones-Irwin, Homewood, IL.
- ASUBONTENG, P. and McCLEARY, K.J. and SWAN, J.E. 1996, SERVQUAL revisited: a critical review of service quality. **Journal of Services Marketing**. 10: 6.
- AUTY, S. and LONG, G. 1999. Tribal warfare and gaps affecting internal service quality. **International Journal of Service Industry**. Management. 10(1): 7-22
- BABAKUS, E. and MANGOLD, G. 1992. **Adapting the SERVQUAL Scale to Hospital Services: An Empirical Investigation in Health Service Research**. 26(6): 767-786.
- BAHIA, K. and NANTEL, J. 2000. A reliable and valid measurement scale for the perceived service quality of banks. **The International Journal of Bank Marketing**, 18(2)
- BAKER, J.A. and LAMB, C.W. 1993. Managing architectural design service quality. **Journal of Professional Services Marketing**, 10(1): 89-106
- BATESON, J.E.G. and HOFFMAN, K.D. 1999. **Managing Services Marketing**, 4th Edition
- BEBKO, C.P. and GARG, R.K. 1995. Perceptions of responsiveness in service delivery. **Journal of Hospital Marketing**, 9(2): 35-45.
- BERGMAN, B. and KLEFSJO, B. 1994. **Quality: from customer needs to customer satisfaction** London: McGraw-Hill
- BERRY, L.L. 1981. The employee as customer. **Journal of Retail Banking**. 3(1): 33-40.
- BERRY, L.L. and PARASURAMAN, A. 1991. **Marketing Services competing through Quality**, Chapter 4, The Free Press, New York, NY. pp 151
- BERRY, L.L. and PARASURAMAN, A. 1995. **On Great Service**, New York, NY. The Free Press.

- BRYSLAND, A. and CURRY, A. 2001. Service improvements in public services using SERVQUAL, **Managing Service Quality**, 11(6): 389-401
- BLACK, T.R. 1999. **Doing Quantitative Research in the Social Sciences**, London: SAGE Publications.
- BLAND, N. 1997. Measuring Public Expectations of policing: **An evaluation of the Gap Analysis**. Police Research Services, Paper 24. Police Research Group.
- LESS, C. and HIGSON-SMITH, C. 1995. **Fundamentals of Social Research Methods: An African Perspective**. 2nd Edition, Kenwyn: Juta and Co, Ltd.
- BLESS, C. and KATHURIA, R. 1993. **Fundamentals of Social Statistics: An African Perspective**. Juta & Co, Ltd: Cape Town.
- BOLTON, R.N. and DEW, J.H. 1991. A multistage model of customer's assessment of service quality and value. **Journal of Consumer Research**. 17: 34-49.
- BOOMSMA, S. 1991. A clear view, **Managing Service Quality**. November, pp. 31-3.
- BOWEN, D.E. 1996. Market-focused HRM in service organizations: satisfying internal and external customers, **Journal of Market-Focused Management**, 1: 31-47.
- BOWEN, D.E. and SCHNEIDER B. 1988. Services marketing and management: implications for organisational behaviour in Staw, B. and Cummings. L.L. **Research in Organisational Behaviour**. JAI Press, Greenwich CT, 10
- BOUMAN, M. and VAN DER WIELE, T. 1992. Measuring service quality in the car service industry: building and testing an instrument, **International Journal of Service Industry Management**. 3(4): 4-16
- BROWN, S.W. and SWARTZ, T.A. 1989. A gap analysis of professional service quality. **Journal of Marketing**. 53: 92-8
- BROWNE, N.E. 1996. **The Strategic Implications of the Proposed Legislation**. 121
- BUTTLE, F. 1996. SERVQUAL: review, critique, research agenda, **Journal of Marketing**, 30(1): 8-32.
- CAHILL, D.J. 1995. The managerial implications of the learning organization: a new tool for internal marketing. **MCB Journal of Services Marketing**. 9(4): 43-51

- CARMAN, J.M. 1990. Consumer perception service quality: An assessment of SERVQUAL dimension. **Journal of Retailing**. 66(1): 33-35.
- CESPEDES, F.V. 1995. **Concurrent Marketing**. Harvard Business School Press. New York. NY.
- CHASE, R.B. 1978. Where Does The Customer Fit in a Service Operation. **Harvard Business Review**. 56:137-42
- CHANG, Z.Y. and YEONG, W.Y. and LOH, L. 1996. **The Quest for Global Quality: A Manifestation of Total Quality Management by Singapore Airlines**, Addison-Wesley, Singapore
- CHRISTOPHER, M. and PAYNE, A.F. and BALLANTYNE, D. 1991. Relationship marketing: **Bring quality, customer service and marketing together**. Oxford Butterworth-Heinemann.
- CHRISTOPHER, M. 1992. **The Customer Service Planner**, Oxford: Butterworth-Heinemann Ltd.
- COAKES, S.J. and STEED, L.G. 1997. **SPSS: Analysis Without Anguish: Version 6.1 for IBM and Macintosh users**, Brisbane: John Wiley & Sons.
- COTTER, R.S. 1993. **Exploratory study in delivering quality service in an internal market large service organisation**. UMI Dissertation Services, Mississippi State University, MS.
- CLOW, K.E. and FISCHER, A.K. and O'BRYAN, D. 1995. The Antecedents of Patient Expectations of Dental Services: An Empirical Study. **Journal of Healthcare Marketing**, 15(3): 23-31
- CRONBACH, L.J. 1951. Coefficient alpha and the internal structure of tests. **Psychometrika**. 16(3): 297-333.
- CRONIN, J.J. and TAYLOR, S.A. 1992. Managing service quality: A reassessment and Extension. **Journal of Marketing**. 56(3): 55-68
- CRONIN, J.J. and TAYLOR, S.A. 1994. SERVPERF vs. SERVQUAL: reconciling performances based perception - minus - expectations measurement of service quality, **Journal of Marketing**. 58: 125-31
- CROSBY, P.B. 1979. **Quality is free: the art of making quality certain**. New York: McGraw-Hill.
- CURRY, A.C. 1999. **Innovation in public service management**. Managing Service Quality. 9(3): 180-90

- CURRY, A. and SINCLAIR, E. 2002. Assessing the quality of physiotherapy services using SERVQUAL. **International Journal of Health Care Quality Assurance**. 15(5): 197-205
- CZEPIEL, J.A. and SOLOMON, M.R. and SURPRENANT, C.F. 1985. **The Service Encounter**. Lexington, Massachusetts: Lexington Books.
- DELMONT, S. 1992. **Fieldwork in educational settings**, Brighton The Falmer Press,
- DENNIS, A.R. and J. S. VALACICH, J.S. 2001. **Conducting Research in Information Systems**, Communications of the AIS. 17(5): 2001
- DE VOS, A.S. 1998. **Research at grass Roots: A Primer for the caring Professionals**. JL van Schaik Publishers, Pretoria.
- DE VELLIS, R.F. 1991. **Scale Development: Theory and Applications**, Newbury Park, California: SAGE Publications.
- DE VILLIERS, T. 2000. **Customer Satisfaction and Moments of Truth Scores**, Center for Proactive Marketing: Johannesburg
- DEVORE. J. and PECK, R. 1993. **Statistics - The Exploration and Analysis of Data**, 2nd Edition, Wadsworth, Inc.
- DODSON, R.L. 1991. Speeding the way to total quality, **Training and Development**, June, pp 35-42.
- DOTCHIN, J.A. and OAKLAND, J.S. 1994. Total Quality Management in Services: Understanding and Classifying Services, **International Journal of Quality and Reliability Management**. 11(3): 9-26
- DU TOIT, J.C. 1984. **The application of the Product Management Concept on the Motor Vehicle Industry in South Africa**. MBA Thesis. University of Pretoria, Pretoria.
- DURVASULA, S. and METHA, S.C. 1999. Testing the SERVQUAL scale in the business-to-business sector: The case of ocean freight shipping service, **Journal of Services Marketing**, 13(2): 132-50
- DUMOND, E.J. 1994. Moving toward value-based purchasing. **International Journal of purchasing and Material Research**. 16: 64-73
- FARNER, S. and LUTHANS, F. and SOMMER, S. 2001. An empirical assessment of internal customer service. **Managing Service Quality**. 11(5): 350-58.
- FICK, G.R. and RITCHIE, J.R.B. 1991. Measuring service quality in the travel and tourism industry. **Journal of Travel Research**, 30(2): 2-9

- FOREMAN, S. and MONEY, A. 1995. Internal marketing: concepts, measurement and application, **Journal of Marketing Management**. 11: 755-68.
- FOSS, N.J., 1997. **Resources firms and strategies**. A reader in the resource based perspective. Oxford University Press, UK.
- FRANKFORT-NACHMIAS and NACHMIAS, 1996. **Research Methods in the Social Sciences**. 5th Edition, Appendix B "Writing Research Papers".
- FREEMAN, K.D. and DART, J. 1993. Measuring the perceived quality of professional business services. **Journal of Professional Services Marketing**, 9(1): 27-47.
- FROST, F.A. and KUMAR, M. 2000. INTSERVQUAL – an internal adaptation of the GAP model in a large service organisation, **Journal of Services Marketing**, 14(5): 358-77
- GAGLIANO, K.B. and HATHCOTE, J. 1994. Customer expectations and perceptions of service quality in apparel retailing. **Journal of Services Marketing**, 8(1): 60-9
- GASTER, L. 1995. **Quality in Public Services**, Open University Press, Buckingham
- GEORGE, W.R. 1977. The retailing of services – a challenging future, **Journal of Retailing**, 53(3): 85-98.
- GEORGE, W.R. 1977. The Retailing of Services – a challenging future. **Journal of Retailing**. Fall: 23-9
- George, W.R. 1990. Internal marketing and organizational behaviour: a partnership in developing customer-conscious employees at every level, **Journal of Business Research**, 20: 63-70.
- GOURDIN, K.N. 1988. Bringing quality back to commercial air travel? **Transportation Journal**, Spring, pp. 23-9
- GOURDIN, K.N. and KLOPPENBOURG, T.J. 1991. Identifying service gaps in commercial air travel: the first step toward quality improvement. **Transportation Journal**. Fall, pp. 22-30.
- GREENE, W.E. and WALLS, G.D. and SCHREST, L.J. 1994. Internal Marketing – The key to external marketing success, **Journal of Service Marketing**. 8(4): 5-13
- GREENLEY, G.E. 1995. Market orientation and company performance: empirical evidence from UK companies, **British Journal of Management**, 6: 1-13

- GRÖNROOS, C. 1981. **Internal marketing-theory and practice**, Proceeding of the American Marketing Association Service Marketing Conference, pp 41-7
- GRÖNROOS, C. 1981a. **Internal marketing – an integral part of marketing theory**, in American Marketing Association Services Marketing Conference Proceedings, pp. 236-8
- GRÖNROOS, C. 1981b. **Internal marketing – theory and practice**, American Marketing Association Services Marketing Conference Proceedings, pp. 41-7
- GRÖNROOS, C. 1982. **Strategic Management and Marketing in the Service Sector**, Swedish School of Economics and Business Administration, Helsinki, Finland.
- GRÖNROOS, C. 1983. **Strategic Management and Marketing in the Service Sector**, Chartwell-Bratt Ltd, London.
- GRÖNROOS, C. 1984. **Strategic Management and Marketing in the Service Sector**, Chartwell-Bratt, Broomley.
- GRÖNROOS, C. 1985. **Internal marketing – theory and practice**, in Bloch, T.M., Upah, G.D. and Zeithaml, V.A. (Eds), Services Marketing in a Changing Environment, American Marketing Association, pp. 41-7.
- GRÖNROOS, C. 1989. **A Relationship Approach to Marketing: The Need for a New Paradigm**. Working Paper 190, Swedish School of Economics and Business Administration, Helsingfors, Finland.
- GRÖNROOS, C. 1990. Service Management and Marketing. **Managing the moments of Truth in Service Competition**. Free Press/Lexington Books, Lexington, MA, p. 138
- GRÖNROOS, C. 1990. **Relationship Approach to the Marketing Function in Service Contexts: The Marketing and Organizational Behaviour Interface**, Journal of Business Research. 20(1): 5
- GRÖNROOS, C. 1992. **Quo Vadis, Marketing? Towards a Neo-Classical Marketing Theory**. in Blomqvist, H.C., Grönroos, C. and Lindqvist, L.J. (Eds), Economics and Marketing. Essays in Honour of Gosta Mickwitz, Economy and Society, No. 48. Swedish School of Economics and Business Administration, Helsingfors, Finland, pp. 109-24.
- GRÖNROOS, C. 1994. **From marketing mix to relationship marketing: towards a paradigm shift in marketing**, Management Decision, 32(2): 4-20

- GUMMESSON, E. 1987. Marketing—A Long-Term Interactive Relationship. **Contribution to a New Marketing Theory**. Marketing Technique Center, Stockholm, Sweden.
- GUMMESSON, E. 1990. **The Part-time Marketer**. Center for Service Research, Karlstad, Sweden.
- GUMMESSON, E. 1991. **Marketing organization in service businesses: the role of the part-time marketer**. in Teare, R., Moutinho, L. and Morgan, N. (Eds), *Managing and Marketing Services in the 1990s*, Cassell, London, pp. 35-48
- GUY, R.F. and EDGLEY, C.E. and ARAFAT, I. and ALLEN, D.E. 1987. **Social Research Methods**, Massachusetts: Allyn & Bacon, Inc.
- HART, C.W.L. 1995. The power of internal guarantees. **Harvard Business Review**: 64-73
- HARVEY, T. 1995. Service quality: the culprit and the cure, **Bank Marketing**, June, pp. 24-8
- HEADLEY, D.E. and MILLER, S.J. 1993. Measuring service quality and its relationship to future consumer behaviour, **Journal of Health Care Marketing**, 13(4): 32-41.
- HELLRIEGEL, D. and JACKSON, S.E. and SLOCUM, J.W. and STAUDE, G.E. and ASSOC. 2001. **Management South African Edition**. Oxford University Press, Southern Africa.
- HESKETT, J.L. and SASSER, W.E. and HART, W.L. 1990. **Service Breakthroughs**. New York, The Free Press.
- HESKETT, J.L. 1992. A service sector paradigm for management: the service profit chain, **Proceedings of the Management in the Services Sector Symposium**, Cranfield School of Management
- HESKETT, J.L. and JONES, T.O. and LOVEMAN, G.W. and SASSER, W.E. and SCHLESINGER, L.A. 1994. Putting the Profit Service Chain to Work, **Harvard Business Review**, March/April, 164-174.
- HESKETT, J.L. and SASSER E.W. and SCHLESINGER L.A. 1997. **The Service Profit Chain**, New York: Free Press.
- HOFFMAN, P. and WORSFOLD, E. 1997. **Selection Criteria for Quality Controlled Information Gateways**, Work Package 3 of Telematics for Research project. [On-line] Available: <http://www.ukoln.ac.uk/metadata/desire/quality/quality.rtf>. [Accessed 18/08/2003].

- JOHNS, N. 1993. Quality management in the hospitality industry, part 3: recent developments. **International Journal of Contemporary Hospitality Management**, 5(1): 10-15.
- JOHNSON, R. 1989. The Customer as Employee. **International Journal of Production and Operations Management**. 9,5: 15-23
- JURAN, J.M. 1988. **The quality function**. In Juran, J.M. and GRYNA, F.M. (Ed), Juran's quality handbook, 4th Edition. New York: McGraw-Hill 2(1): 13.
- KAPLAN, B. and DUCHON, D. 1988. **Combining Qualitative and Quantitative Methods in Information Systems Research: A Case Study**. MIS: 571-586
- KONG, R. and MAYO, M.C. 1993. Measuring service quality in the business-to-business context. **Journal of business and industrial Marketing**, 8(2): 5-15.
- KOTLER, P. and BOWEN, J. and MAKENS, J. 1996. **Marketing for hospitality and Tourism**. Upper Saddle River, N.J: Prentice Hall.
- KOTLER, T. and ARMSTRONG. 1999. **Principles of Marketing**. 8th Edition, New Jersey: Prentice-Hall International Inc.
- KOTLER, T. 1980. **Principles of Marketing**, Prentice Hall, Englewood Cliffs, NJ.
- KRUGER, C.P. 1990. **An Investigation into Marketing Research as a Component of the Marketing Information System in the Motor Industry**. M Econ Thesis, University of the Orange Free State.
- KWON, W. and LEE, T.J. 1994. Measuring service quality in Singapore retail banking. **Singapore Management Review**, 6(2): 1-24.
- LANGEARD, E. and BATESON, J.E.G. and LOVELOCK, C.H., and EIGLIER, P. 1981. **Services Marketing: New Insights from Consumers and Managers**. Cambridge, MA: Marketing Science Institute.
- LEHTMEN, J.R. and LEHTMEN, O. 1982. Service quality: a study of quality dimensions. Unpublished working paper. **Service Management Institute**, Helsinki.
- LEHTINEN, U. and LEHTINEN, J.R. 1982. **Service quality: a study of quality dimensions**, unpublished research report, Service Management Group OY, Finland.
- LEVITT, T. 1988. Marketing Success through the differentiation – of Anything, **Harvard Business Review**, 58:83-91.

- KEWIS, B. 1989. Quality in the service sector: a review. **International Journal of Bank Marketing**, 7(5): 4-12.
- LEWIS, B. 1989. Quality in the service sector: a review, **International Journal of Bank Marketing**. 7(5): 4-12
- LEWIS, B.R. and MITCHEL, V.W. 1990. Defining and measuring the quality of customer service. **Marketing Intelligence and Planning**. 8(6): 11-17.
- LICATA, J.W. and MOWEN, J.C. and CHAKRABORTY, G. 1995. Diagnosing perceived quality in the medical service channel. **Journal of Health Care Marketing**. 15(4): 42-9
- LEE, A. S. 1991. Integrating Positivist and Interpretive Approaches to Organizational Research. **Organization Science**. 2: 342-365.
- LOCKYER, K.G. and OAKLAND. J.S. 1987. An Operations Manager's Audit, **The Services Industries Journal**. 7(1): 5-13
- LOVELOCK, C.H. 1984. **Service Marketing**, Prentice-Hall, Englewood Cliffs, NJ.
- LOVELOCK, C.H., 1989. **Toward a Classification of Services**, Theoretical Development in Marketing, American Marketing Association, Chicago, IL: 72-76
- LUSCH, R.F. and BROWN, S.W. and BRUNSWICK, G.J. 1992. A General framework for explaining internal vs external exchange. **Journal of the Academy of Marketing Science**. 20: 119-34
- LYTLE, R.S. and MOKWA, M.P. 1992. Evaluating health care quality: the moderating role of outcomes. **Journal of Health Care Marketing**. 1291: 4-14.
- MARSHALL, G.W. and MILLER, S.J. 1991a. **Does the domain of marketing include internal customers within the total quality management movement?**, in Gilly, M.C. *et al.* (Eds), *Enhancing Knowledge Development in Marketing*, Vol. 2, American Marketing Association, Chicago, IL, pp. 514-22.
- MARSHALL, G.W. and MILLER, S.J. 1991b. **Total quality management and the internal customer: a marketing perspective on employee motivation**, in King, R.L. (Ed.), *Marketing: Toward the Twenty-First Century*, Southern Marketing Association, Richmond, VA, pp. 384-9.
- MAISTER, D. 1983. **Research in Service Operations Management, in Proceedings of Workshop on Teaching and Researching Production Operations Management**. London Business School, London.

- McALEXANDER, J.H. and KALSDENBERG, D.O. and KOENING, H.F. 1994. Service quality measurement: examination of dental practices sheds more light on the relationships between service quality, satisfaction, and purchase intentions in a health care setting. **Journal of Health Care Marketing**. 14(3): 34-40.
- McELWEE, G. and REDMAN, T. 1993. **Upward appraisal in practice**: an illustrative example using the QUALED Scale, Education and Training, 35(2): 27-31.
- McGRATH, J. 1982. **Dilemmatics**: The study of research choices and dilemmas
- METHA, S.C. and DURVASULA, S. 1998. Relationships between SERVQUAL dimensions and organisational performance in the case of a business-to-business service. **Journal of Business and Industrial Marketing**, 13(1): 40-53.
- MILLS, P.K. 1986. **Managing Service Industries**: Organisational Practices in a Post-industrial Economy, Billinger, Cambridge. MA.
- MINGERS, J. 2001. Combining IS Research Methods: Towards a Pluralist Methodology. **Information Systems Research**. 12(3): 240-259
- MOHR-JACKSON, I. 1991. Broadening the market orientation: an added focus on internal customers. **Human Resources Management**, 30: 455-67
- MORRIS, B. and JOHNSON, R. 1987. Dealing with Inherent Variability, The difference between Service and Manufacture. **The international Journal of Operations and Production Management**. 7(4): 13;22
- MYERS, M.D. and AVISON, D.E. 2002. **Qualitative Research in Information Systems**: A Reader, Sage Publications, London,
- NAKAJIMA, S. 1982. **TPM Development Program**. Japan Institute of Plant Maintenance, Tokyo, Japan.
- NEWMAN, K. 2001. Interrogating SERVQUAL: a critical assessment of service quality measurement in a high street retail bank. **International Journal of Bank Marketing**. 19(3): 126-139.
- NORMAN, R., 1984. **Service Management**. Wiley. New York, NY.
- NUNNALLY, J.C. 1978. **Psychometric Theory**. 2nd Edition, McGraw-Hill, New York, NY.
- OAKLAND, J.S. 1993. **Total Quality Management**. 2nd Edition Butterworth – Heinemann. Oxford.
- OLIVER, R.L. 1980. Measurement and evaluation of satisfaction process in retail setting. **Journal of Retailing**. 57, 25-48

- PALMER, A. 1998. **Principles of Services Marketing**, 2nd Edition, Cambridge. McGraw-Hill.
- PARASURAMAN, A. and ZEITHAML, V.A. and BERRY. L.L. 1985. A conceptual model of service quality and its implications for future research, **Journal of Marketing**. 49: 41-50.
- PARASURAMAN, A. and ZEITHAML, V.A. and BERRY. L.L. 1988. SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality, **Journal of Retailing**. 64: 12-40.
- PARASURAMAN, A. and ZEITHAML, V.A. and BERRY. L.L. 1991. Refinement and reassessment of the SERVQUAL scale, **Journal of Retailing**. 67: 420-50.
- PARASURAMAN, A. and ZEITHAML, V.A. and BERRY. L.L. 1991. Perceived service quality as a customer-based performance measure: an empirical examination of organizational barriers to using an extended service quality model, **Human Resource Management**, 30(3): 335-64
- PARASURAMAN, A. and ZEITHAML, V.A. and BERRY. L.L. 1993. Research note: more on improving service quality measurement, **Journal of Retailing**, 69(1): 140-7
- PARASURAMAN, A. and ZEITHAML, V.A. and BERRY. L.L. 1994a. Alternative scales for measuring service quality: a comparative assessment based on psychometric and diagnostic criteria. **Journal of Retailing**. 70: 201-30.
- PARASURAMAN, A. and ZEITHAML, V.A. and BERRY. L.L. 1994b. Reassessment of expectations as a comparison standard in measuring service quality: implications for future research, **Journal of Marketing**. 58: 111-24
- PETERS, T. and AUSTIN, N. 1985. **Passion for Excellence**, New York, NY Random House
- PETERS, T. 1988. **Thriving on Chaos**, McMillian, New York, NY,
- PIERCY, N.F. and MORGAN, N.A. 1990. Internal marketing: making marketing happen, **Marketing Intelligence and Planning**. 8(1): 4-6.
- PIERCY, N.F. and MORGAN, N.A. 1991. Internal marketing – the missing half of the marketing programme, **Long Range Planning** 24(2): 82-93.
- PITT, L.F. and WATSON, R.T. and KAVAN, C.B. 1995. Service quality: a measure of information systems effectiveness, **MIS Quarterly**, 173-85

- PITT, L.F. and FOREMAN, S.K. 1999. Internal marketing role in organizations: a transaction cost perspective, **Journal of Business Research**. 44(1): 25-36.
- QUINN, J.B. and BRAUCH, J.J. and PAQUETTE, P.C. 1988. Exploiting the Manufacturing-Services Interface, **Sloan Management Review**, pp 45-55.
- RAFIQ, M. and AHMED, P.K. 1993. The scope of internal marketing: defining the boundary between marketing and human resource management, **Journal of Marketing Management**. 9(3): 219-32.
- RATHMELL, J.M. 1974. **Managing in the Service Sector**, Winthrop. Framingham. MA.
- REIDENBACH, E.R. and SANDIFER-SMALLWOOD, B. 1990. Exploring perceptions of hospital operations by a modified SERVQUAL approach. **Journal of Health Care Marketing**. 10(4): 47-55
- REICHHELD, F.F. and SASSER, W.E. 1990. Zero Defections: Quality Comes to Services. **Harvard Business Review**. (September/October), 110.
- REMENYI, D. 1996. **So you want to be an academic researcher in Business and Management Studies**. Witwatersrand, Department of Information Systems, Johannesburg.
- REGAN, W.J. 1963. The Service Revolution, **Journal of Management**. 3(1): 57-62
- RIGOTTI, S. and PITT, L. 1992. SERVQUAL as a measuring instrument for service provider gaps in business schools, **Management Research News**. 15(3): 324-43.
- RUSTON, A.M. and CARSON, D.J. 1985. The Marketing of Services: Managing the Tangibles, **European Journal of Marketing**. 19(3): 19-40
- SALEH, F. and RYAN, C. 1991. Analysing Service Quality in the Hospitality Industry. **Service Industries Journal**, 3: 324-345.
- SASSER, W.E. and OLSEN, R.P. and WAYCKOFF, D.D. 1978. **Management of Service Operations**, Allyn and Bacon, Boston, MA.
- SCHACHERER, M. 2001. **Case Study Of The Virtual Identity AG**, DBA Stage One, Paper One, Chelmsford, APU, unpublished
- SCHMENNER, R.W. 1988. How can Service Business Survive and Prosper?, **Sloan Management Review**. 8 (6): 21-32

- SCOTT, D. and SHIEFF, D. 1993. Service quality components and group criteria in local government. **International Journal of Service Industry Management**. 4(4): 42-53.
- SEGAL-HORN, S. 1989. The Globalisation of Services, **The Management of Service Industries**. London.
- SEGAL-HORN, S. 1988. **Global service Delivery, Managing the Critical Independencies**, IFS, Publications, Kempston.
- SEKARAN, U. 1992. **Research methods for Business: a skills building approach**, 2nd Edition, New York: John Wiley & Sons, Inc.
- SELBER, K. STREETER, C. 2000. **A Customer-Oriented Model for Managing Quality in Human Services**. In Administration in Social Work, Vol 24(20:1-14. The Haworth Press, Inc.
- SHOSTACK, G.L. 1977. Breaking free from product marketing, **Journal of Marketing**, 41: 73-81.
- STATSOFT, INC. 1999. **STATISTICA For Windows** (Computer Program Manual), Tulsa: OK: StatSoft, Inc.
- SWARTZ, T.A. and BROWN, S.W. 1989. Consumer and provider expectations and experience in evaluating professional service quality, **Journal of the Academy of Marketing Science**. 17: 189-95
- TAYLOR, S.A. and SHARLAND, A. and CRONIN, A.A. and BULLARD, W. 1993. Recreational quality in the international setting. **Journal of Service Industries Management**. 4(4): 68-88.
- THOMAS, D.R.E. 1978. Strategy Is Different in Service Industries, **Harvard Business Review**. 56: 158-65
- TSUI, A.S. and MILKOVICH, G.T. 1987. **Personnel Department Activities: Constituency Perspectives and preferences**, *Personnel Psychology*, 40, 519-37.
- TSUI, A.S. 1988. A multiple-constituency model of effectiveness: an empirical examination at the human resource level. **Administrative Science Quarterly**. 35: 458-84
- TSUI, A.S. 1990. **Activities and effectiveness of the human resource department**, in Readings in Personnel and Human Resource Management. 3rd Edition: 519-37
- TEAS, R.K. 1993. Expectations, performance, evaluations, and customer perceptions of quality. **Journal of Marketing**. 57(4): 18-34.

- TEAS, R.K. 1994. Expectations as a comparison standard in measuring service quality: An assessment of a reassessment. **Journal of Marketing**. 58,1: 132-39
- VANDERMERWE, S. and GILBERT, D. 1989. Making internal services market driven. **Business Horizons**. 32: 83-9
- VANDERMERWE, S. and RADA, J., 1988. Servitization of business: adding value by adding services. **European Management Journal**, 6, 4: 314-24.
- WELMAN, J.C. and KRUGER, S.J. 2000. **Research Methodology**. Oxford Southern African 2nd Edition.
- WALBRIDGE, S.W. DELENE, L.M. 1993. Measuring physician attitudes of service quality, **Journal of Health Care Marketing**, 13(1): 7-15
- WILD, R. and CASSELL, H. **Production and Operations Management**, London.
- WISNIEWSKI, M. and DONNELLY, M. 1996. Measuring service quality in the public sector: the potential for SERVQUAL, **Total Quality Management** 7(4): 357-365
- WISNIEWSKI, M. 2001. Using SERVQUAL to assess customer satisfaction with public sector services. **Managing Service Quality**, 11(6): 380-88
- WOODSIDE, A.G. FREY, L.L. and DALY, R.T. 1989. Linking service quality, customer satisfaction. **Journal of Health Care Marketing**. December, 5-17
- WONG, S.M. and PERRY, C. 1991. Customer service strategies in financial retailing. **International Journal of Bank Marketing**, 9(3): 11-16
- YORK, R.P. 1993. **The impact of quality, satisfaction and value on service patronage: a comprehensive approach using structural equation modeling**. UMI Dissertation Services, Mississippi State University, MS.
- ZEITHAML, V.A. 1981. How Consumer Evaluation Process Differ between Goods and Services. Marketing of Services. **American Marketing Association**, Chicago, IL.
- ZEITHAML, V.A. and BERRY, L.L. and PARASURAMAN, A. 1993. The nature and determinants of customer expectations of service, **Journal of the Academy of Marketing Science**. 21: 1-12.
- ZEITHAML, V.A. and BERRY, L.L. and PARASURAMAN, A. 1985. Problems and strategies in services marketing. **Journal of Marketing**. 49: 33-46.

- ZEITHAML, V.A. and BERRY, L.L. and PARASURAMAN, A. 1988. Communication and control processes in the delivery of service quality, **Journal of Marketing**. 52: 35-48.
- ZEITHAML, V.A. and BERRY, L.L. and PARASURAMAN, A. 1990. **Delivering Quality Service: Balancing Customer Perceptions and Expectations**, The Free Press, New York, NY.
- ZEITHAML, V.A. and BERRY, L.L. and PARASURAMAN, A. 1996. The behavioural consequences of service quality. **Journal of Marketing**. 60: 31-46.
- ZEITHAML, V.D. and BITNER, M.J. 2000. **Service Marketing: Integrating Customer Focus Across the Firm**, 2nd Edition, USA: McGraw-Hill.

FRONT LINE SERVICE QUALITY QUESTIONNAIRE

QUESTIONNAIRE NO: _____

EMPLOYEE SEGMENTATION

- Team Manager
- Co-ordinator
- Operator

PLEASE TICK THE APPROPRIATE BOX

Adopted from Zeithaml, et al., 1990)

C:\Documents and Settings\AB180104\Desktop\MBA

INTSERVQUAL EXPECTATIONS SECTION

Based on your own experience as an employee in the production department in F11 Assembly area, please think about the kind of a maintenance department that would deliver excellent quality of service. Think about the kind of a maintenance department with which you would be pleased to do business. Please show the extent to which you think such a department possess the feature described by each statement. If you feel a feature is *not essential* for an excellent maintenance department such as the one you have in you mind, circle the number 1. If you feel a feature is *absolutely essential* for an excellent maintenance department, circle 7. If your feelings are less strong, circle one of the numbers in the middle. There is no right or wrong answers - all we are interested in is the number that truly reflects your feelings regarding a maintenance department that would deliver excellent quality of service.

Example

Strongly Disagree

Strongly Agree

1

2

3

4

5

6

7

TANGIBLES

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| E1 An excellent maintenance department will have modern equipment | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| E2 Plant and equipment at excellent maintenance department will be in operating condition | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| E3 Employees at excellent maintenance department will be neat in appearance. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| E4 Tools and spares will be visually displayed | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

RELIABILITY

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| E5 When an excellent maintenance department promises to do something, they will do so. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| E6 When production department have a problem an excellent maintenance department will show a sincere interest in solving it | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| E7 An excellent maintenance department will perform the service right the first time. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| E8 An excellent maintenance department will provide their service at the agreed time. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| E9 An excellent maintenance department will not have re-occurring problem. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

24 January 2004



RESPONSIVENESS

E10 Employees of an excellent maintenance department will inform production employees exactly when services will be completed .	1	2	3	4	5	6	7
E11 Employees of an excellent maintenance department will give prompt service to production employees .	1	2	3	4	5	6	7
E12 Employees of an excellent maintenance department are always willing to help production employees.	1	2	3	4	5	6	7
E13 Employees of an excellent maintenance department are never pre-occupied to respond to production employees' requests.	1	2	3	4	5	6	7

ASSURANCE

E14 The behavior of employees in excellent maintenance department will instill confidence in production department employees.	1	2	3	4	5	6	7
E15 Production department employees will feel safe in the dealing with the maintenance department	1	2	3	4	5	6	7
E16 Employees in excellent maintenance department will be consistently courteous.	1	2	3	4	5	6	7
E17 Employees in excellent maintenance department will have the knowledge to answer questions.	1	2	3	4	5	6	7

EMPATHY

E18 Excellent maintenance department will give production department employees individualized attention.	1	2	3	4	5	6	7
E19 Excellent maintenance department will have operating hours convenient to production requirements.	1	2	3	4	5	6	7
E20 Excellent maintenance department will have employees who give production employees personal attention.	1	2	3	4	5	6	7
E21 Excellent maintenance department will have production requirements' best interests at heart.	1	2	3	4	5	6	7
E22 Excellent maintenance department will understand the specific needs of production department employees	1	2	3	4	5	6	7

24 January 2004



Listed below are five features pertaining to maintenance department and the service they offer. We would like to know how important each feature is to you when you evaluate the service offered by maintenance department. Please allocate a total of 100 points among the five features according to *how important each feature is to you*, the more important a feature is to you, the more point you should allocate to it. Please ensure that the points you allocate to the five features add up to 100 points.

- | | | |
|----|--|---------------|
| 1. | The appearance of the maintenance department's physical facilities, equipment, personnel and maintenance materials | _____ points. |
| 2. | The maintenance department's ability to perform the promised service dependably and accurately | _____ points. |
| 3. | Maintenance department's willingness to help production employees and provide a prompt service | _____ points. |
| 4. | The knowledge and courtesy of the maintenance department personnel and their ability to convey trust and confidence. | _____ points. |
| 5. | The caring individualized attention the maintenance department provides to points production department. | _____ points. |
| | TOTAL points allocated | 100 points |

Which one feature of the above five is most important to you? _____ (Please enter the feature's number)

Which feature is second most important to you? _____

Which is the least important feature to you? _____

24 January 2004



PERCEPTIONS QUESTIONNAIRE

The following set of statements relate to your feelings about the maintenance department in the Mercedes Benz Area. For each statement, please show the extent to which you believe the maintenance department has the feature described by the statement. Once again circling 1 means that you strongly disagree that the maintenance department has this feature and circling 7 means that you strongly agree. You may circle any of the numbers in the middle that show how strong your feelings are. There is no right or wrong answers all we are interested in is a number that best shows your perceptions about the maintenance department at the assembly area.

Example

Strongly Disagree

Strongly Agree

1 2 3 4 5 6 7

TANGIBLES

P1	Maintenance department has modern equipment	1	2	3	4	5	6	7
P2	Plant and equipment at the maintenance department are in operating condition	1	2	3	4	5	6	7
P3	Maintenance department employees are neat in appearance	1	2	3	4	5	6	7
P4	Tools and spares are visually displayed	1	2	3	4	5	6	7

RELIABILITY

P5	When the maintenance department promises to do something, by a certain time they do so.	1	2	3	4	5	6	7
P6	When you have a problem the maintenance department shows a sincere interest in solving it.	1	2	3	4	5	6	7
P7	The maintenance department performs their services right the first time	1	2	3	4	5	6	7
P8	The maintenance department provides their service at the promised time	1	2	3	4	5	6	7
P9	The maintenance department does not have re-occurring problems.	1	2	3	4	5	6	7

RESPONSIVENESS

P10	Employees of the maintenance department inform production department employees exactly when services will be completed.	1	2	3	4	5	6	7
P11	Employees in the maintenance department give prompt service to production department.	1	2	3	4	5	6	7
P12	Employees in the maintenance department are always willing to help production department.	1	2	3	4	5	6	7
P13	Employees in the maintenance department are never pre-occupied to respond to production requests.	1	2	3	4	5	6	7

24 January 2004



ASSURANCE

- | | | | | | | | | |
|-----|--|---|---|---|---|---|---|---|
| P14 | The behavior of Employees of the maintenance department will instill confidence in production department employees | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| P15 | Production employees feel safe when dealing with maintenance department employees. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| P16 | Employees in the maintenance department in the maintenance department are consistently courteous | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| P17 | Employees in the maintenance department have the knowledge to answer questions from production department employees. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

EMPATHY

- | | | | | | | | | |
|-----|--|---|---|---|---|---|---|---|
| P18 | The maintenance department gives production department employees individualized attention. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| P19 | The maintenance department operating hours are convenient to production requirements. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| P20 | The maintenance department employees give production employees personal attention. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| P21 | The maintenance department have production employees' best interests at heart. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| P22 | The maintenance department understands the specific needs of production department employees . | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Thank you for the time you have spent in completing this questionnaire. The results will help us to provide you with the best possible service in the future.

24 January 2004



Appendix : INTSERVQUAL procedures

Dimensions:

Statements	1-4	Tangibles
Statements	5-9	Reliability
Statements	10-13	Responsiveness
Statements	14-17	Assurance
Statements	18-22	Empathy

Procedures:

1. Compute the 'gap' for each statement pair for each consumer.
INTSERVQUAL score = Perceptions Score - Expectations Score
2. Compute the dimensions scores for each respondent by averaging the gap score over the relevant number of statements (either 4 or 5 statements)
3. Derive **INTSERVQUAL** respondent's scores in the following way.
Unweighted scores Sum dimensions and divide by 5
Weighted scores

Tangibles *	(Tangibles Weight/ 100)	+
Reliability *	(Reliability Weight/ 100)	+
Responsiveness *	(Responsiveness Weight/ 100)	+
Assurance *	(Assurance Weight/ 100)	+
Empathy *	(Empathy Weight/ 100)	
4. Derive total **INTSERVQUAL** scores by totalling the scores and dividing by **N** of respondents

24 January 2004

