TSAMs' PERCEPTION OF SERVICE QUALITY

AT DuPont

By

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SUPERVISOR'S APPROVAL

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Approval for Submission

This research project has been reviewed by the undersigned and permission is hereby granted for submission for examination.

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DECLARATION

This work has not been previously accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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This dissertation is being submitted in partial fulfillment of the requirements for the degree of Masters in Business Administration.

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"Whatever you do, work at it with all your heart, as though you were working for the Lord and not for people". (GNB -Colossians 3:23)

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ABSTRACT

Organizations in the service sector had to make a radical shift in their strategy to embrace customer-centered philosophies in order to maintain a sustainable business. Without realignment to the new demands and with ever increasing pressures, a superlative customer service cannot be achieved. Companies are increasingly placing greater emphasis on customer satisfaction.

Customers are becoming more and more sophisticated due to globalization. Customers are no more buying a product alone, but an accompanying service satisfaction. There appears to be a huge gap between perceived and expected service levels. A concerted effort should be made to either narrow or eliminate this gap.

DuPont Performance Coatings is a major supplier of coatings to the automotive industry. It was, therefore, necessary to measure Toyota South Africa Manufacturing's perception of service quality provided by DuPont Performance Coatings. Once the levels of customer satisfaction within Toyota South Africa Manufacturing are measured, it could be used as a basis for recommendations towards improving the service levels of DuPont Performance Coatings. The study involves the use of the SERVQUAL instrument in order to ascertain any actual or perceived gaps between customer expectations and perceptions of the service offered. The study also determines how the management of service improvement can become more logical and integrated with respect to the prioritized service quality dimensions and their strategy to decrease service quality gaps.

On behalf of DuPont Performance Coatings, the research objectives were, firstly, to identify Toyota South Africa Manufacturing's expectations in terms of quality services provided; secondly, to ascertain the perceptions of Toyota South Africa Manufacturing towards the service provided by DuPont Performance Coatings; thirdly, to measure the gaps between the expectations and perceptions by

Toyota South Africa Manufacturing, using the SERVQUAL score, and, finally to calculate and measure the score of the five SERVQUAL dimensions.

The researcher has opted for a census because the entire population that deals with DuPont Performance Coatings is relevant. Each member of the population was classified in certain biographical variables. Eighty respondents were surveyed, using the SERVQUAL questionnaire, and the data were analyzed using descriptive and inferential statistical techniques.

The study showed that Toyota South Africa Manufacturing's expectations of service quality exceeded their perceptions on the five service quality dimensions used in the SERVQUAL questionnaire. The smallest dimension gap score proved to be tangibles, while the largest gap score in the study proved to be reliability, followed by assurance.

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ACRONYMS

TSAM refers to Toyota South Africa Manufacturing.

DuPont refers to DuPont Performance Coatings.

KEY TERMS

Customer - is TSAM

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

Organizations in the service sector are under increasing pressure to convince consumers that their services are customer-focused. In order to be financially competitive, it is imperative that customer expectations are properly understood and measured. From the customers' perspective, any gaps in service quality which are identified should be closed promptly.

The position of the customer, as one of the key stakeholders, could well be defined by the common phrase that the customer is king. In essence, it could be summarized, "If you don't take care of your customers, somebody else will" (Ballard & Finch, 2005:28).

DuPont Performance Coatings had been the dominant supplier of automotive coatings in South Africa. It was recognized as the technology and market leader in South Africa for many years. Evidence suggests that customers had shifted their demand for the provision of superlative customer service, something that cannot be duplicated easily.

In order to become a key supplier to any customer and to be competitive in the global market, an organization needs to be proactive, rather than adopting a reactive approach. The ultimate objective of an organization should be to strive to be the service leader in that industry (Unruh, 1996).

1.2 RATIONALE FOR STUDY

Customers and suppliers are competing globally. In leading industrial countries, customer feedback has been recognized as one of the major inputs to build a

sound quality assurance policy. Recognizing the customer as the principal stakeholder could add further benefits to the supplier organization. Once the levels of customer satisfaction within Toyota South Africa Manufacturing are measured, it could be used as a basis for recommendations towards improving the service levels of DuPont. The study involves the use of the SERVQUAL instrument in order to ascertain any actual or perceived gaps between customer expectations and perceptions of the service offered. The study will also determine how the management of these service improvements can become more logical and integrated with respect to the prioritized service quality dimensions and their strategy to decrease service quality gaps.

Competing for business is not necessarily determined by cost and ethics alone. The underlying financial strength of a business and how well it promotes its products or services can count for much more in the long- term (Hingston, 2001).

1.3 PROBLEM STATEMENT

One of the fastest growing industry sectors in South Africa is the automotive segment. As a supplier to this industry, high levels of customer service is of paramount importance due to the competitive nature of the industry. The perceived service quality for the industry appears to be poor. Therefore, on behalf of DuPont, these perceptions have to be clarified on a scientific basis.

Customers are becoming more and more sophisticated due to globalization. Customers are no more buying a product alone, but an accompanying service satisfaction. There appears to be a huge gap between perceived and expected service levels. A concerted effort should be made to either narrow or eliminate this gap. The impact can be more detrimental to the supplier of these services, in terms of business share allocation and subsequent financial losses.

1.4 PURPOSE OF STUDY

The purpose of the study was to investigate and determine TSAMs' perception of service quality provided by DuPont.

1.5 RESEARCH OBJECTIVES

On behalf of DuPont, the researcher will investigate the following:

Objective 1: To identify the customers' expectations in terms of quality services provided;

Objective 2: To ascertain the perceptions of TSAM towards the service provided by DuPont;

Objective 3: To measure the gaps between the expectations and perceptions by TSAM, using the SERVQUAL score; and

Objective 4: To calculate and measure the score of the five SERVQUAL dimensions.

1.6 LIMITATIONS OF THE STUDY

This study is limited to the TSAM plant in Durban. The outcomes of this study can only describe service quality at this plant. It cannot be generalized to service quality at other Toyota plants around the world. The study is only valid for the period in which the investigation is conducted, owing to the dynamic nature of the motor industry. Furthermore, in the last three years, there had been numerous organizational changes which were characterized by a change in management style and direction. These changes will influence the communication of perceptions and expectations.

1.7 CONTENT OF THE STUDY

This study consists of seven chapters.

Chapter One – Introduction

Chapter one is an introduction and highlights the motivation for the study. This chapter also focuses on the purpose and rationale for the study, research objectives and the problem area. The limitations of the study are also outlined in this chapter.

Chapter Two – Literature Review: Service Quality

Chapter two is comprised of a review of the literature on service quality relating to customer satisfaction in service industries. This chapter views customers' expectations and perceptions of service quality and, subsequently, how these factors influence customer satisfaction and service quality dimensions in organizations.

Chapter Three – Literature Review: Gaps Model

Chapter three presents a review of literature on the gaps model of service quality and the importance of Gap 5 as defined by the SERVQUAL model in measuring TSAMs' perception of service quality.

Chapter Four – Research Design and Methodology

Chapter four describes the research design and methodology used for the study. It describes the developing of a sampling plan, selecting a data-collection method and the validity of the instrument used in the study.

Chapter Five – Presentation of Results

Chapter five covers the presentation of the results from the survey.

Chapter Six – Interpretation of Results (Analysis, discussion and findings)

Chapter six embarks on describing the interpretation of the results, which includes the analysis and discussion.

Chapter Seven – Conclusions and Recommendations

Chapter seven contains the conclusions and recommendations based on the literature and empirical study.

1.8 CONCLUSION

Chapter one discussed the background to service quality in service industries and highlighted the fact that customers are becoming more demanding and expect a superlative quality service. It also emphasized the importance of customer feedback to an organization as a quality measurement indicator. This research is aimed at identifying the key factors that affect the levels of service at TSAM. An evaluation was made on the impact of the service levels to determine what actions are necessary to improve the levels of service for the mutual benefit of both the customer and supplier.

Chapter Two focuses on a review of the literature on service quality relating to customer satisfaction in service industries.

CHAPTER TWO

LITERATURE REVIEW: SERVICE QUALITY

2.1 INTRODUCTION

Chapter two focuses on a review of the literature on service quality relating to customer satisfaction in service industries. This chapter views customers' expectations and perceptions of service quality and how these factors influence customer satisfaction and service quality dimensions in organizations.

Building up a service-orientated culture is not an overnight exercise. Williams (2000) states that the process can take many years. Instilling a service ethic is a long–term project in many organisations. This ethic can only be achieved when one integrates the customers' values and those of the business, by creating a value-added offering. By embarking on this route, one can grow core competitive capabilities and build healthy and vital organizations.

The focus on the increasing importance of quality service, as a means of gaining competitive advantage, has seen the emergence of comprehensive quality management programmes to research customers' expectations and perceptions of service quality. The most widely adopted approach has been that suggested by Parasuraman, Zeithami and Berry (1985) who have developed the Service Quality "SERVQUAL" methodology.

2.2 DEFINITION OF SERVICE

In an attempt to define service, Lovelock & Wright (2002) make use of two concepts that are defined in the following manner:

- A service is an act or performance offered by one party to another. Although the process may be tied to a physical product, the performance is essentially intangible and does not necessarily result in ownership.

- Services are economic activities that create value and provide benefits for customers at specific times and places as a result of bringing about a desired change in some form on behalf of the recipient of this service.

As an abstract concept and according to Zeithaml & Bitner (2003), services can be defined as intangible, heterogeneous and perishable, that which can be simultaneously produced and consumed.

In describing service from the customer perspective, Gronroos, (2000), states that customers, apart from purchasing products, they actually are buying benefits that goods and service provide to them. The offerings can consist of goods, services, information and personal attention; it is this customer-perceived service of an offering that creates value for customers.

Research in the field of service quality was still in its infancy as late as the mid eighties, in spite of the rapid growth in the service sector. Few academic researchers have attempted to define and model quality because of the difficulties involved in delimiting and measuring the construct (Parasuraman, Zeithaml & Berry, 1985).

2.3 RESEARCH ENDEAVOURS

The distinction and association between service quality and customer satisfaction remain at the forefront of many academics and practitioner-oriented research endeavors (Lassar, Manolis & Winsor, 2000).

Periodic feedback from the customer to a supply organization is a vital link in order to maintain a sustainable business. Whilst the quality of goods can be evaluated by different methods, service quality is more difficult for customers to evaluate because of its intangible nature. Therefore, the criteria customers use to evaluate service quality may be more difficult for the supplier to comprehend.

The SERVQUAL tool was developed by Parasuraman et al. (1985) as the instrument to collate information regarding service quality.

The SERVQUAL instrument has been the predominant method used to measure consumers' perceptions of service quality. This instrument has five generic dimensions or factors, which are, stated as follows (Van Iwaarden, van der Wiele, Ball & Millen, 2003: 919-935):

	SERVQUAL DIMENSIONS
Tangibles	The appearance of physical facilities, equipment, personnel and communication materials.
Reliability	Ability to perform the promised service dependably and accurately.
Responsiveness	Willingness to help customers and provide prompt service.
Assurance	Knowledge and courtesy of employees and their ability to inspire trust and confidence.
Empathy	Caring individualized attention that the firm provides its customers.

Potential hurdles or gaps can be identified for a service company or organization in attempting to achieve high-quality service. The SERVQUAL instrument assists organizations to establish ongoing "listening systems" to develop continuous insight about customer service needs. More informed decision-making to improve service quality comes from a continuous series of snapshots taken from various angles and through different methods form the essence of systematic listening.

Shahin (2003) states that there are seven major gaps in the service quality concept. The model is an extension of Parasuraman et al. (1985), who originally identified five gaps.

Gap1: Discrepancy between actual customer expectations and management perceptions of those expectations;
Gap2: Discrepancy between management perceptions of customer expectations and service-quality specification;
Gap3: Discrepancy between service quality and service actually delivered;
Gap4: Discrepancy between service actually delivered and what is communicated about the service to customers;
Gap5: Discrepancy between customer expectations of the service provider and their perceptions of provider delivery;
Gap6: The discrepancy between customer expectations and employees' perceptions: as a result of the differences in the understanding of customer expectations by front-line service providers;
Gap7: The discrepancy between employees' perceptions and management perceptions: as a result of the differences in the understanding of customer expectations between managers and service providers.

Shahin (2003) states that, from a best value perspective, the measurement of service quality in the service sector should take into account customer expectations of service as well as perceptions of service. In order to hear what the customer is saying, it is imperative for the quality management system to design procedures for measuring service performance against expectations. This design can be in the format of a regular customer satisfaction survey.

A measurement of the service quality gaps had been developed by Parasuraman, Zeithaml & Berry (1988). They presented the SERVQUAL concept using this equation:-

$$Q = P - E \qquad \text{or}$$

SERVQUAL Score = Perception Score – Expectation Score

According to the equation, scores that are more positive reflect higher perceived service quality and vice-versa. Despite a quality measurement tool, SERVQUAL does have its criticism by other researchers like Cronin & Taylor (1992), who identified difficulties in using SERVQUAL.

According to Zeithaml et al. (2003), published studies have used SERVQUAL and adaptations of it in a variety of contexts in many service-related industries.

Brysland & Curry (2001) confirm that a particular advantage of SERVQUAL is that it is a tried and tested instrument that can be used comparatively for benchmarking purposes. They also state that SERVQUAL does benefit from being a statistically valid instrument because of extensive field-testing and refinement. The questionnaire is not biased or skewed to elicit certain types of response. As a generic and universally applicable instrument, it can be administered on a repeated and regular basis.

Shahin (2003) also verified the adaptability of using the SERVQUAL model in the service industry by stating that SERVQUAL has a scientific basis. Furthermore, by identifying strengths and weaknesses pertaining to the dimensions of service quality, organizations can allocate resources to provide better service.

Considering the above factors, the most suitable instrument or measurement tool will be the SERVQUAL model in compiling service quality information for DuPont from TSAM, because DuPont provides a service to the automotive industry.

Martin (1994) states that in the modern world, one would expect, with technology, to resolve problems speedily and expect a quest for zero level of complaints, unfortunately, this is not the case. In an ideal world, the expectation is that all the products and services would always be up to the specification required, delivered

on time, and to the complete satisfaction of the customers. In spite of the technological achievements, this ideal has not been achieved.

Burnes (2004) states that excellent companies make every effort to get close to the customer, while some organizations merely talk about it. In the current era for service organizations, the customer dictates the product, quantity, quality and service. The best organizations are willing to go to extreme lengths to achieve quality, service and reliability. In order to an excellent company, the best ideas for improvement come from listening intently and regularly to their customers. To deliver the appropriate service, excellent companies will be orientated to the customers rather than by technology.

2.4 TOLERANCE ZONES

According to Gronross, (2000), the Zone of Tolerance concept assumes that customers can tolerate a variation in the real experiences and still consider them acceptable according to their expectations. This concept implies that expectations by the customer exist in two levels, a desired level and an adequate level. These two levels of expectations form the borders of the customers' zone of tolerance. If the experience falls within these borders, then the perceived service quality is considered acceptable.

A service provider's performance that falls below the adequate level will result in poor customer relations. Examples such as deliveries within two days and response times to queries within twenty-four hours may be considered to fall within the zone of tolerance. However, operating within the zone of tolerance may result in a comfort zone or a complacent culture. Benchmarking measures how much an organization can improve by identifying best practices and key success drivers. Benchmarking is the next step after the competitive analysis. "It helps companies rigorously measure their performance against 'best – in class' companies within a given functional process area" (Unruh, 1996:60).

Schmidt, Adler & Weering (2003) state that there should be a quest to improve ones' standard and be an industry leader to secure long-term benefits. The company also works to lead the industry in other ways. It wants to set the benchmark in its business, and is always looking to improve its understanding of client requirements, the evolving behaviour, needs and values of its customers. Continuous improvement programmes can improve the company's standards.

By measuring the zone of tolerances, the service provider can use the information to identify where service quality problems exist, and what counter measures to take to rectify the situation.

Johns, (2003) states that many organizations are keen to seek customer feedback, but may tend to be biased by rejecting any judgment that may conflict with what they already believe. It is human nature, due to cognitive dissonance: the reluctance to accept negative remarks that may be contrary to what one expects to hear. Management may take the defensive approach towards the customer who dares to express the forbidden feedback. On the other hand, management may whole-heartedly embrace results that are favourable to the organization. The purpose of the gap analysis is to seek solutions to address any feedback.

2.5 DIMENSIONS OF SERVICE QUALITY

Ziethaml et al. (2003) state that customers, more often than not judge quality on multiple factors relevant to the context rather than viewing quality in a one dimensional way. Parasuraman et al. (1988) identified five generalized dimensions of service quality that apply across a variety of service industries that saw phenomenal growth. The five generic dimensions or factors are tangibles, reliability, responsiveness, assurance and empathy. Some researchers also include competence, courtesy, credibility, security, access, communication and understanding. Regardless of the service industry, the two SERVQUAL

dimensions consistently ranked of importance were reliability and tangibles. Reliability was the most important contributing factor to service quality and tangibles was the least important.

2.5.1 TANGIBLES - VISUAL PERCEPTION

Van Iwaarden et al. (2003) define tangibles as the physical facilities, equipment and appearance of personnel. Personnel will be the first visible factor to an observer. In most cases, the first impression is the lasting impression. In the case of DuPont, it is imperative that the service personnel are neatly clad in the required and specified work gear at the service site.

2.5.2 RELIABILITY - FULFILLMENT OF PROMISES

Van Iwaarden et al. (2003) define reliability as the ability to perform the promised service that is dependable and accurate. Reliability had been perceived to be the most important dimension of service quality among customers and it is the dimension that ultimately determines the suppliers' credibility. Especially when the customer needed one the most or when there was a major problem and one had proved to be a reliable supplier, this service would had left an indelible impression with the customer. In the case of DuPont, the customer expects the support during a major technical crisis or stock shortages experienced due to unprecedented demand. Sometimes there is a propensity to over promise and, unfortunately, the supplier does not live up to that promise.

2.5.3 RESPONSIVENESS - WILLINGNESS TO ASSIST

Van Iwaarden et al. (2003) define responsiveness as the willingness to assist customers and to provide prompt service on a continuous basis. Sometimes this service may be out of the ambit of normal operating hours. This dimension focuses on attentiveness and willingness in dealing with customer requests,

queries and prompt complaint resolution. In the case of DuPont, the customer wants to see a sincere and honest desire displayed by actually getting involved with the customers' problems and, subsequently, finding a speedy resolution.

2.5.4 ASSURANCE - INSPIRING TRUST AND CONFIDENCE

Van Iwaarden et al. (2003) define assurance as the front-line service representatives' knowledge and courtesy and their ability to inspire trust and confidence in the customer. Especially in the case of DuPont, when new product trials are conducted, the customer wants to rest assured that there will be no field claims. In addition, when quotes are submitted for tenders, the customer wants the assurance that whilst profit is the objective of any business, super-profits should not take any precedence. Trust is something that is developed over a period.

2.5.5 EMPATHY - TREATING CUSTOMERS AS INDIVIDUALS

Van Iwaarden et al. (2003) define empathy as the caring and individual attention that the organization provides to its customers. This provision includes access at any time, honest communication and understanding of the customers' problems. The customer expects the same personalised treatment from all suppliers. Any meaningful act will be performed in the best interests of the customer.

2.6 THE TOYOTA WAY

Liker (2004), states that in the first lesson of management any successful management often points to customer consideration first. Principle 11 of the Toyota Way states that one should respect its extended network of partners and suppliers by challenging them and helping them improve. This principle can be achieved by having respect for one's partners and suppliers and by treating them

as an extension of one's business. Toyota, as a global organization, is continuously challenging its suppliers to show improvement.

DuPont, as an organization is subjected to regular audit assessments modeled on The Toyota Way. This concept is encapsulated on the fourteen management principles developed by the world's greatest manufacturer. According to Liker (2004), the fourteen principles of the Toyota Way are a management philosophy used by the Toyota Corporation that includes the Toyota production system. The main ideas are to base management decisions on a "philosophical sense of purpose" and think long-term, to have a process for solving problems, to add value to the organization by developing its people, and to recognize that continuously solving root problems drives organizational learning. The various Toyota and Lexus models are consistently ranked higher than other car makes in owner satisfaction surveys.

Since 1988, Toyota has been focused on ensuring that it is number one in every market. Due to this objective, there has been pressure on the supply chain to improve their levels of service in order to meet this goal collectively. This demand on suppliers was not an option but mandatory in order to become a preferred supplier.

2.7 CONCLUSION

Chapter two discussed the SERVQUAL Model of service quality developed by Parasuraman et al. (1988), and suggested how it can be applied to measure customer satisfaction in service industries. The five generic dimensions or factors of the model were discussed and how these dimensions influenced the customers' perception within the zone of tolerance. More importantly, this chapter focuses on how these dimensions of quality must be relevant and aligned to the Toyota Way.

Chapter three presents a review of the literature on the gaps model of service quality, as defined by the SERVQUAL model.

CHAPTER THREE

LITERATURE REVIEW: GAPS MODEL

3.1 INTRODUCTION

Chapter three presents a review of literature on the gaps model of service quality and the importance of Gap 5 as defined by the SERVQUAL model in measuring TSAMs' perception of service quality.

3.2 GAP METHODOLOGY

Lovelock (1991) states that if quality entails consistently meeting the customers' expectations, then it is the responsibility of management to balance the customer expectations and perceptions by narrowing or closing the gaps between the two. For quality improvement, the specific cause of each gap is identified, and then strategies are developed to address each one. The strength of the gap methodology is that it offers generic insights and solutions that can be applied across different industries.

3.3 ENCODING OUTCOMES

Kreitner, Kinicki & Buelens (2002) state that the encoding process is used by people to interpret and evaluate their environment. It was noted that this process resulted in differing interpretations and evaluations of the same person or event. Males and females may have a different assessment or perception of certain events; this difference is due to cognitive categories.

Kreitner et al. (2002) further state that according to the Pygmalion effect, people's expectations or beliefs determine their behaviour, thus serving to make

their expectations come true. In other words, people strive to validate their perceptions of reality, no matter how faulty they may be.

3.4 MODEL OF SERVICE QUALITY GAPS

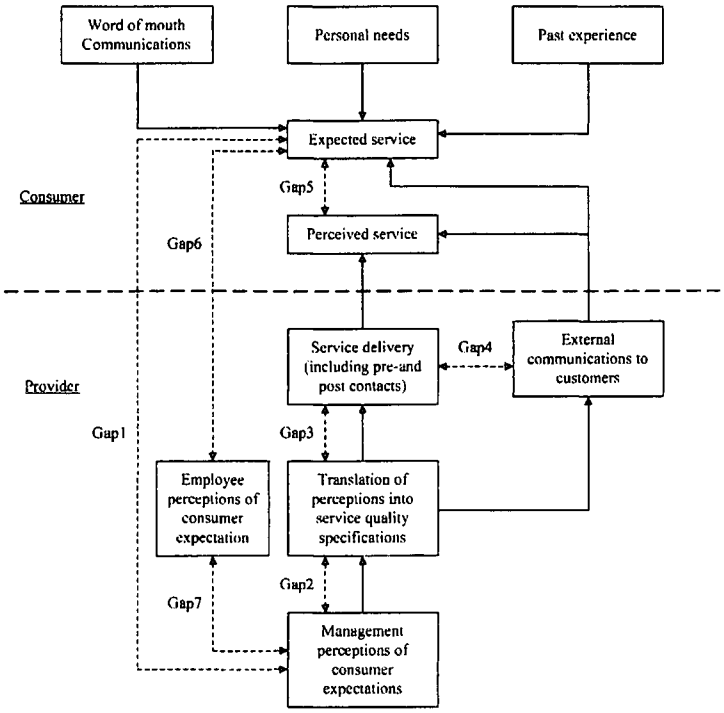


Figure 1: Model of service quality gaps (Source: Parasuraman et al., 1985; Curry, 1999; Luk and Layton, 2002)

The model is an extension of Parasuraman et al. (1985) and demonstrates how service quality emerges between the customer and service provider. The upper part of the model addresses the phenomena related to the customer, while the lower part encompasses phenomena related to the service provider. This tool assists organizations to establish ongoing "listening systems" to develop continuous insight about the customers' service requirements. Based on the information, more informed and relevant decisions could be made. In addition, the other benefit in using this model will be the challenge to the organization to isolate which variables are influencing service quality perceptions negatively.

3.4.1 GAP 1 - MANAGEMENT PERCEPTION

According to Gronroos (2000), this gap occurs when management perceives the quality expectations inaccurately. In many cases, there is no existing information or there is no concerted effort by the organization to conduct a meaningful market research. If there is any information, this may have proved to be inaccurate. Appropriate remedial action can only be taken if it is based on authentic scientific data. Periodic market research programmes should be solicited to reputable specialist agencies. This problem is prevalent in companies that have a silo structure, where departments are operating in isolation.

3.4.2 GAP 2 - QUALITY GAP

According to Gronroos (2000), this gap occurs when the service quality specifications are not consistent with management perceptions of quality expectations. This occurrence is evident when the strategic vision, mission and goals are not fulfilling the customer's needs. Front line service providers lack the support of senior management. The quality management system lacks any customer focus with an omission of addressing service excellence. The planning requirements are inadequate or irrelevant to service delivery.

Lovelock (2004) states that the service provider must design physical evidence to meet customers' expectations. The organization should have a quality assurance programme that is subjected to regular audits and should be modified when the necessity arises to meet customer expectation regarding feedback and complaint resolution. Quality should not be a lip service or a display document, but a culture of the service provider. Senior management commitment is of paramount importance. In the case of DuPont, a Quality Assurance executive has been appointed to manage the quality systems.

3.4.3 GAP 3 - SERVICE DELIVERY GAP

According to Gronroos (2000), this gap means that the quality specifications do not match up to the performance in the service production and delivery. A complicated specification, with too strict tolerance, is not attainable. Furthermore, there was no buy-in from the workforce, who, subsequently were unable to fulfill the requirements. Aging technology and work processes, that are not compatible with rigid specification requirements, can exacerbate problems. The control and reward system should be complementary to the planning of quality specifications. The employee training programmes should create awareness that poor quality contributes to lower financial returns. Teamwork and performance monitoring should address these areas. Regular briefing sessions could go a long way in addressing these problems.

The level of service delivery falls below the acceptable standard due to ineffective recruitment. Whilst skills development in manufacture is just a facet, understanding the strategic purpose of the company's existence should also be communicated.

3.4.4 GAP 4 - MARKET COMMUNICATION GAP

According to Gronroos (2000), this gap means that the promises given by the market communication activities are not consistent with the service delivered. This gap is due to the lack of integration between the market planning activities and the service operations. The marketing communication could take the form of "catch" advertising promise which could be more than what the organization can deliver. A well coordinated effort in planning and execution between the marketing and operations department could go a long way to resolve the problem. The operations output and delivery must be balanced with consumer demand expectation. In this way, a realistic and accurate promise could be made. Very often, consumers rush to take advantage of a special offer only to be disappointed by a lack of stock.

Ziethaml (2003) states that promises made by a service company through its media advertising, sales force and other communications may raise customer expectations that serve as the standard against which customers assess service quality. Once consumers form a negative perception of service quality at a company, suppliers may never be trusted again for future advertisements.

3.4.5 GAP 5 - PERCEIVED SERVICE QUALITY GAP

This gap means that the perceived service is not consistent with the expected service (Gronroos, 2000). This gap results in poor quality.

According to the following sources (ASI Quality Systems, 1992; Curry, 1999; and Luk & Layton, 2002), the three important gaps, which are more associated with the external customers, are Gap1, Gap5 and Gap6 since they have a direct relationship with customers. The Gap on which the SERVQUAL methodology has influence is Gap 5. It is the difference between expected service and perceived service. It also supported the notion that the key to delivering quality is to meet or exceed customer expectations.

Parasuraman et al. (1988) argue that gap 5 is the sum total of the preceding four gaps. If management want to close the gap between performance and expectations, it becomes important to design procedures for measuring service performance against expectations.

3.4.6 GAP 6 - CUSTOMER EXPECTATIONS AND EMPLOYEES' PERCEPTIONS GAP

This gap results in the differences in understanding of customers' expectations by front-line service providers. These people interact with the customers. If they are treated badly by their organization, then there is the possibly of them "bad-

mouthing" their organization. This negativity severely tarnishes the image of the company and does not earn any selling points. If is of paramount importance that, during the recruitment and selection process, the appropriate candidates are chosen. In order to become a customer-orientated company, extensive changes will be required on the part of frontline employees (Lovelock, 1991).

3.4.7 GAP 7 - EMPLOYEES' AND MANAGEMENT PERCEPTIONS GAP

This gap results in the differences in the understanding of management perceptions of consumer expectations and employee perceptions of consumer expectations. Managers, in most cases, may have more information of service implications whilst employees may be more concerned of their immediate environment. To frontline employees, the leader must pass along authority to respond to the needs and problems of individual customers (Lovelock, 1991).

3.5 CONCLUSION

According to Brown and Bond (1995), "the gap model is one of the best received and most valuable contributions to service literature". The model identifies seven gaps relating to managerial perceptions of service quality, and tasks associated with service delivery. Gap 1, Gap 2, Gap 3, Gap 4, Gap 6 and Gap 7 are referred to as functions of the way in which service is delivered, whereas Gap 5 pertains to the customer and is considered as the true measure of service quality. According to the Zone of Tolerance concept, customers generally tolerate more variation or expectations related to the functional dimension than in the outcome or expectations related to technical quality dimension (Gronroos, 2000).

Chapter 3 discussed the Gaps Model of service quality by Shahin (2003), who states that there are seven major gaps in the service quality concept. The model is an extension of Parasuraman et al. (1985), and suggests the applications to measure service quality in a service organization, such as DuPont.

Chapter 4 covers the research design and methodology followed in the study.

CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

Chapter four describes the research design and methodology used for the study. It describes the development of a sampling plan, selection of a data-collection method and the validity of the instrument used in the study.

4.2 DESIGN

This research proposes to investigate TSAM's perception of service quality at DuPont. The study is primarily descriptive in nature and the research will employ a questionnaire to gather data, make use of appropriate statistical techniques to evaluate the data and reach conclusions. This study is classified as quantitative and a single cross sectional study.

In order to know about people's attitudes, intentions and buying behaviour, only primary data can help to assist to answer these questions. Through primary data, the reasons behind consumer behaviour and management decisions are determined. The only way to learn about the opinions and behaviour is to ask questions directly to the people involved (Ghauri & Gronhaug, 2002).

4.3 TARGET POPULATION

According to Welman & Kruger (2003), the target population is the population to which the researcher ideally would like to generalize the results. In attitude surveys, population validity is of extreme importance; therefore, great care should be taken to obtain a representative sample in order to prevent biased results.

The target population will be primarily the people who interact directly with DuPont from the different departments at TSAM. These will involve the people who buy, use and evaluate DuPont's products.

4.4 SAMPLING TECHNIQUE

The researcher has opted for a census, because the entire population that deals with DuPont is relevant. According to Welman & Kruger (2003), the census is a form of descriptive research. Here the purpose was to count and describe the characteristics of the entire population. By using descriptive methods, an attempt is made to understand the way things are. A survey is conducted on samples. In a census, each member of the population is supposed to be included and to be classified according to certain biographical variables (e.g. gender, employment status and department).

4.5 INSTRUMENT DESIGN

According to Wealleans (2003), customer satisfaction is heavily dependent on how the organization's employees behave. If they are brusque, surly and unhelpful, customer satisfaction will be low. If the employees are courteous, keen and communicative, satisfaction will be high. Therefore, it is imperative to communicate this message to all employees of the organization prior to gathering any meaningful information. These fundamentals should be in place before designing a survey.

In the SERVQUAL instrument, 22 statements measure the performance across five dimensions, using a seven point Likert scale measuring both customer expectations and perceptions (Gabbie & O'neill, 1996). For the purpose of this questionnaire, the researcher used a 5-point Likert scale ranging from 1–strongly

disagree, to 5–strongly agree will be attached to each question (Refer to appendix 2).

The five dimensions and their respective statements in the questionnaire are as follows:

Dimension	**Statements Pertaining to the Dimension**
Tangibles	-Statements 1-4
Reliability	-Statements 5-9
Responsiveness	-Statements 10-13
Assurance	-Statements 14-17
Empathy	-Statements 18-22

Each respondent will acknowledge a notice of consent prior to completing the questionnaire (Refer to appendix 1).

4.6 DATA COLLECTION PROCEDURE

Permission will be requested to interview the target population of TSAM who interact directly with DuPont. According to Welman & Kruger (2003), for larger population groups, the size of the population makes it impractical and uneconomical to involve all the members of the population in the research group. In this case, the population is confined to eighty people, and, therefore, a census will be possible. The cost per questionnaire is much lower because of the accessibility. Secondly, the researcher is in full control of the completion of the questionnaires allowing for a high response rate. Thirdly, the researcher is available to answer any queries about the completion of the questionnaire immediately.

Belding (2005), states that data collection is a great challenge even from the most difficult of customers. Difficult customers can be broken down into two basic

categories: unsatisfied and unreasonable. An unsatisfied customer is one who has positive expectations that are not met. An unreasonable customer is one with unreasonable expectations. Conflict may arise if these expectations are not met.

4.7 DATA ANALYSIS

According to Welman & Kruger (2003), after the research has been conducted, according to its planned design, the obtained results must be interpreted.

Birley & Moreland (1998) state that the purpose of coding data is to render the data in a form, which can be presented and analyzed. The data from the questionnaires will be analyzed using the appropriate statistical methods. Inferential statistics will be used to facilitate generalization to the population.

Peters (1994) states that benchmarking is a process of learning ideas from other organizations to improve one's business.

4.8 INSTRUMENT EVALUATION

4.8.1 RELIABILITY

Cronin & Taylor (1992) state that SERVQUAL has become the quality measurement standard for service industries and is also one of the practitioners. Furthermore, it has also been the subject of several academic studies. Criticisms of SERVQUAL have centred on the underlying structure of SERVQUAL, multicollinearity problems, and the questions used in the instrument.

Robinson (1999), states that it is generally apparent that there is little consensus of opinion between service providers and much disagreement about how to measure service quality. One measurement model for service quality that has been extensively applied is the SERVQUAL model.

4.8.2 VALIDITY

SERVQUAL's high reliability and consistent factor structures across several independent samples provide support for its trait validity. According to Parasuraman et al. (1988), the basic criterion pertaining to construct validity is face or content validity. The authors suggest that measuring a scales content validity is qualitative rather than quantitative. In addition, it involves examining the thoroughness with which the construct is to be scaled and its domain was explicated. The authors argue that the procedures used in developing SERVQUAL satisfy both these evaluative requirements.

4.9 CONCLUSION

Chapter four covered the research methodology used to investigate TSAMs' perception of service quality provided by DuPont. The process and design was discussed including the instrument design, the target population, sampling technique and data collection procedure.

Chapter five covers the presentation of the results from the survey.

CHAPTER FIVE

PRESENTATION OF RESULTS

5.1 INTRODUCTION

Chapter five covers the presentation of the results from the survey. The SERVQUAL methodology was used to obtain the data that were used to investigate TSAMs' perceptions of service quality at DuPont. The data from the questionnaires were analyzed using the appropriate statistical methods. Descriptive and inferential statistical analysis were used.

5.2 SERVQUAL METHODOLOGY

The research undertaken was to ascertain the gaps between the expectations and perceptions of the customer. This gap was subsequently measured against the five SERVQUAL dimensions, which are tangibles, reliability, responsiveness, assurance and empathy.

The formula on perceived service quality, developed by Parasuraman et al. (1985), was stated as follows:

Q (Quality) = P (Perceptions) – E (Expectations)

A total of 80 survey questionnaires were completed, resulting in a response rate of 100% in the final census. The respondents comprised of males and females. In addition, the departments were included with the position or rank of the respondents.

The final analysis of the demographic profile in the survey was as follows.

5.3 DEMOGRAPHICS

5.3.1 GENDER

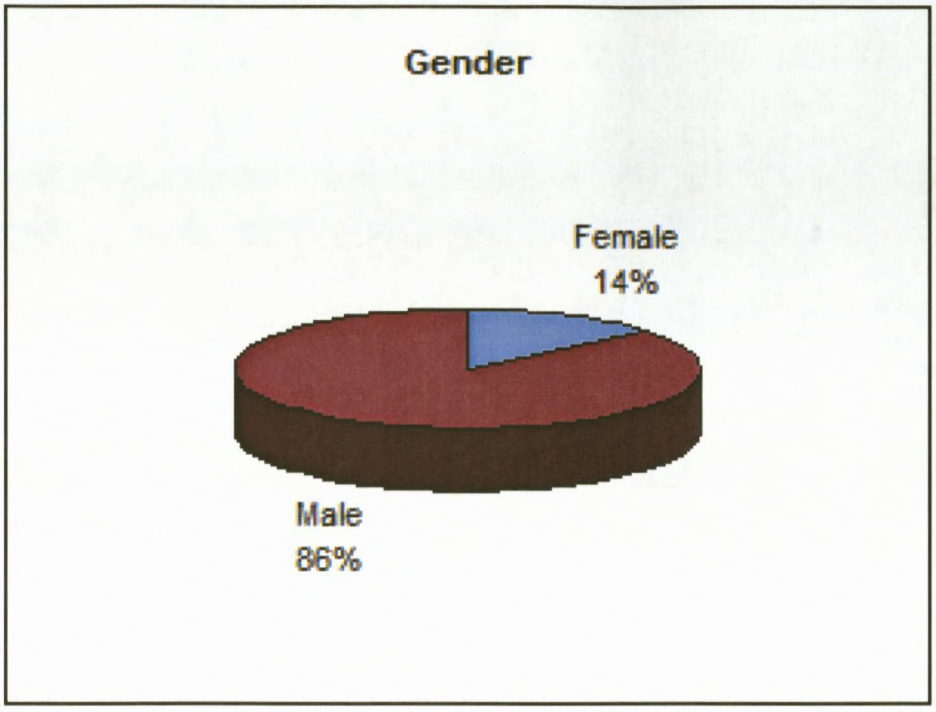


Figure 2: Demographics - Gender

Demographics on male and female participants were relevant. In the recent years, there has been an increase in the female composition in the work force and in the near future, this percentage is expected to increase. The quality dimensions are perceived differently by the different genders.

5.3.2 DEPARTMENTAL GROUPINGS

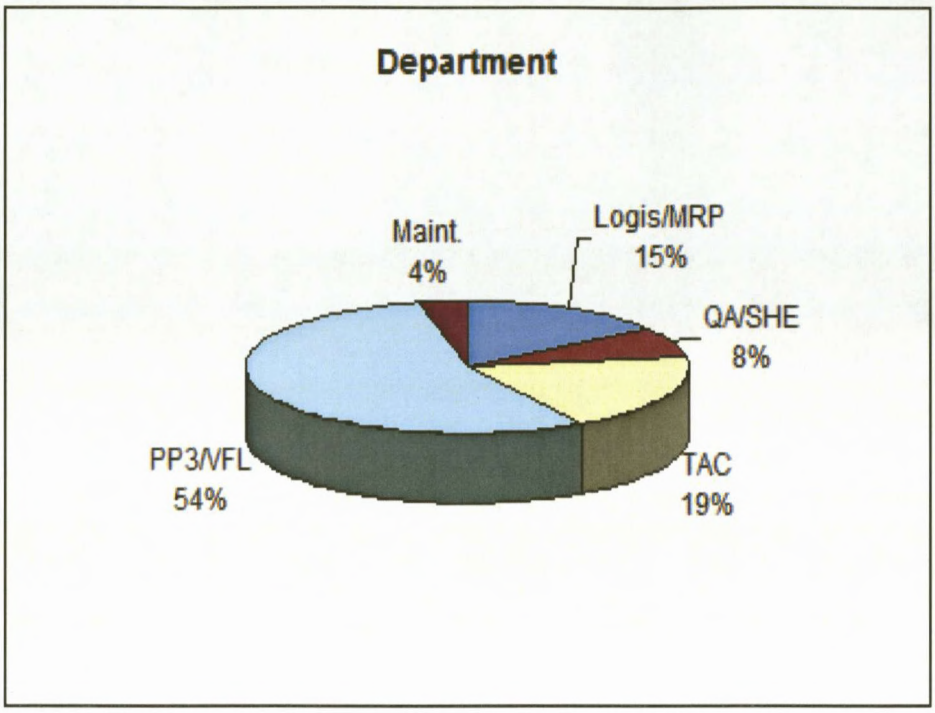


Figure 3: Departmental groupings

The respondents were categorized into five main departmental groupings for analysis. The departments were; PP3/VFL, TAC, Logistics/MRP, QA/SHE and Maintenance.

5.3.3 GROUPED POSITIONS

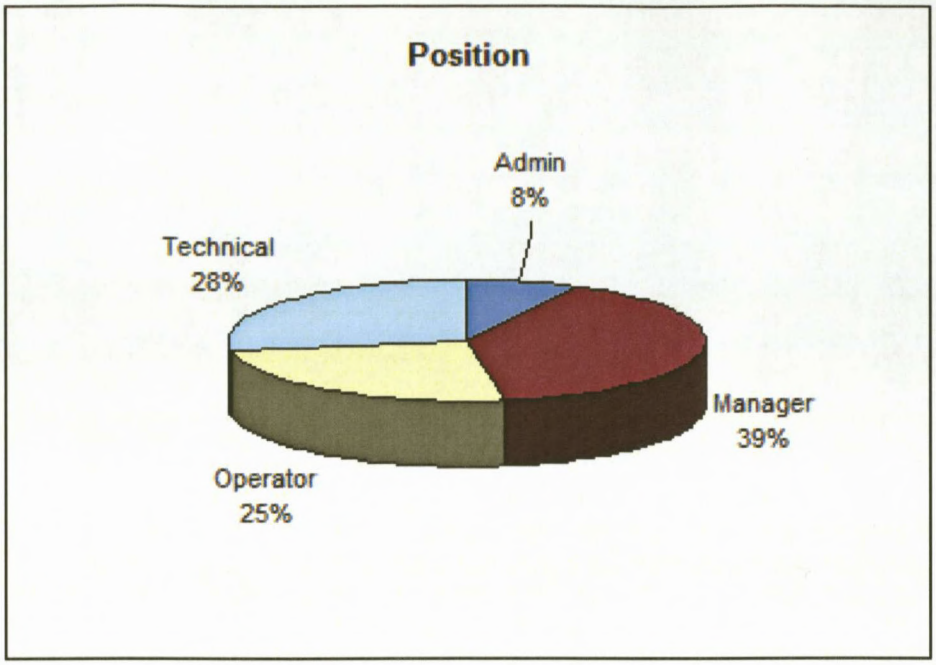


Figure 4: Grouped positions

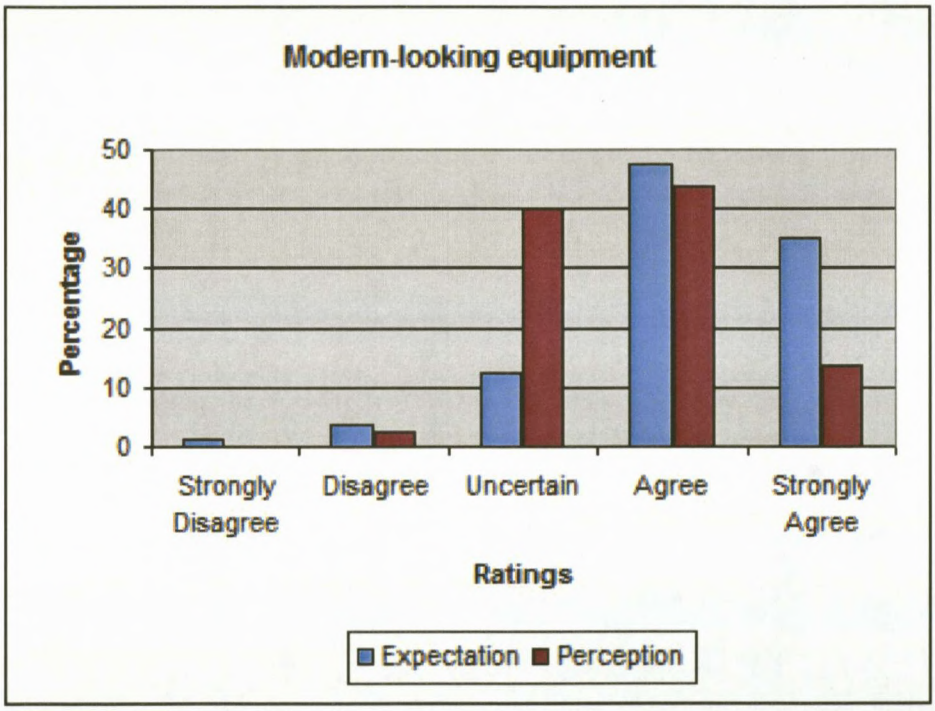
The respondents were categorized in the different positions or rank they held. The positions were Management (this also included the team leaders), Technical, Operators and Administration.

5.4 GRAPHIC ANALYSIS OF EXPECTATIONS AND PERCEPTIONS

The analyses are displayed using bar charts. For a complete statistical analysis, (Refer to appendix 3).

There is a parallel representation of the expectations and perceptions for comparative analysis. The results were as follows:

5.4.1 DuPont has modern-looking equipment



Percentages		
	Expectation	Perception
Strongly Disagree	1	0
Disagree	4	3
Uncertain	13	40
Agree	48	44
Strongly Agree	35	14

Figure 5: Modern-looking equipment

The combined agreement for expectations was 83% and the combined agreement for perceptions was 58%.

Crosstab

			Gap 1							Total
			-3	-2	-1	0	1	2	3	
Gender	Female	Count	0	1	3	2	3	1	1	11
		Expected Coun	.1	1.4	3.7	4.0	1.5	.1	.1	11.0
		Std. Residual	-.4	-.3	-.4	-1.0	1.2	2.3	2.3	
	Male	Count	1	9	24	27	8	0	0	69
		Expected Coun	.9	8.6	23.3	25.0	9.5	.9	.9	69.0
		Std. Residual	.1	.1	.1	.4	-.5	-.9	-.9	
Total		Count	1	10	27	29	11	1	1	80
		Expected Coun	1.0	10.0	27.0	29.0	11.0	1.0	1.0	80.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	15.827[a]	6	.015	.026
Likelihood Ratio	11.279	6	.080	.080
Fisher's Exact Test	11.952			.043
N of Valid Cases	80			

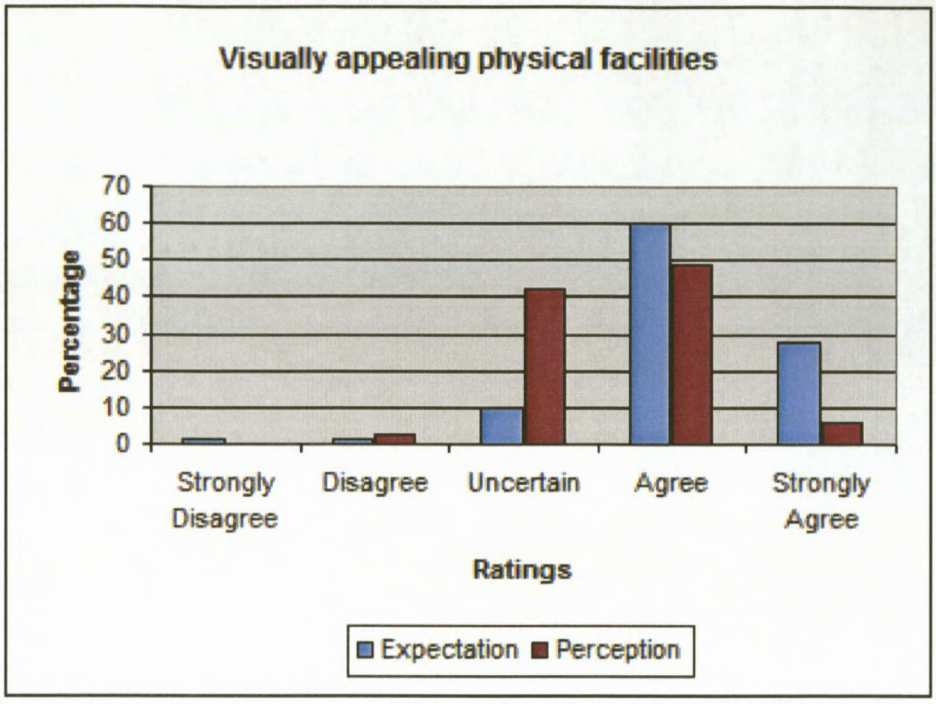
a. 10 cells (71.4%) have expected count less than 5. The minimum expected count is .14.

Table 1: Gap 1 Analysis

The test statistic of 11.952 is significant at the 0, 05 level of significance since p (0,043) < 0, 05. Thus, there is a significant relationship between gender and the gap for Q1 – Having modern-looking equipment.

Interpretation from the output: More than expected females were found to record a positive Gap measurement, thus indicating that the modern-looking equipment at DuPont is better than expected.

5.4.2 DuPont has visually appealing physical facilities

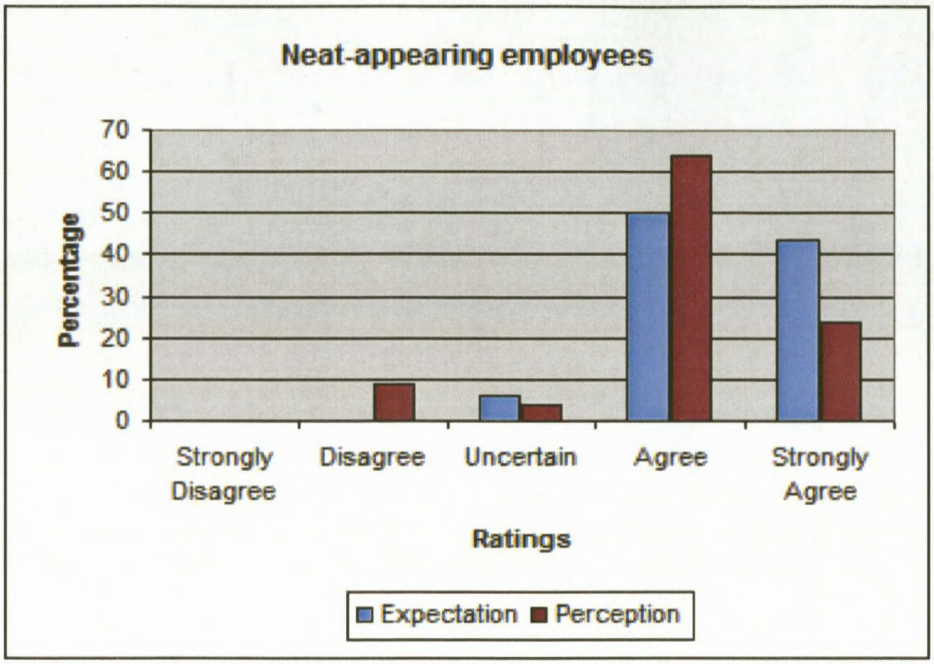


Percentages		
	Expectation	**Perception**
Strongly Disagree	**1**	**0**
Disagree	**1**	**3**
Uncertain	**10**	**43**
Agree	**60**	**49**
Strongly Agree	**28**	**6**

Figure 6: Visually appearing physical facilities

The combined agreement for expectations was 88% and the combined agreement for perceptions was 54%.

5.4.3 DuPont has neat-appearing employees

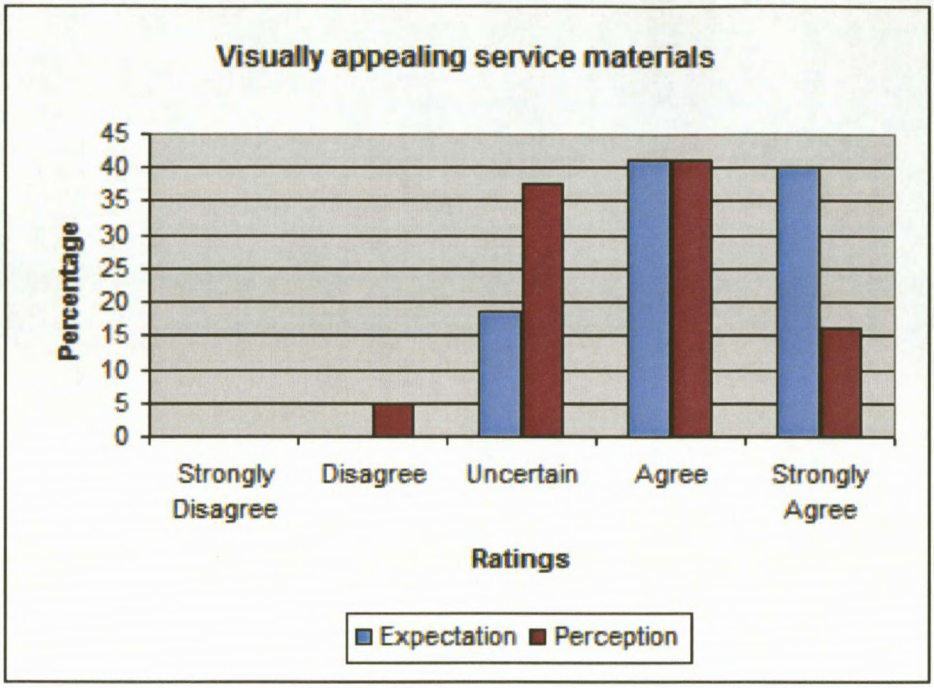


Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**0**
Disagree	**0**	**9**
Uncertain	**6**	**4**
Agree	**50**	**64**
Strongly Agree	**44**	**24**

Figure 7: Neat-appearing employees

The combined agreement for expectations was 94% and the combined agreement for perceptions was 88%.

5.4.4 DuPont has visually appealing service materials

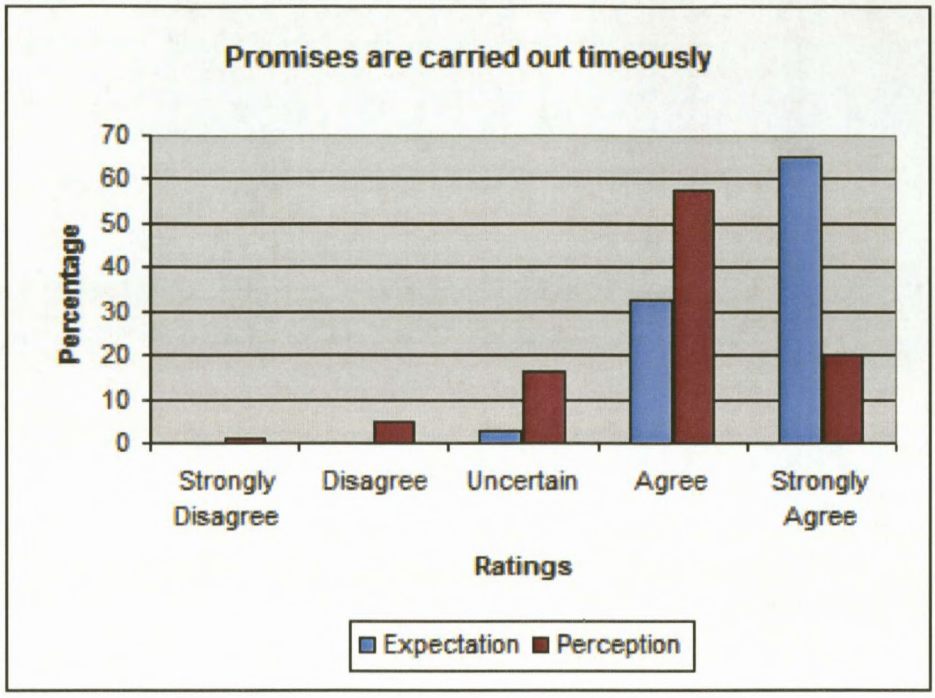


Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**0**
Disagree	**0**	**5**
Uncertain	**19**	**38**
Agree	**41**	**41**
Strongly Agree	**40**	**16**

Figure 8: Visually appealing service materials

The combined agreement for expectations was 81% and the combined agreement for perceptions was 57%.

5.4.5 DuPont promises are carried out timeously

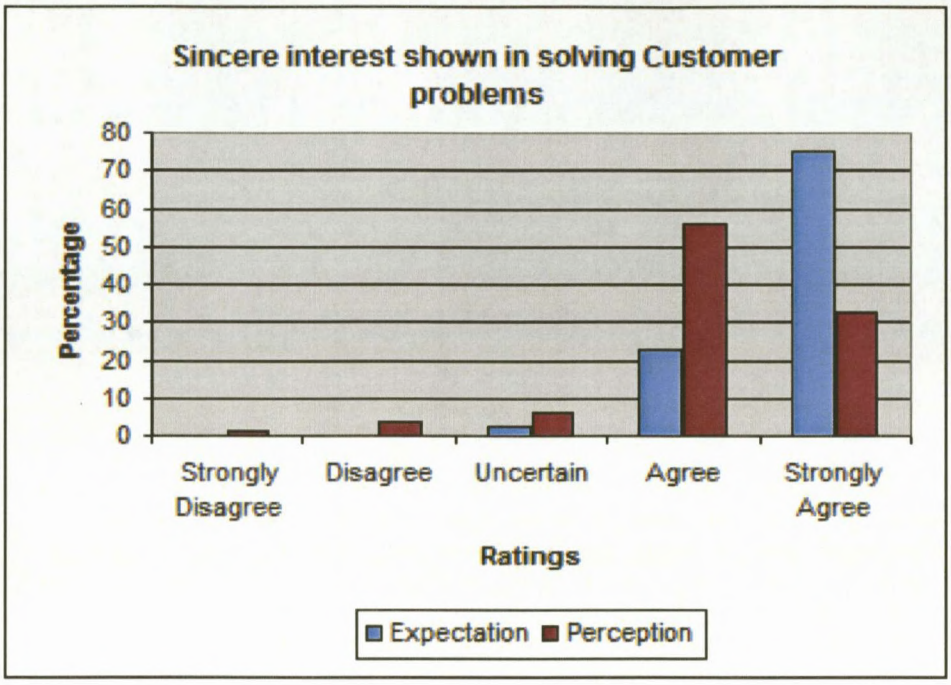


Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**1**
Disagree	**0**	**5**
Uncertain	**3**	**16**
Agree	**33**	**58**
Strongly Agree	**65**	**20**

Figure 9: Promises carried out timeously

The combined agreement for expectations was 98% and the combined agreement for perceptions was 78%.

5.4.6 DuPont shows sincere interest in solving customer problems



Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**1**
Disagree	**0**	**4**
Uncertain	**3**	**6**
Agree	**23**	**56**
Strongly Agree	**75**	**33**

Figure 10: Sincere interest in solving customer problems

The combined agreement for expectations was 98% and the combined agreement for perceptions was 89%.

Descriptive Statistics

Dependent Variable: Gap 6

Position	Mean	Std. Deviation	N
Admin	-.33	.816	6
Manager	-.88	1.040	32
Operator	-.05	.759	20
Technical	-.68	.839	22
Total	-.57	.952	80

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Gap 6

F	df1	df2	Sig.
.305	3	76	.821

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+POSIT

Tests of Between-Subjects Effects

Dependent Variable: Gap 6

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.994[a]	3	2.998	3.642	.016
Intercept	12.831	1	12.831	15.588	.000
POSIT	8.994	3	2.998	3.642	.016
Error	62.556	76	.823		
Total	98.000	80			
Corrected Total	71.550	79			

a. R Squared = .126 (Adjusted R Squared = .091)

Table 2: Gap 6 Descriptive analysis

The assumption of equal variances is not violated (Levene's test). Hence, the analysis will yield valid results. From the table of between-subject effects, it can be seen that POSIT (position) has a test statistic of 3.642 and is significant since $p = .016 < .05$. Thus, one can reject the null hypothesis that the average gap scores for the position categories are equal. Examination of Post Hoc tests

shows that there are significant differences between gap scores of managers and operators. The average Gap score for manager is -.88 while the Gap for operator is -0.05. Thus, more managers than operators believe that DuPont falls further short of expectation.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	19.490[a]	5	.002	.004
Likelihood Ratio	14.676	5	.012	.009
Fisher's Exact Test	15.540			.003
N of Valid Cases	80			

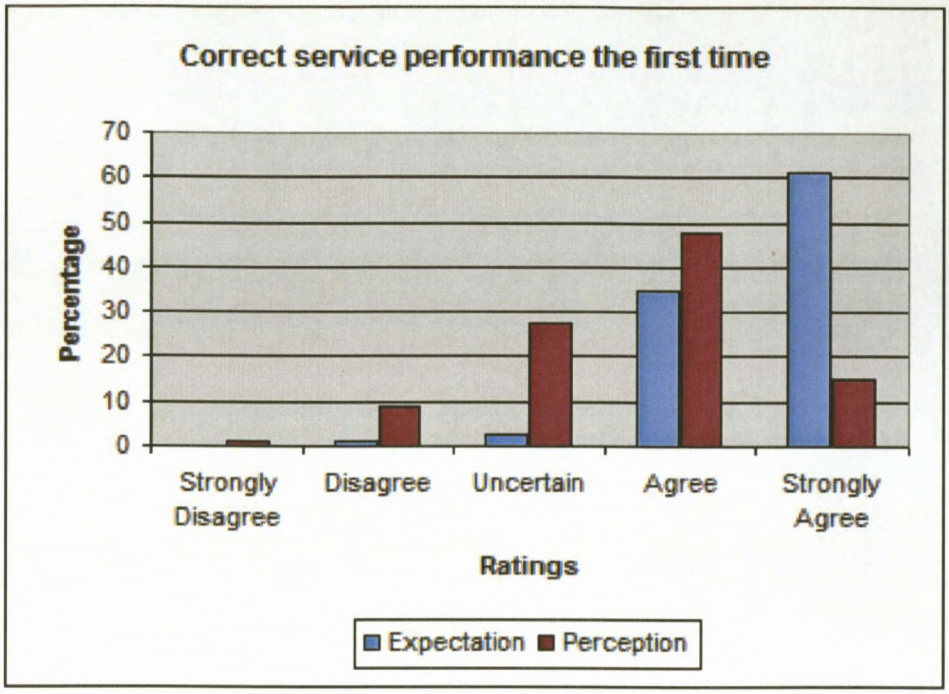
a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .14.

Table 3: Gap 6 Chi-Square tests

The test statistic of 15.540 is significant at the 0, 05 level of significance since p (0,003) < 0, 05. Thus there is a significant relationship between gender and the gap for Q6 – Showing a sincere interest in solving a customer's problem.

Interpretation from the output: More than expected females were found to record a Gap of -2 or -3 and fewer than expected recorded a Gap of 0 while fewer than expected males recorded a Gap of -2. This finding indicates that females feel that DuPont falls short of expectation in this area while males appear to feel that DuPont does not fall short of expectation in this area.

5.4.7 DuPont performs the correct service performance right the first time



Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**1**
Disagree	**1**	**9**
Uncertain	**3**	**28**
Agree	**35**	**48**
Strongly Agree	**61**	**15**

Figure 11: Correct service performance the first time

The combined agreement for expectations was 96% and the combined agreement for perceptions was 63%.

Descriptive Statistics

Dependent Variable: Gap 7

Position	Mean	Std. Deviation	N
Admin	-1.33	1.033	6
Manager	-1.19	1.120	32
Operator	-.40	1.095	20
Technical	-.82	.733	22
Total	-.90	1.051	80

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Gap 7

F	df1	df2	Sig.
.680	3	76	.567

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+POSIT

Tests of Between-Subjects Effects

Dependent Variable: Gap 7

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.919[a]	3	2.973	2.886	.041
Intercept	47.654	1	47.654	46.265	.000
POSIT	8.919	3	2.973	2.886	.041
Error	78.281	76	1.030		
Total	152.000	80			
Corrected Total	87.200	79			

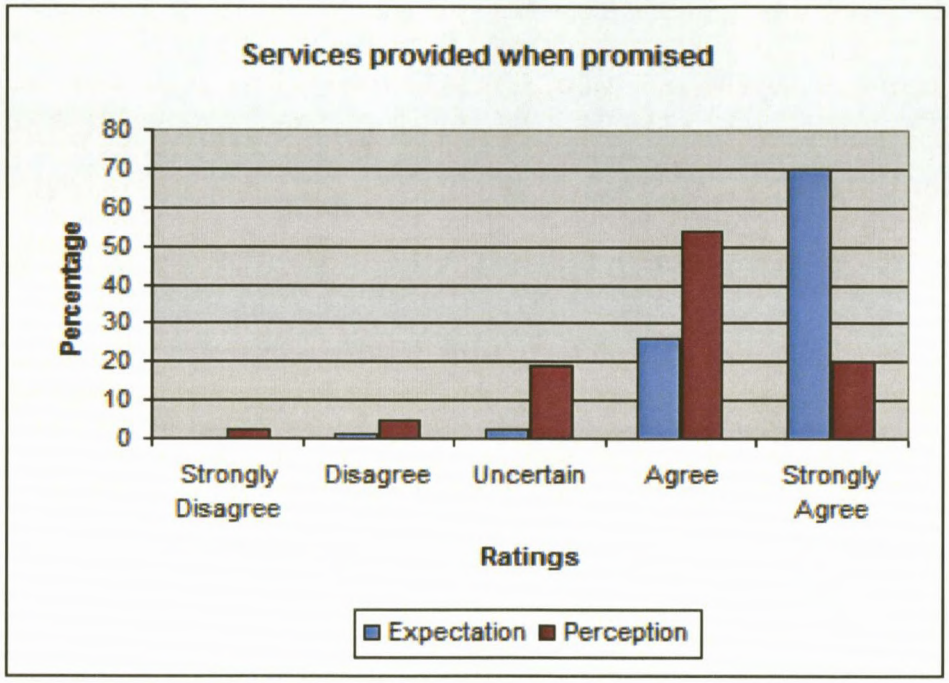
a. R Squared = .102 (Adjusted R Squared = .067)

Table 4: Gap 7 Analysis

The assumption of equal variances is not violated (Levene's test) so the analysis will yield valid results. From the table of between-subject effects, it can be seen that POSIT (position) has a test statistic of 2.886 and is significant since p = .041 < .05. Thus, one can reject the null hypothesis that the average Gap scores for the position categories are equal. Examination of Post Hoc tests shows that there are significant differences between gap scores of managers and operators. The average Gap score for managers is -1.19 while the Gap scored for the operators

is -0.40. Thus, the managers believe that DuPont falls further short of expectation in this area than the operators.

5.4.8 DuPont provides the services when promised

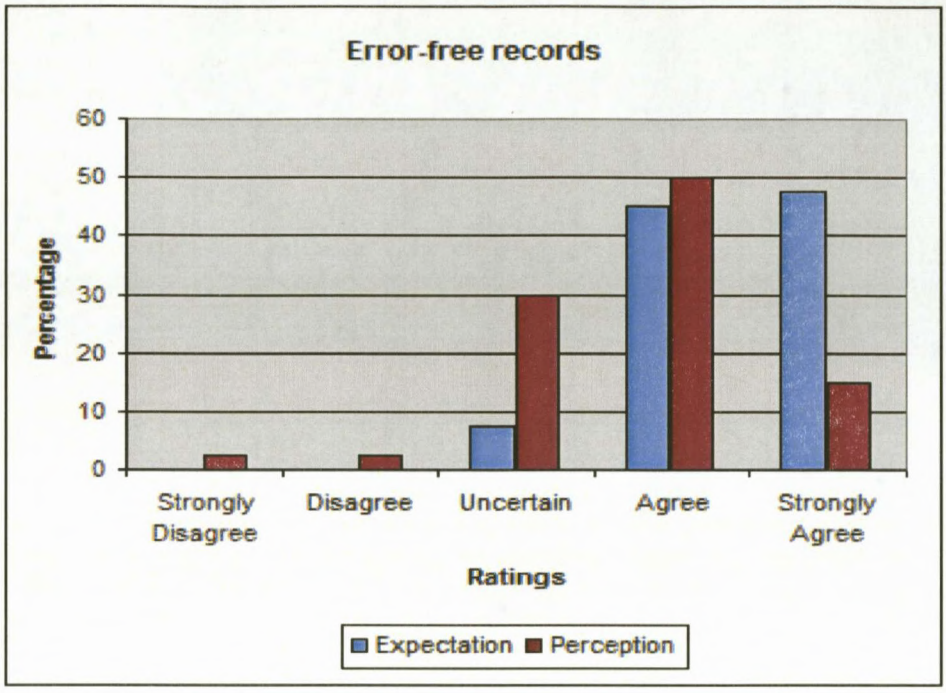


Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**3**
Disagree	**1**	**5**
Uncertain	**3**	**19**
Agree	**26**	**54**
Strongly Agree	**70**	**20**

Figure 12: Services provided when promised

The combined agreement for expectations was 96% and the combined agreement for perceptions was 74%.

5.4.9 DuPont insists on error-free records



Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**3**
Disagree	**0**	**3**
Uncertain	**8**	**30**
Agree	**45**	**50**
Strongly Agree	**48**	**15**

Figure 13: Error –free records

The combined agreement for expectations was 93% and the combined agreement for perceptions was 65%.

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Gap 9

F	df1	df2	Sig.
.208	3	76	.891

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+POSIT

Descriptive Statistics

Dependent Variable: Gap 9

Position	Mean	Std. Deviation	N
Admin	-.67	.816	6
Manager	-1.03	1.031	32
Operator	.15	.933	20
Technical	-.91	1.019	22
Total	-.68	1.088	80

Tests of Between-Subjects Effects

Dependent Variable: Gap 9

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	18.880[a]	3	6.293	6.405	.001
Intercept	20.578	1	20.578	20.944	.000
POSIT	18.880	3	6.293	6.405	.001
Error	74.670	76	.983		
Total	130.000	80			
Corrected Total	93.550	79			

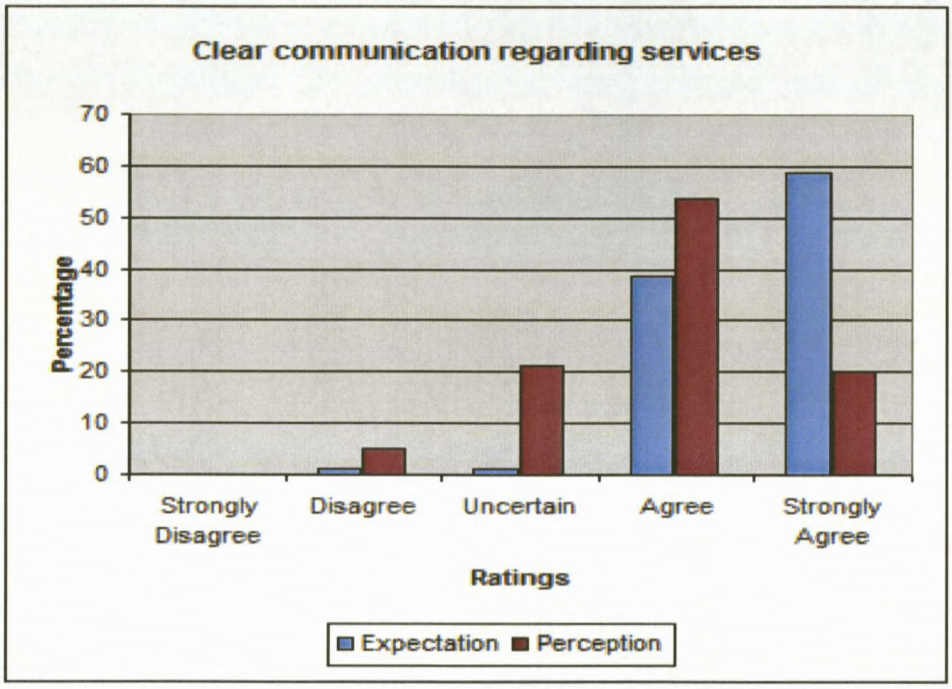
a. R Squared = .202 (Adjusted R Squared = .170)

Table 5: Gap 9 Descriptive analysis

The assumption of equal variances is not violated (Levene's test) so the analysis will yield valid results. From the table of between-subject effects, it can be seen that POSIT (position) has a test statistic of 6.405 and is significant since $p = .001 < .05$. Thus, one can reject the null hypothesis that the average Gap scores for the position categories are equal. Examination of Post Hoc tests shows that there are significant differences between Gap scores of 'manager and operator' and 'technical and operator'. One can see that the average Gap score for manager is

-1.03, the Gap score for technical is -.91 and the Gap for operator is .15. Thus, the managers and technicians believe that DuPont falls short of expectation in this area while the operators feel that DuPont meets expectation in this area.

5.4.10 DuPont has clear communication regarding services



Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**0**
Disagree	**1**	**5**
Uncertain	**1**	**21**
Agree	**39**	**54**
Strongly Agree	**59**	**20**

Figure 14: Clear communication regarding services

The combined agreement for expectations was 98% and the combined agreement for perceptions was 74%.

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Gap 10

F	df1	df2	Sig.
.887	4	75	.476

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+DEPT

Tests of Between-Subjects Effects

Dependent Variable: Gap 10

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.001[a]	4	1.750	2.580	.044
Intercept	5.991	1	5.991	8.830	.004
DEPT	7.001	4	1.750	2.580	.044
Error	50.886	75	.678		
Total	93.000	80			
Corrected Total	57.888	79			

a. R Squared = .121 (Adjusted R Squared = .074)

Dependent Variable: Gap 10

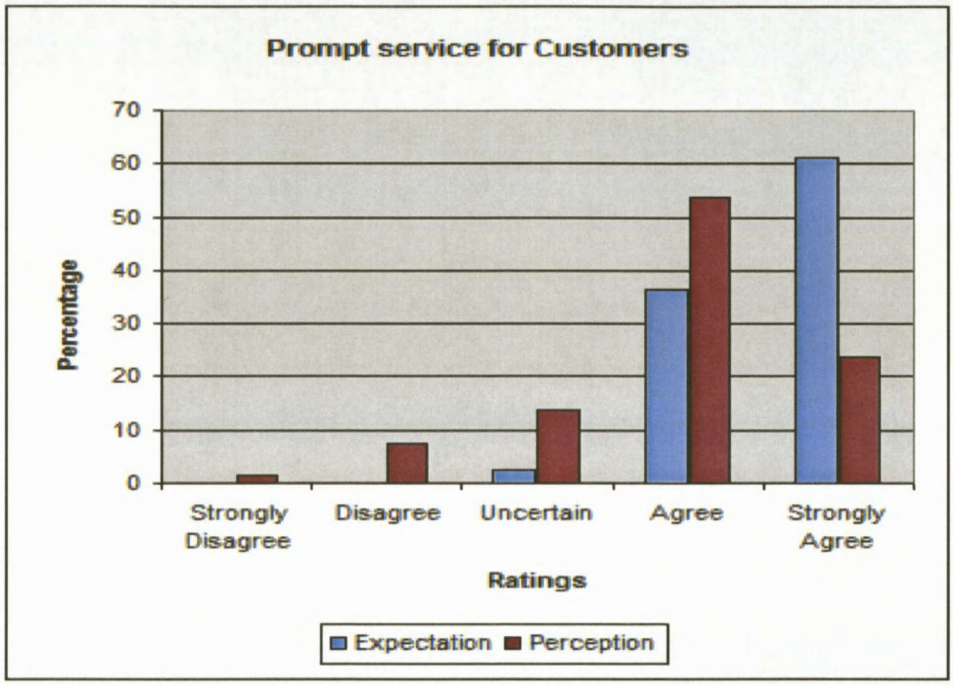
Department	Mean	Std. Deviation	N
Logis/MRP	-.83	.577	12
QA/SHE	-.33	.516	6
TAC	-.33	.900	15
PP3/VFL	-.84	.888	44
Maint	.33	.577	3
Total	-.66	.856	80

Table 6: Gap 10 Analysis

The assumption of equal variances is not violated (Levene's test) so the analysis will yield valid results. From the table of between-subject effects it can be seen that DEPT has a test statistic of 2.580 and is significant since $p = 0.044 < .05$. Thus, one can reject the null hypothesis that the average Gap scores for the

department categories are equal. Examination of further analyses does not reveal significant differences. However the average Gap score for 'maint' is positive (0.33) while all the other Gaps are negative. Thus, the maintenance department believes that perception exceeds expectation while the others feel that DuPont falls short of expectation in this area.

5.4.11 DuPont gives prompt service for customers



Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**1**
Disagree	**0**	**8**
Uncertain	**3**	**14**
Agree	**36**	**54**
Strongly Agree	**61**	**24**

Figure 15: Prompt Service for customers

The combined agreement for expectations was 97% and the combined agreement for perceptions was 78%.

Descriptive Statistics

Dependent Variable: Gap 11

Position	Mean	Std. Deviation	N
Admin	-1.00	1.095	6
Manager	-.97	1.150	32
Operator	.00	.795	20
Technical	-.77	1.020	22
Total	-.68	1.088	80

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Gap 11

F	df1	df2	Sig.
2.334	3	76	.081

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+POSIT

Tests of Between-Subjects Effects

Dependent Variable: Gap 11

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12.718[a]	3	4.239	3.986	.011
Intercept	25.618	1	25.618	24.087	.000
POSIT	12.718	3	4.239	3.986	.011
Error	80.832	76	1.064		
Total	130.000	80			
Corrected Total	93.550	79			

a. R Squared = .136 (Adjusted R Squared = .102)

Table 7: Gap 11 Descriptive analysis

The assumption of equal variances is not violated (Levene's test) so the analysis will yield valid results. From the table of between-subject effects, it can be seen

that POSIT (position) has a test statistic of 3.986 and is significant since p = 0.011 < 0.05. Thus, one can reject the null hypothesis that the average Gap scores for the position categories are equal. Examination of Post Hoc tests shows that there are significant differences between Gap scores of 'manager and operator'. The average Gap score for manager is -0.97 and the Gap for operator is 0.00. Thus, the managers believe that DuPont falls short of expectation in this area while the operators feel that DuPont meets expectation in this area.

Crosstab

			Gap 11						
			-4	-3	-2	-1	0	1	Total
Gender	Female	Count	0	1	5	4	0	1	11
		Expected Count	.1	.8	1.0	3.4	4.7	1.0	11.0
		Std. Residual	-.4	.2	4.1	.3	-2.2	.0	
	Male	Count	1	5	2	21	34	6	69
		Expected Count	.9	5.2	6.0	21.6	29.3	6.0	69.0
		Std. Residual	.1	-.1	-1.6	-.1	.9	.0	
Total		Count	1	6	7	25	34	7	80
		Expected Count	1.0	6.0	7.0	25.0	34.0	7.0	80.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	25.368[a]	5	.000	.000
Likelihood Ratio	22.556	5	.000	.000
Fisher's Exact Test	20.929			.000
N of Valid Cases	80			

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .14.

Table 8: Gap 11 Gender chi-square tests

The test statistic of 20.929 is significant at the 0, 05 level of significance since p = 0,000 < 0, 05. Thus, there is a significant relationship between gender and the Gap for Q11.

Interpretation from the output: More than expected females and fewer than expected males were found to record a Gap of -2. In addition, fewer than expected females recorded a Gap score of 0. This finding indicates that females feel that DuPont falls short of expectation in the area of prompt service while males appear to feel that DuPont does not fall short of expectation in this area.

Crosstab

			Gap 11						Total
			-4	-3	-2	-1	0	1	
Position	Admin	Count	0	1	0	3	2	0	6
		Expected Count	.1	.5	.5	1.9	2.6	.5	6.0
		Std. Residual	-.3	.8	-.7	.8	-.3	-.7	
	Manager	Count	1	4	1	14	11	1	32
		Expected Count	.4	2.4	2.8	10.0	13.6	2.8	32.0
		Std. Residual	.9	1.0	-1.1	1.3	-.7	-1.1	
	Operator	Count	0	1	0	0	16	3	20
		Expected Count	.3	1.5	1.8	6.3	8.5	1.8	20.0
		Std. Residual	-.5	-.4	-1.3	-2.5	2.6	.9	
	Technical	Count	0	0	6	8	5	3	22
		Expected Count	.3	1.7	1.9	6.9	9.4	1.9	22.0
		Std. Residual	-.5	-1.3	2.9	.4	-1.4	.8	
Total		Count	1	6	7	25	34	7	80
		Expected Count	1.0	6.0	7.0	25.0	34.0	7.0	80.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	38.256[a]	15	.001	.[b]		
Likelihood Ratio	45.133	15	.000	.000		
Fisher's Exact Test	37.407			.000		
Linear-by-Linear Association	1.459[c]	1	.227	.236	.126	.021
N of Valid Cases	80					

a. 18 cells (75.0%) have expected count less than 5. The minimum expected count is .08.

b. Cannot be computed because there is insufficient memory.

c. The standardized statistic is 1.208.

Table 9: Gap 11 Position chi-square tests

The test statistic of 37.407 is significant at the 0, 05 level of significance since p =0,000 < 0, 05. Thus, there is a significant relationship between position and the Gap for Q11.

Interpretation from the output: More than expected 'Operators" were found to record a Gap of 0 and fewer than expected managers recorded a Gap score of -1; more than expected 'technical' recorded a Gap score of -2. Thus, operators feel that DuPont lives up to expectation in this area while technical staff believes that DuPont falls short of expectation in this area.

5.4.12 DuPont has willing employees to help customers

Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**0**
Disagree	**0**	**6**
Uncertain	**1**	**4**
Agree	**29**	**48**
Strongly Agree	**70**	**43**

Figure 16: Willing employees help customers

The combined agreement for expectations was 99% and the combined agreement for perceptions was 91%.

5.4.13 DuPont employees are never too busy to respond to customers' requests

Percentages		
	Expectation	**Perception**
Strongly Disagree	**0**	**1**
Disagree	**1**	**5**
Uncertain	**6**	**9**
Agree	**46**	**54**
Strongly Agree	**46**	**30**

Figure 17: Employees never too busy to respond to customers' requests

The combined agreement for expectations was 92% and the combined agreement for perceptions was 84%.

Crosstab

			Gap 13						
			-3	-2	-1	0	1	2	Total
Gender	Female	Count	1	2	3	3	2	0	11
		Expected Count	.6	.3	3.1	5.2	1.8	.1	11.0
		Std. Residual	.6	3.3	.0	-.9	.1	-.4	
	Male	Count	3	0	19	34	11	1	68
		Expected Count	3.4	1.7	18.9	31.8	11.2	.9	68.0
		Std. Residual	-.2	-1.3	.0	.4	-.1	.2	
Total		Count	4	2	22	37	13	1	79
		Expected Count	4.0	2.0	22.0	37.0	13.0	1.0	79.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	14.004[a]	5	.016	.029
Likelihood Ratio	9.756	5	.082	.082
Fisher's Exact Test	10.025			.047
N of Valid Cases	79			

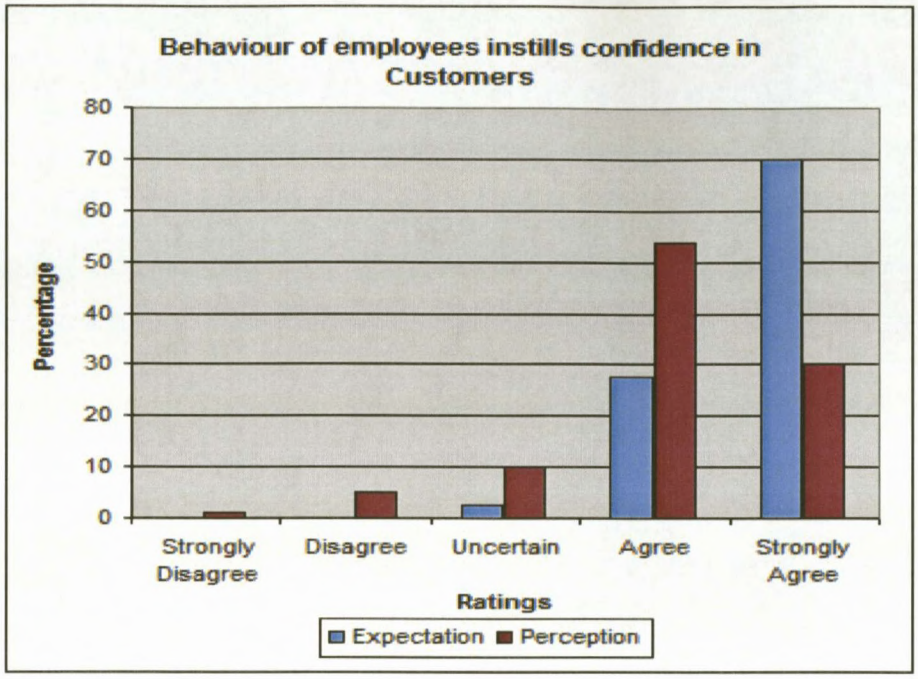
a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .14.

Table 10: Gap 13 Gender chi-square tests

The test statistic of 10.025 is significant at the 0, 05 level of significance since p = 0,047 < 0, 05. Thus, there is a significant relationship between gender and the Gap for Q13.

Interpretation from the output: More than expected females and fewer than expected males were found to record a Gap of -2. This finding indicates that females feel that DuPont falls short of expectation in the area of being too busy to help Customers while males appear to feel that DuPont does not fall short of expectation in this area.

5.4.14 The behaviour of DuPont employees instills confidence in customers



Percentages		
	Expectation	Perception
Strongly Disagree	0	1
Disagree	0	5
Uncertain	3	10
Agree	28	54
Strongly Agree	70	30

Figure 18: Behaviour of employees instills confidence in customers

The combined agreement for expectations was 98% and the combined agreement for perceptions was 84%.

Descriptive Statistics

Dependent Variable: Gap 14

Department	Mean	Std. Deviation	N
Logis/MRP	-.92	1.165	12
QA/SHE	-.67	.516	6
TAC	.07	.594	15
PP3/VFL	-.77	1.008	44
Maint	-.33	.577	3
Total	-.61	.974	80

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Gap 14

F	df1	df2	Sig.
2.029	4	75	.099

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+DEPT

Tests of Between-Subjects Effects

Dependent Variable: Gap 14

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.410[a]	4	2.353	2.691	.037
Intercept	10.225	1	10.225	11.694	.001
DEPT	9.410	4	2.353	2.691	.037
Error	65.577	75	.874		
Total	105.000	80			
Corrected Total	74.988	79			

a. R Squared = .125 (Adjusted R Squared = .079)

Table 11: Gap 14 - Departmental descriptive analysis

The assumption of equal variances is not violated (Levene's test). Therefore, the analysis will yield valid results. From the table of between-subject effects, it can be seen that DEPT has a test statistic of 2.691 and is significant since $p = 0.037 < 0.05$. Thus, one can reject the null hypothesis that the average Gap scores for the department categories are equal. Examination of Post Hoc tests shows that there are significant differences between gap scores of PP3/VFL and TAC. The

average Gap score for TAC is positive (0.07) while the Gap for PP3/VFL is negative (-0.77). Thus, the TAC department believes that perception exceeds expectation while PP3/VFL feels that DuPont falls short of expectation in this area.

Descriptive Statistics

Dependent Variable: Gap 14

Position	Mean	Std. Deviation	N
Admin	-1.17	1.169	6
Manager	-.84	1.051	32
Operator	-.05	.887	20
Technical	-.64	.658	22
Total	-.61	.974	80

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Gap 14

F	df1	df2	Sig.
1.512	3	76	.218

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+POSIT

Tests of Between-Subjects Effects

Dependent Variable: Gap 14

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.895[a]	3	3.298	3.851	.013
Intercept	24.790	1	24.790	28.944	.000
POSIT	9.895	3	3.298	3.851	.013
Error	65.093	76	.856		
Total	105.000	80			
Corrected Total	74.988	79			

a. R Squared = .132 (Adjusted R Squared = .098)

Table 12: Gap 14 - Position descriptive analysis

The assumption of equal variances is not violated (Levene's test) therefore the analysis will yield valid results. From the table of between-subject effects, it can be seen that POSIT (position) has a test statistic of 3.851 and is significant since $p = 0.013 < 0.05$. Thus, one can reject the null hypothesis that the average Gap scores for the position categories are equal. Examination of Post Hoc tests shows that there are significant differences between Gap scores of 'manager and operator'. The average Gap score for manager is -0.84 and the Gap for operator is -0.05. Thus, the managers believe that DuPont falls further short of expectation in this area than the operators do.

Crosstab

			Gap 14						
			-4	-3	-2	-1	0	1	Total
Position	Admin	Count	0	1	1	2	2	0	6
		Expected Count	.1	.3	.4	2.1	2.8	.4	6.0
		Std. Residual	-.3	1.3	1.0	-.1	-.5	-.6	
	Manager	Count	1	2	3	11	15	0	32
		Expected Count	.4	1.6	2.0	11.2	14.8	2.0	32.0
		Std. Residual	.9	.3	.7	-.1	.1	-1.4	
	Operator	Count	0	1	0	2	13	4	20
		Expected Count	.3	1.0	1.3	7.0	9.3	1.3	20.0
		Std. Residual	-.5	.0	-1.1	-1.9	1.2	2.5	
	Technical	Count	0	0	1	13	7	1	22
		Expected Count	.3	1.1	1.4	7.7	10.2	1.4	22.0
		Std. Residual	-.5	-1.0	-.3	1.9	-1.0	-.3	
Total		Count	1	4	5	28	37	5	80
		Expected Count	1.0	4.0	5.0	28.0	37.0	5.0	80.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	25.712[a]	15	.041	.[b]		
Likelihood Ratio	28.278	15	.020	.016		
Fisher's Exact Test	24.911			.009		
Linear-by-Linear Association	2.678[c]	1	.102	.103	.058	.013
N of Valid Cases	80					

a. 18 cells (75.0%) have expected count less than 5. The minimum expected count is .08.

b. Cannot be computed because there is insufficient memory.

c. The standardized statistic is 1.637.

Table 13: Gap 14 Position chi-square analysis

The test statistic of 24.911 is significant at the 0, 05 level of significance since p= 0,009 < 0, 05. Thus, there is a significant relationship between position and the gap for Q14.

Interpretation from the output: More than expected 'Operators" were found to record a Gap of +1 and fewer than expected managers recorded a Gap score of -1; more than expected 'technical' record a Gap score of -1. Thus, operators feel that DuPont lives up to expectation in this area while technical staff believes that DuPont falls short of expectation in this area.

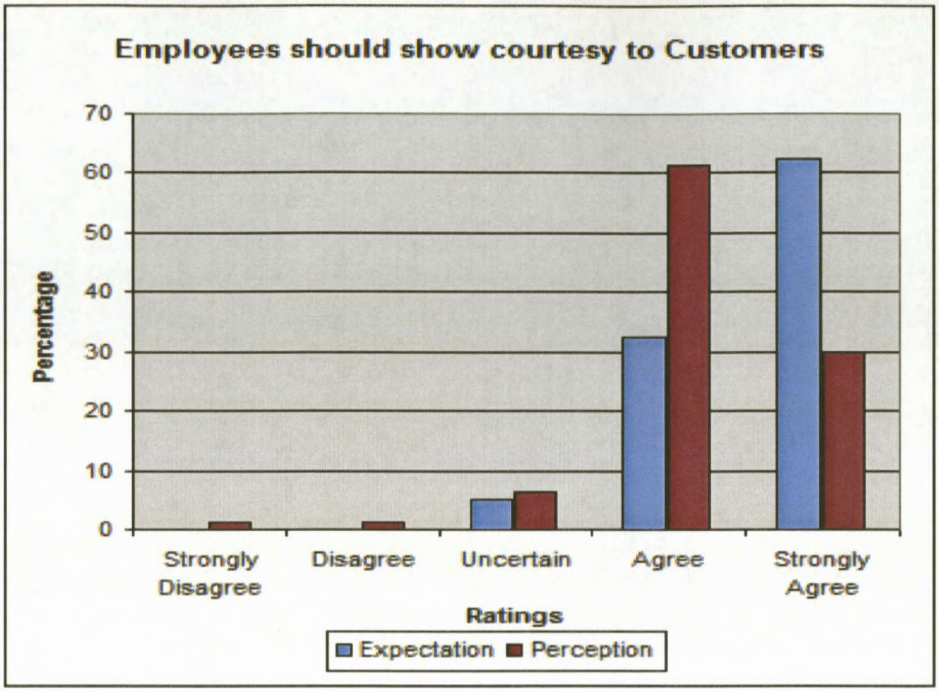
5.4.15 DuPont customers should feel safe in their transactions

Percentages		
	Expectation	Perception
Strongly Disagree	0	1
Disagree	0	4
Uncertain	6	20
Agree	45	59
Strongly Agree	49	16

Figure 19: Customers should feel safe in their transactions

The combined agreement for expectations was 94% and the combined agreement for perceptions was 75%.

5.4.16 DuPont employees should show courtesy to customers



Percentages		
	Expectation	Perception
Strongly Disagree	0	1
Disagree	0	1
Uncertain	5	6
Agree	33	61
Strongly Agree	63	30

Figure 20: Employees should show courtesy to customers

The combined agreement for expectations was 96% and the combined agreement for perceptions was 91%.

5.4.17 DuPont employees have the knowledge to answer customers' questions

Percentages		
	Expectation	Perception
Strongly Disagree	0	1
Disagree	0	1
Uncertain	3	13
Agree	38	58
Strongly Agree	60	28

Figure 21: Employees knowledge to answer the customers' questions

The combined agreement for expectations was 98% and the combined agreement for perceptions was 86%.

Crosstab

			Gap 17						
			-4	-2	-1	0	1	2	Total
Gender	Female	Count	0	2	7	0	2	0	11
		Expected Count	.1	1.1	3.9	4.8	1.0	.1	11.0
		Std. Residual	-.4	.9	1.6	-2.2	1.1	-.4	
	Male	Count	1	6	21	35	5	1	69
		Expected Count	.9	6.9	24.2	30.2	6.0	.9	69.0
		Std. Residual	.1	-.3	-.6	.9	-.4	.1	
Total		Count	1	8	28	35	7	1	80
		Expected Count	1.0	8.0	28.0	35.0	7.0	1.0	80.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	11.037[a]	5	.051	.073
Likelihood Ratio	15.200	5	.010	.007
Fisher's Exact Test	14.178			.006
N of Valid Cases	80			

a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .14.

Table 14: Gap 17 Gender chi-square tests

The test statistic of 14.178 is significant at the 0, 05 level of significance since p= 0,006 < 0, 05. Thus, there is a significant relationship between gender and the Gap for Q17.

Interpretation from the output: More than expected females were found to record a Gap of -1 or +1 and fewer than expected record as Gap score of 0. It appears that females are divided in their opinion on this issue with some feeling that DuPont falls short of expectation in this area and others feeling that DuPont exceeds expectation in this area. They do not, however, feel that perception equals expectation.

Crosstab

			Gap 17						Total
			-4	-2	-1	0	1	2	
Position	Admin	Count	0	0	2	3	1	0	6
		Expected Count	.1	.6	2.1	2.6	.5	.1	6.0
		Std. Residual	-.3	-.8	-.1	.2	.7	-.3	
	Manager	Count	1	4	12	13	1	1	32
		Expected Count	.4	3.2	11.2	14.0	2.8	.4	32.0
		Std. Residual	.9	.4	.2	-.3	-1.1	.9	
	Operator	Count	0	2	1	14	3	0	20
		Expected Count	.3	2.0	7.0	8.8	1.8	.3	20.0
		Std. Residual	-.5	.0	-2.3	1.8	.9	-.5	
	Technical	Count	0	2	13	5	2	0	22
		Expected Count	.3	2.2	7.7	9.6	1.9	.3	22.0
		Std. Residual	-.5	-.1	1.9	-1.5	.1	-.5	
Total		Count	1	8	28	35	7	1	80
		Expected Count	1.0	8.0	28.0	35.0	7.0	1.0	80.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	20.651[a]	15	.148	.[b]		
Likelihood Ratio	24.356	15	.059	.042		
Fisher's Exact Test	24.114			.018		
Linear-by-Linear Association	.120[c]	1	.729	.754	.390	.047
N of Valid Cases	80					

a. 18 cells (75.0%) have expected count less than 5. The minimum expected count is .08.

b. Cannot be computed because there is insufficient memory.

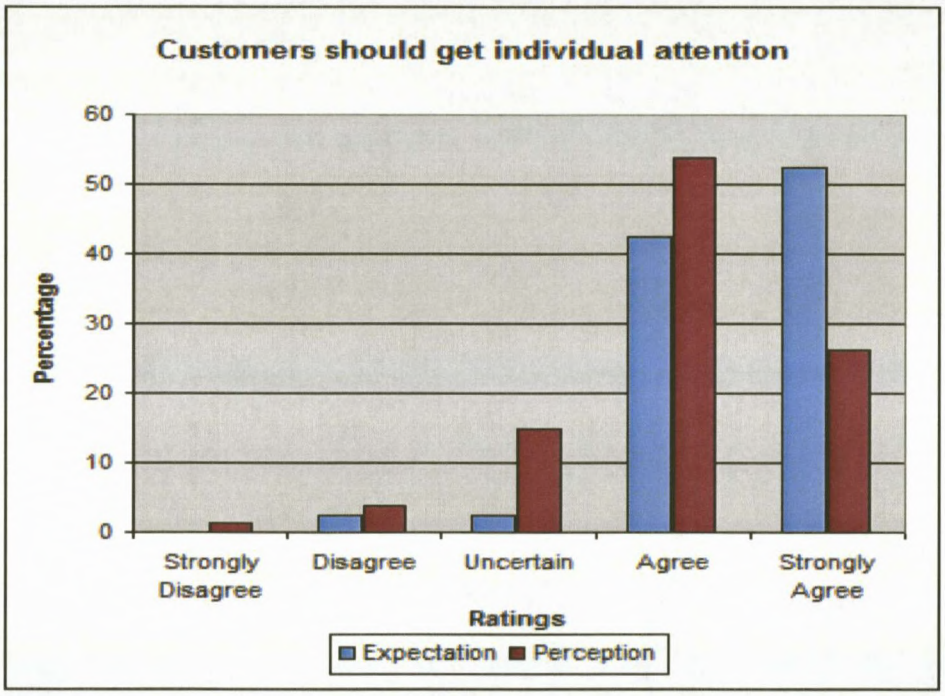
c. The standardized statistic is -.346.

Table 15: Gap 17 – Position chi-square tests

The test statistic of 24.114 is significant at the 0, 05 level of significance since p = 0,018 < 0, 05. Thus, there is a significant relationship between position and the Gap for Q17.

Interpretation from the output: More than expected 'Operators" were found to record a score of 0 and fewer than expected recorded a Gap score of -1; more than expected 'technical' recorded a Gap score of -1 and fewer than expected scored a Gap score of 0. Thus, operators feel that DuPont lives up to expectation in this area while technical staff believes that DuPont falls short of expectation in this area.

5.4.18 DuPont gives individual attention to customers

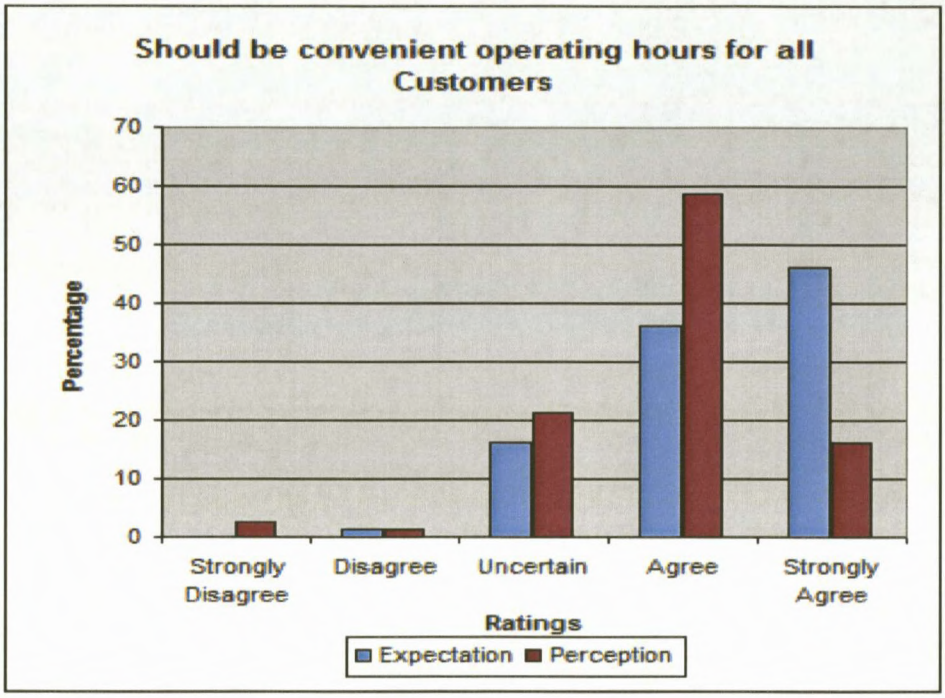


Percentages		
	Expectation	Perception
Strongly Disagree	0	1
Disagree	3	4
Uncertain	3	15
Agree	43	54
Strongly Agree	53	26

Figure 22: Customers should get individual attention

The combined agreement for expectations was 96% and the combined agreement for perceptions was 80%.

5.4.19 DuPont has convenient operating hours for all customers



Percentages		
	Expectation	Perception
Strongly Disagree	0	3
Disagree	1	1
Uncertain	16	21
Agree	36	59
Strongly Agree	46	16

Figure 23: Convenient operating hours to all customers

The combined agreement for expectations was 82% and the combined agreement for perceptions was 75%.

Descriptive Statistics

Dependent Variable: Gap 19

Position	Mean	Std. Deviation	N
Admin	-.17	.983	6
Manager	-.84	1.081	32
Operator	.05	.945	20
Technical	-.32	1.041	22
Total	-.43	1.077	80

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Gap 19

F	df1	df2	Sig.
.330	3	76	.803

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+POSIT

Tests of Between-Subjects Effects

Dependent Variable: Gap 19

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10.775[a]	3	3.592	3.379	.023
Intercept	5.573	1	5.573	5.243	.025
POSIT	10.775	3	3.592	3.379	.023
Error	80.775	76	1.063		
Total	106.000	80			
Corrected Total	91.550	79			

a. R Squared = .118 (Adjusted R Squared = .083)

Table 16: Gap 19 – Position descriptive analysis

The assumption of equal variances is not violated (Levene's test).Therefore the analysis will yield valid results. From the table of between-subject effects, it can be seen that POSIT (position) has a test statistic of 3.379 and is significant since $p = 0.023 < 0.05$. Thus, one can reject the null hypothesis that the average gap scores for the position categories are equal. Examination of Post Hoc tests shows that there are significant differences between Gap scores of 'manager and

operator'. The average Gap score for manager is -0.84 and the Gap for operator is 0.05. Thus, the managers believe that DuPont falls short of expectation in this area while the operators feel they meet expectation in this area.

5.4.20 DuPont employees should give customers personal attention

Percentages		
	Expectation	Perception
Strongly Disagree	0	3
Disagree	1	4
Uncertain	9	13
Agree	43	58
Strongly Agree	48	24

Figure 24: Personal attention for customers

The combined agreement for expectations was 91% and the combined agreement for perceptions was 82%.

Crosstab

			Gap 20						
			-3	-2	-1	0	1	2	Total
Gender	Female	Count	0	3	5	1	1	1	11
		Expected Count	.3	1.0	3.2	5.2	1.2	.1	11.0
		Std. Residual	-.5	2.1	1.0	-1.8	-.2	2.3	
	Male	Count	2	4	18	37	8	0	69
		Expected Count	1.7	6.0	19.8	32.8	7.8	.9	69.0
		Std. Residual	.2	-.8	-.4	.7	.1	-.9	
Total		Count	2	7	23	38	9	1	80
		Expected Count	2.0	7.0	23.0	38.0	9.0	1.0	80.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	16.844[a]	5	.005	.009
Likelihood Ratio	14.891	5	.011	.008
Fisher's Exact Test	14.576			.004
N of Valid Cases	80			

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .14.

Table 17: Gap 20 – Gender chi - square tests

The test statistic of 14.576 is significant at the 0, 05 level of significance since p = 0,004 < 0, 05. Thus, there is a significant relationship between gender and the gap for Q20.

Interpretation from the output: More than expected females were found to record a Gap score of -2 and fewer than expected recorded as Gap score of 0. Thus, females feel that DuPont falls short of expectation in this area.

5.4.21 DuPont should have the customers' best interest at heart

Percentages		
	Expectation	Perception
Strongly Disagree	0	0
Disagree	0	1
Uncertain	5	21
Agree	36	55
Strongly Agree	59	23

Figure 25: Having the customers' best interest at heart

The combined agreement for expectations was 95% and the combined agreement for perceptions was 78%.

Descriptive Statistics

Dependent Variable: Gap 21

Position	Mean	Std. Deviation	N
Admin	.17	.753	6
Manager	-.91	.856	32
Operator	-.35	.875	20
Technical	-.41	.734	22
Total	-.55	.870	80

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Gap 21

F	df1	df2	Sig.
.161	3	76	.922

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+POSIT

Tests of Between-Subjects Effects

Dependent Variable: Gap 21

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.380[a]	3	2.793	4.128	.009
Intercept	7.656	1	7.656	11.316	.001
POSIT	8.380	3	2.793	4.128	.009
Error	51.420	76	.677		
Total	84.000	80			
Corrected Total	59.800	79			

a. R Squared = .140 (Adjusted R Squared = .106)

Table 18: Gap 21 – Descriptive analysis on position

The assumption of equal variances is not violated (Levene's test). Therefore, the analysis will yield valid results. From the table of between-subject effects, it can be seen that POSIT (position) has a test statistic of 4.128 and is significant since $p = 0.009 < 0.05$. Thus, one can reject the null hypothesis that the average Gap scores for the position categories are equal. Examination of Post Hoc tests shows that there are significant differences between Gap scores of 'manager and admin'. The average Gap score for manager is -0.91 and the Gap for admin is

0.17. Thus, the managers believe that DuPont falls short of expectation in this area while the admin feel they meet expectation in this area.

Crosstab

			Gap 21					Total
			-3	-2	-1	0	1	
Gender	Female	Count	0	1	8	0	2	11
		Expected Count	.1	1.5	3.4	5.1	.8	11.0
		Std. Residual	-.4	-.4	2.5	-2.3	1.3	
	Male	Count	1	10	17	37	4	69
		Expected Count	.9	9.5	21.6	31.9	5.2	69.0
		Std. Residual	.1	.2	-1.0	.9	-.5	
Total		Count	1	11	25	37	6	80
		Expected Count	1.0	11.0	25.0	37.0	6.0	80.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	15.221[a]	4	.004	.007
Likelihood Ratio	18.380	4	.001	.001
Fisher's Exact Test	16.500			.001
N of Valid Cases	80			

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is .14.

Table 19: Gap 21- Chi-square tests on gender

The test statistic of 16.500 is significant at the 0, 05 level of significance since p = 0,001 < 0, 05. Thus, there is a significant relationship between gender and the Gap for Q21.

Interpretation from the output: More than expected females were found to record a Gap of -1 and fewer than expected record as Gap score of 0. Thus, females feel that DuPont falls short of expectation in this area.

Crosstab

			Gap 21					Total
			-3	-2	-1	0	1	
Position	Admin	Count	0	0	1	3	2	6
		Expected Count	.1	.8	1.9	2.8	.5	6.0
		Std. Residual	-.3	-.9	-.6	.1	2.3	
	Manager	Count	0	9	12	10	1	32
		Expected Count	.4	4.4	10.0	14.8	2.4	32.0
		Std. Residual	-.6	2.2	.6	-1.2	-.9	
	Operator	Count	1	1	3	14	1	20
		Expected Count	.3	2.8	6.3	9.3	1.5	20.0
		Std. Residual	1.5	-1.1	-1.3	1.6	-.4	
	Technical	Count	0	1	9	10	2	22
		Expected Count	.3	3.0	6.9	10.2	1.7	22.0
		Std. Residual	-.5	-1.2	.8	-.1	.3	
Total		Count	1	11	25	37	6	80
		Expected Count	1.0	11.0	25.0	37.0	6.0	80.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	24.672[a]	12	.016	.[b]		
Likelihood Ratio	23.038	12	.027	.026		
Fisher's Exact Test	21.317			.015		
Linear-by-Linear Association	.639[c]	1	.424	.459	.234	.039
N of Valid Cases	80					

a. 14 cells (70.0%) have expected count less than 5. The minimum expected count is .08.

b. Cannot be computed because there is insufficient memory.

c. The standardized statistic is .799.

Table 20: Gap 21- Chi-square tests on position

The test statistic of 24.672 is significant at the zero, 05 level of significance since p = 0,015 < 0, 05. Thus, there is a significant relationship between position and the Gap for Q21.

Interpretation from the output: More than expected 'Admin' were found to record a Gap of +1, more than expected 'managers' recorded a Gap score of -2 and

more than expected 'operators' recorded a Gap score of 0. Thus 'Admin' feels that DuPont exceeds expectation, 'Managers' feel they don't live up to expectation and operators feel that DuPont lives up to expectation in this area.

5.4.22 DuPont employees understand the specific needs of the customers

Percentages		
	Expectation	Perception
Strongly Disagree	0	0
Disagree	0	5
Uncertain	3	20
Agree	36	46
Strongly Agree	61	29

Figure 26: Understanding the specific needs of the customers

The combined agreement for expectations was 97% and the combined agreement for perceptions was 75%.

5.4.23 GAP scores for the SERVQUAL questions

Question	Expectation Mean	Perception Mean	GAP
1	4.113	3.688	-0.425
2	4.113	3.588	-0.525
3	4.375	4.025	-0.350
4	4.213	3.688	-0.525
5	4.625	3.900	-0.725
6	4.725	4.150	-0.575
7	4.563	3.663	-0.900
8	4.650	3.838	-0.813
9	4.400	3.725	-0.675
10	4.550	3.888	-0.663
11	4.588	3.913	-0.675
12	4.688	4.263	-0.425
13	4.363	4.076	-0.287
14	4.675	4.063	-0.613
15	4.425	3.850	-0.575
16	4.575	4.175	-0.400
17	4.575	4.088	-0.488
18	4.450	4.000	-0.450
19	4.275	3.850	-0.425
20	4.363	3.963	-0.400
21	4.538	3.988	-0.550
22	4.588	3.988	-0.600

Table 21: GAP scores for the SERVQUAL questions

For each question, the Gap between the expectation mean and the perception mean is recorded.

5.5 DIMENSIONS

5.5.1 Average rating for each SERVQUAL question

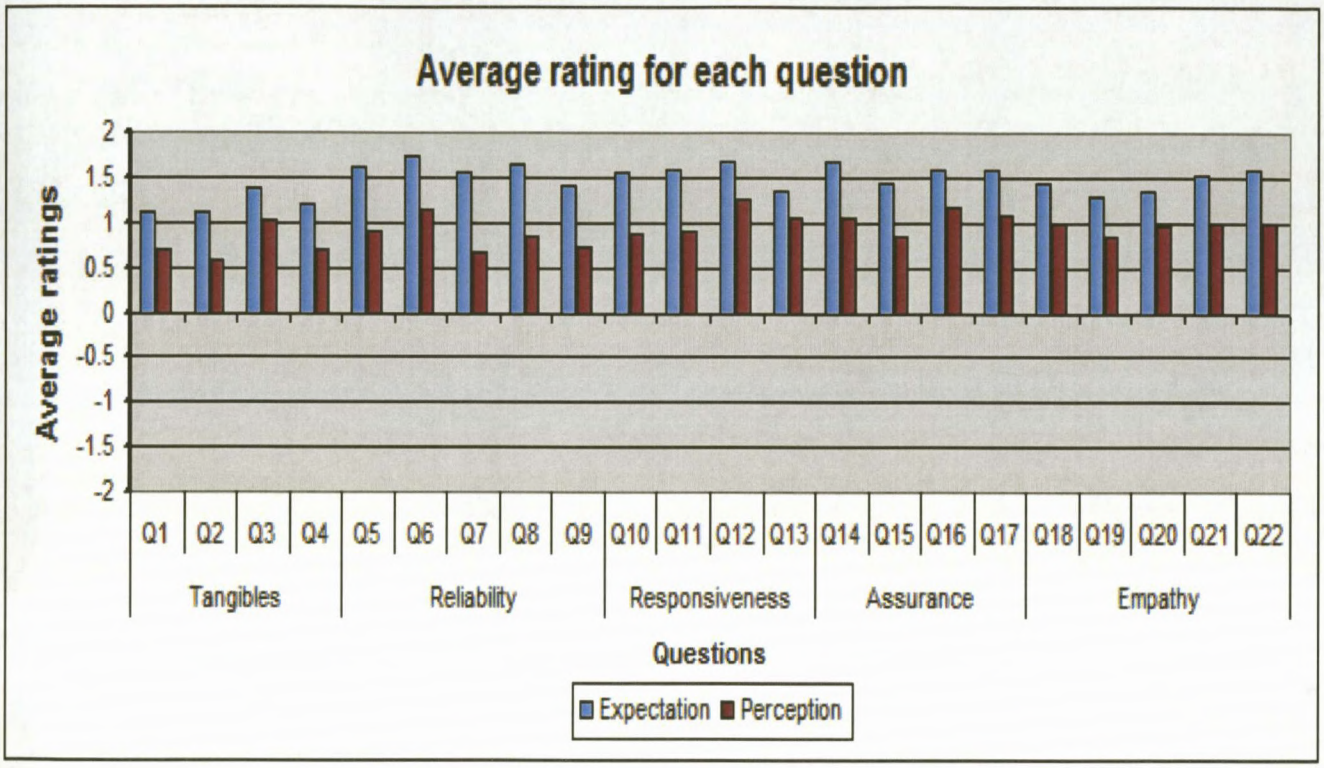


Figure 27: Rating for each question

The responses to the expectation and perceptions were compared for each of the five SERVQUAL dimensions. In every question, the expectation exceeded the perception. Each dimension will be discussed individually.

5.5.2 Average GAP score for each question

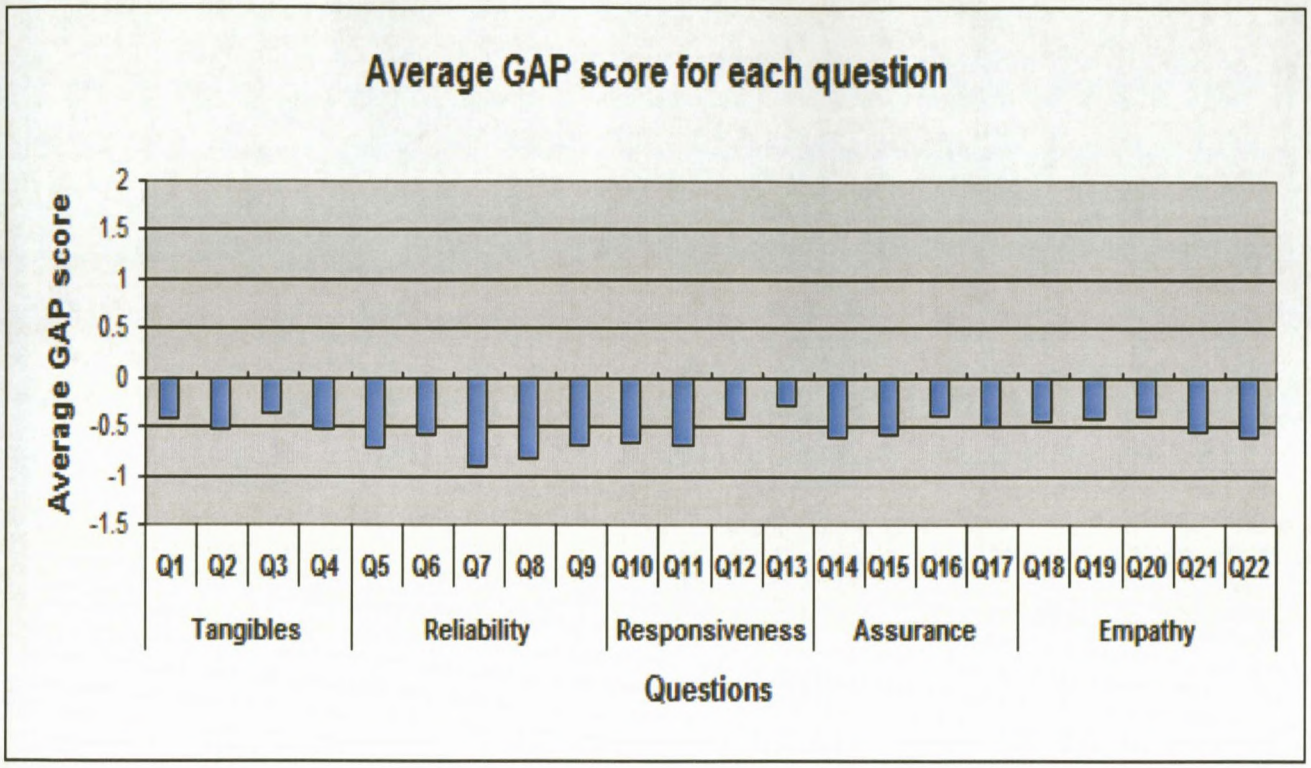
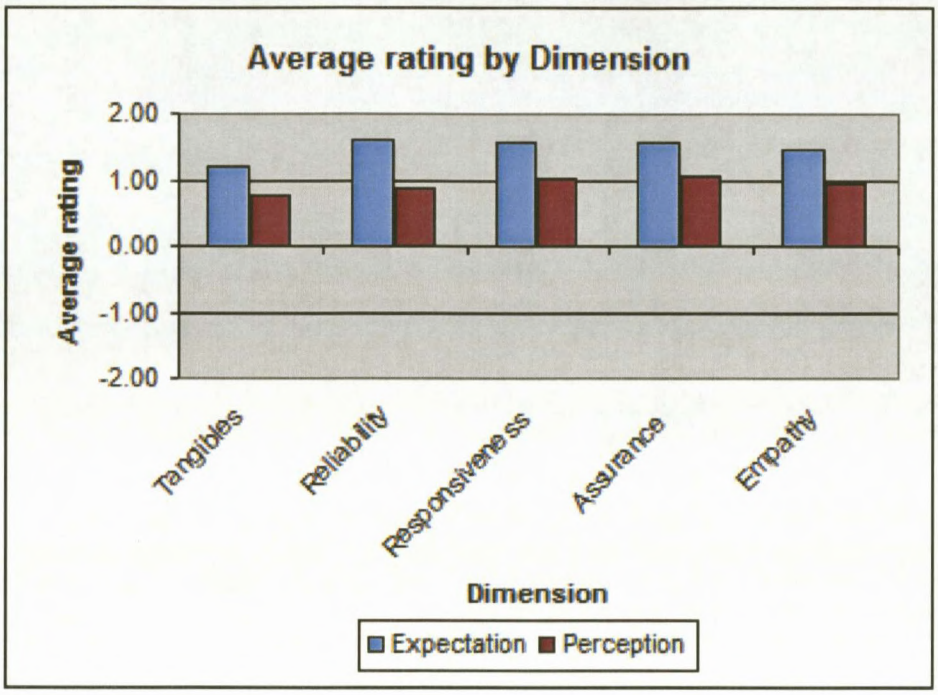


Figure 28: Average GAP score for each question

The average GAP scores for each question in all cases were below the expectations. Questions 7 and 8 had the biggest Gaps while questions 3 and 13 had the lowest Gaps.

5.5.3 Average EXP and PER rating for each dimension

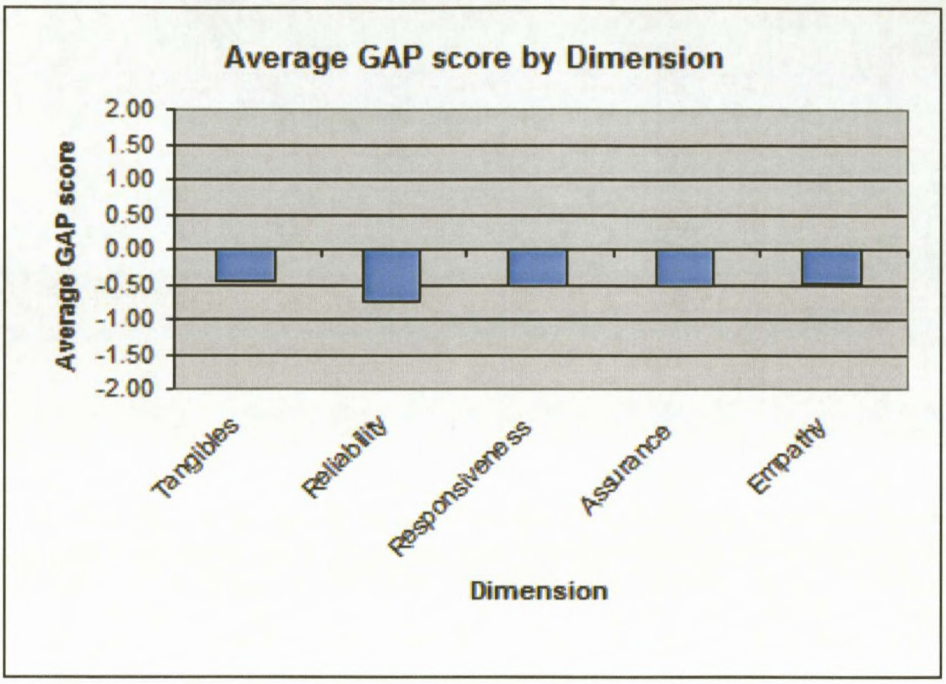


	Tangibles	Reliability	Responsiveness	Assurance	Empathy
Expectation	1.20	1.59	1.55	1.56	1.44
Perception	0.75	0.86	1.03	1.04	0.96

Figure 29: Average rating by dimension

The five SERVQUAL dimensions were rated and in all cases, the perception was lower than the expectation.

5.5.4 Average GAP score by dimension



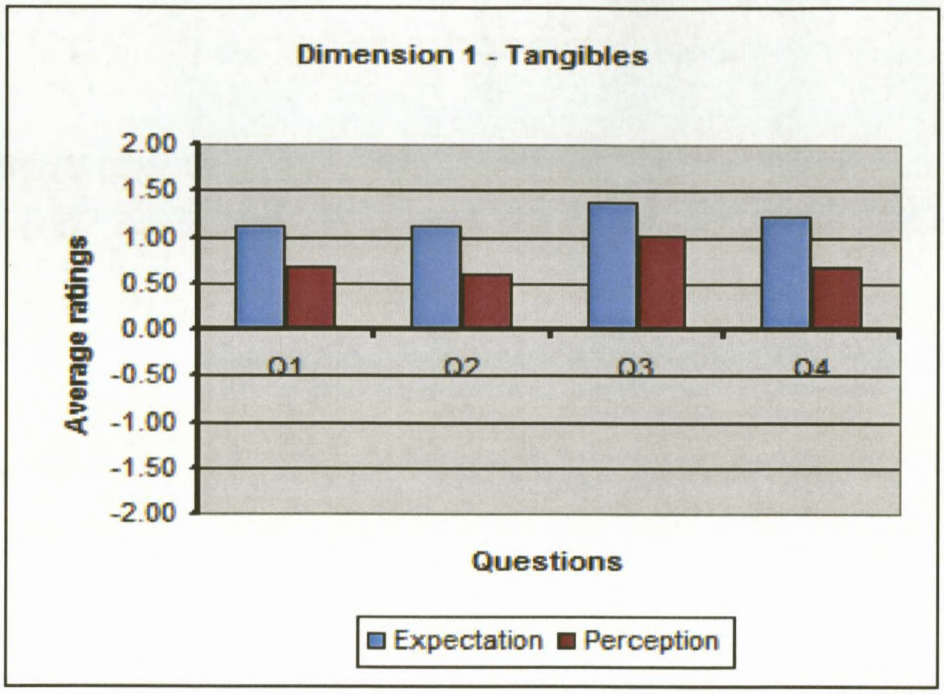
	Tangibles	Reliability	Responsiveness	Assurance	Empathy
GAP	-0.46	-0.74	-0.51	-0.52	-0.49

Figure 30: Average GAP score by dimension

The average Gap score for each dimension was = perception – expectation. The score for reliability was the lowest at – 0.74.

5.6 Each dimension

5.6.1 Average rating for the tangibles question



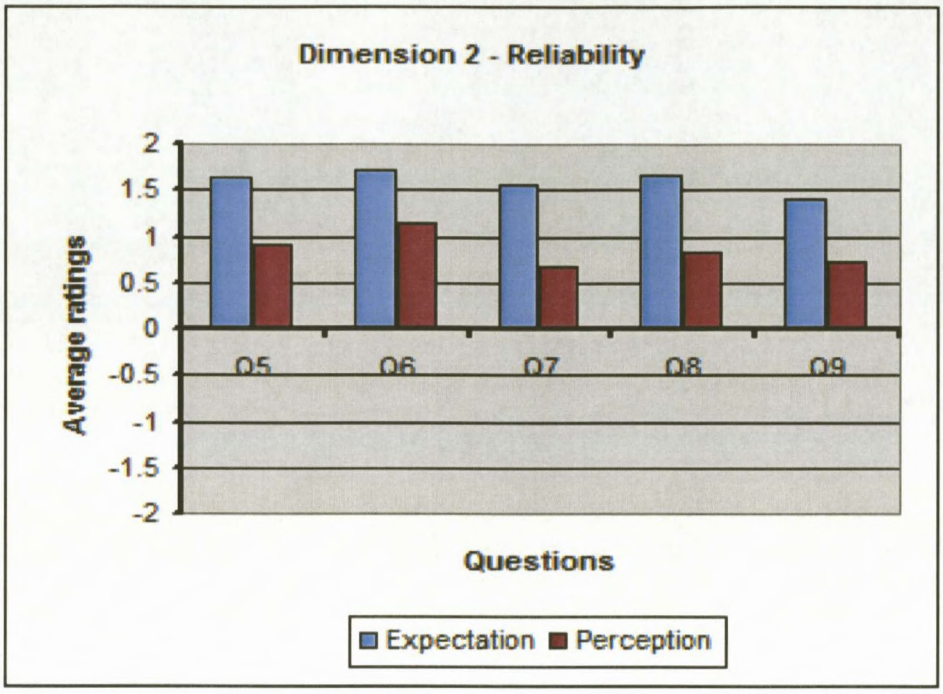
Exp and Per Average scores

DIM1	Q1	Q2	Q3	Q4
Expectation	1.11	1.11	1.38	1.21
Perception	0.6875	0.5875	1.025	0.6875

Figure 31: Rating for tangibles

For the tangible dimension, question two was rated the lowest for perception at 0.5875.

5.6.2 Average rating for the reliability question

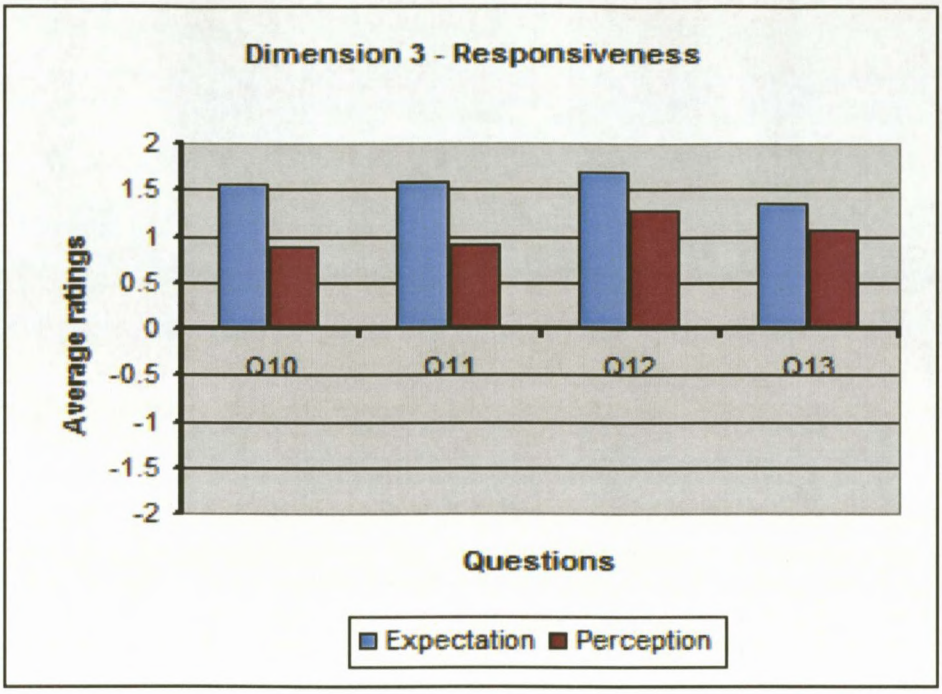


DIM2	Q5	Q6	Q7	Q8	Q9	
Expectation	1.625	1.725	1.5625	1.65	1.4	
Perception	0.9	1.15	0.6625	0.8375	0.725	

Figure 32: Rating for reliability

For the reliability dimension, question seven was rated the lowest for perception at 0.6625.

5.6.3 Average rating for the responsiveness question

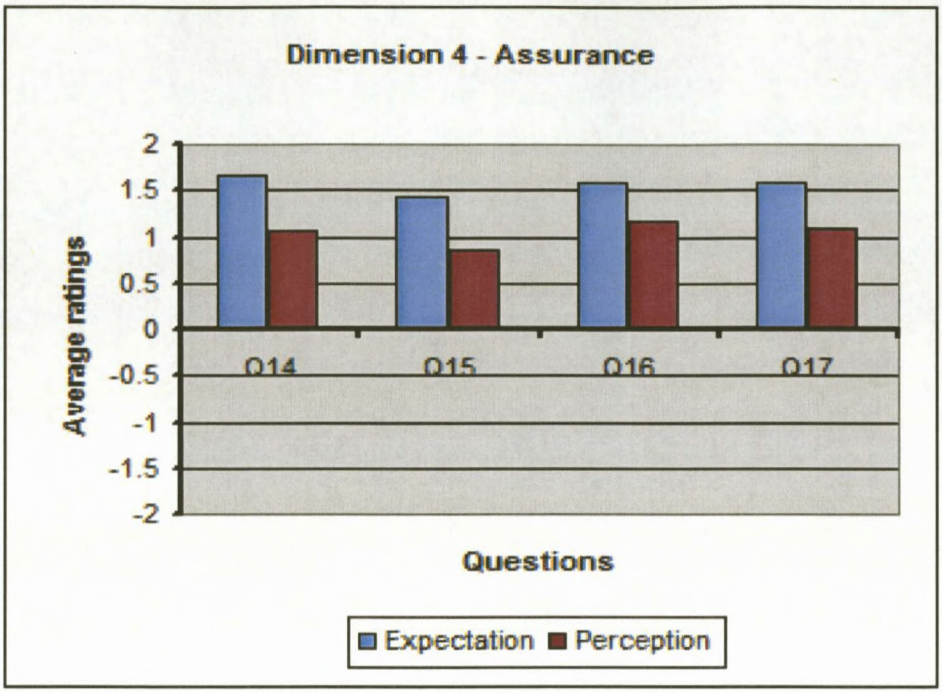


DIM3	Q10	Q11	Q12	Q13
Expectation	1.55	1.5875	1.6875	1.3625
Perception	0.8875	0.9125	1.2625	1.0625

Figure 33: Rating for responsiveness

For the responsiveness dimension, question ten was rated the lowest for perception at 0.8875.

5.6.4 Average rating for the assurance question

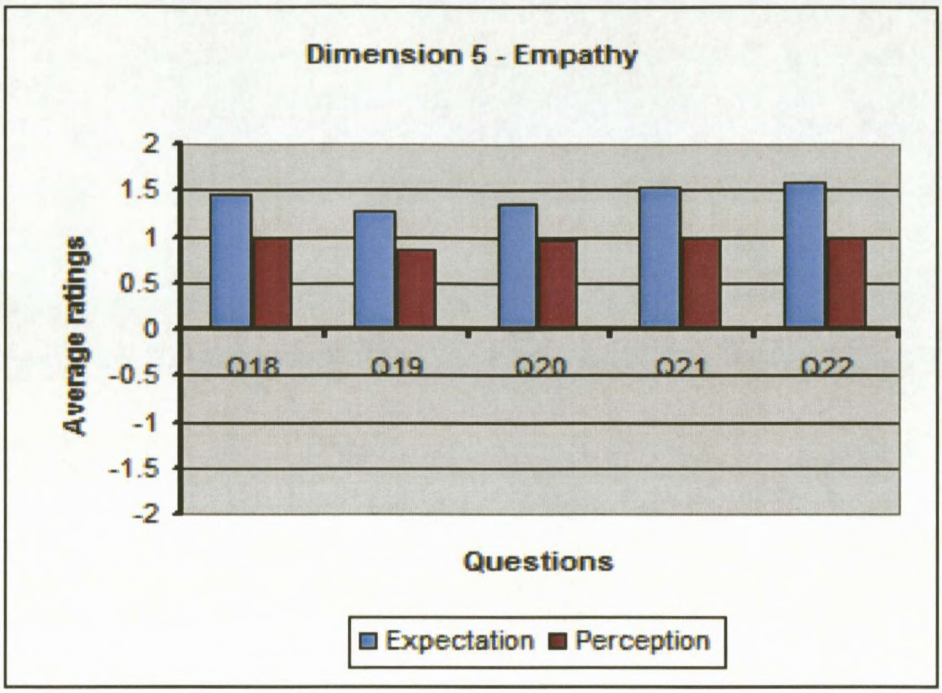


DIM4	Q14	Q15	Q16	Q17
Expectation	1.675	1.425	1.575	1.575
Perception	1.0625	0.85	1.175	1.0875

Figure 34: Rating for assurance

For the assurance dimension, question fifteen was rated the lowest for perception at 0.85.

5.6.5 Average rating for the empathy question



DIM5	Q18	Q19	Q20	Q21	Q22
Expectation	1.45	1.275	1.3625	1.5375	1.5875
Perception	1	0.85	0.9625	0.9875	0.9875

Figure 35: Rating for empathy

For the Empathy dimension, question nineteen was rated the lowest for perception at 0.85.

5.7 CONCLUSION

Chapter five covers a presentation of the survey analysis where descriptive and inferential statistical methods were used. The results indicate that TSAMs' perception of service quality at DuPont falls below their expectations, presenting a great challenge to the organization, especially in the areas of reliability, assurance and responsiveness, respectively.

Chapter six embarks on describing the interpretation of the results and includes the analysis and discussion.

CHAPTER SIX

INTERPRETATION OF RESULTS (ANALYSIS, DISCUSSION AND FINDINGS)

6.1 INTRODUCTION

Chapter six embarks on describing the interpretation of the results and includes the analysis and discussion. The discussion includes the present status of DuPont and improvements of the bench marking systems.

6.2 DESCRIPTIVE AND INFERENTIAL STATISTICAL TECHNIQUES

6.2.1 -Tests/ANOVA

t-tests and ANOVA (Analysis of variance) test the hypothesis that mean values across categories are the same. If there are only two categories, then the t-test is applicable. For more than two categories, as in the case with Department and Position, ANOVA is applied. Assumptions for this method to produce valid results are that the data follow an approximately normal distribution and that the variance for each category is the roughly the same. For a sample size of more than 40, absolute normality is not essential. Homogeneity of variances is calculated in the SPSS package and adjustments to the t-values are made if variances are not equal.

This analysis was carried out on the Gap scores for the 22 questions. The hypotheses tested are:

H0: Average Gap score for females = average Gap score for males
(t-test is applied)

H0: Average Gap scores for Department categories are equal

(ANOVA is applied)

and H0: Average Gap scores for Position categories are equal
(ANOVA is applied)

The significant results are discussed below.

6.2.2 GENDER

Question 5 – (Tasks are done on time).

With equal variances, the test statistic of 2.192 is significant ($p = 0.031 < 0.05$). Thus, the average Gap score for females is different from that of the males.

The same interpretation can be made for Question 6 (Sincere interest is shown in solving a Customer's problem), Question 10 (Customers will know exactly when services will be carried out) and Question 11 (Customers will get prompt service).

All the average Gaps calculated for these questions are negative. This finding indicates that perceived performance doesn't measure up to expected performance and results from the group statistics tables below indicate that, in each case, the perceived performance falls further from expectation for females than males.

All the group statistics for the gender analysis is represented in the table 22 below.

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Gap 1	Male	69	-.54	.917	.110
	Female	11	.27	1.489	.449
Gap 2	Male	69	-.61	.861	.104
	Female	11	.00	1.612	.486
Gap 3	Male	69	-.42	.976	.118
	Female	11	.09	.831	.251
Gap 4	Male	69	-.55	.814	.098
	Female	11	-.36	.809	.244
Gap 5	Male	69	-.64	.907	.109
	Female	11	-1.27	.786	.237
Gap 6	Male	69	-.46	.884	.106
	Female	11	-1.27	1.104	.333
Gap 7	Male	69	-.83	1.057	.127
	Female	11	-1.36	.924	.279
Gap 8	Male	69	-.74	1.080	.130
	Female	11	-1.27	.786	.237
Gap 9	Male	69	-.62	1.099	.132
	Female	11	-1.00	1.000	.302
Gap 10	Male	69	-.58	.812	.098
	Female	11	-1.18	.982	.296
Gap 11	Male	69	-.55	1.051	.126
	Female	11	-1.45	1.036	.312
Gap 12	Male	69	-.35	.937	.113
	Female	11	-.91	1.044	.315
Gap 13	Male	68	-.22	.928	.113
	Female	11	-.73	1.272	.384
Gap 14	Male	69	-.55	.993	.120
	Female	11	-1.00	.775	.234
Gap 15	Male	69	-.52	.964	.116
	Female	11	-.91	1.044	.315
Gap 16	Male	69	-.36	.857	.103
	Female	11	-.64	.809	.244
Gap 17	Male	69	-.43	.915	.110
	Female	11	-.82	.982	.296
Gap 18	Male	69	-.39	.927	.112
	Female	11	-.82	.874	.263
Gap 19	Male	69	-.42	1.104	.133
	Female	11	-.45	.934	.282
Gap 20	Male	69	-.35	.872	.105
	Female	11	-.73	1.272	.384
Gap 21	Male	69	-.52	.868	.104
	Female	11	-.73	.905	.273
Gap 22	Male	69	-.57	.813	.098
	Female	11	-.82	.982	.296

Table 22: Gender group statistics

An independent samples test was also conducted and for the analysis, (Refer to appendix 4).

6.3 DEPARTMENT

Anova was applied to this data since there are 5 categories within the Department classification. Thus, one is testing whether the average Gaps for all the categories are equal.

- For Q10, the maintenance department believes that the perception exceeds expectation, while the other departments feel DuPont falls short of expectation in this area.
- For Q14, TAC believes that the perception exceeds expectation, while PP3/VFL feels DuPont falls short of expectation in this area.

6.4 POSITION

Anova was applied to this data since there are 4 categories within the Position classification. Thus, one is testing whether the average Gaps for all the categories are equal.

- For Q6, the managers believe that DuPont falls short of expectation in this area than the operators do.
- For Q7, the managers believe that DuPont falls short of expectation in this area than the operators do.
- For Q9, the managers and technicians believe that DuPont falls short of expectation in this area than the operators do.
- For Q11, the managers believe that DuPont falls short of expectation in this area than the operators do.
- For Q14, the managers believe that DuPont falls short of expectation in this area than the operators do.

- For Q19, the managers believe that DuPont falls short of expectation in this area than the operators do.
- For Q21, the managers believe that DuPont falls short of expectation in this area while the admin feel they meet expectation in this area.

6.5 ANALYSIS OF THE GAPS

Gap = Perception – Expectation

Therefore the bigger the value, the closer will be the perception of the area under question to one's expectation.

For each of the questions, the average GAP was calculated. A t-test was then applied to test:

H0: Average value for Gap = 0

(This hypothesis is equivalent to testing that the average for perception expectation = average for expectation).

6.5.1 One-Sample Statistics

A one-sample statistics was also conducted and the analysis is represented in table 23 below.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Gap 1	80	-.43	1.041	.116
Gap 2	80	-.53	1.006	.112
Gap 3	80	-.35	.969	.108
Gap 4	80	-.53	.811	.091
Gap 5	80	-.73	.914	.102
Gap 6	80	-.57	.952	.106
Gap 7	80	-.90	1.051	.117
Gap 8	80	-.81	1.057	.118
Gap 9	80	-.68	1.088	.122
Gap 10	80	-.66	.856	.096
Gap 11	80	-.68	1.088	.122
Gap 12	80	-.43	.965	.108
Gap 13	79	-.29	.989	.111
Gap 14	80	-.61	.974	.109
Gap 15	80	-.57	.978	.109
Gap 16	80	-.40	.851	.095
Gap 17	80	-.49	.928	.104
Gap 18	80	-.45	.926	.104
Gap 19	80	-.43	1.077	.120
Gap 20	80	-.40	.936	.105
Gap 21	80	-.55	.870	.097
Gap 22	80	-.60	.836	.093

Table 23: One – sample statistics N

6.5.2 One-Sample t-Test

A one-sample t-test was also conducted and the analysis is represented in table 24 below.

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Gap 1	-3.653	79	.000	-.43	-.66	-.19
Gap 2	-4.668	79	.000	-.53	-.75	-.30
Gap 3	-3.230	79	.002	-.35	-.57	-.13
Gap 4	-5.791	79	.000	-.53	-.71	-.34
Gap 5	-7.097	79	.000	-.73	-.93	-.52
Gap 6	-5.404	79	.000	-.57	-.79	-.36
Gap 7	-7.662	79	.000	-.90	-1.13	-.67
Gap 8	-6.878	79	.000	-.81	-1.05	-.58
Gap 9	-5.548	79	.000	-.68	-.92	-.43
Gap 10	-6.922	79	.000	-.66	-.85	-.47
Gap 11	-5.548	79	.000	-.68	-.92	-.43
Gap 12	-3.940	79	.000	-.43	-.64	-.21
Gap 13	-2.616	78	.011	-.29	-.51	-.07
Gap 14	-5.623	79	.000	-.61	-.83	-.40
Gap 15	-5.259	79	.000	-.57	-.79	-.36
Gap 16	-4.205	79	.000	-.40	-.59	-.21
Gap 17	-4.700	79	.000	-.49	-.69	-.28
Gap 18	-4.345	79	.000	-.45	-.66	-.24
Gap 19	-3.531	79	.001	-.43	-.66	-.19
Gap 20	-3.823	79	.000	-.40	-.61	-.19
Gap 21	-5.654	79	.000	-.55	-.74	-.36
Gap 22	-6.420	79	.000	-.60	-.79	-.41

Table 24: One – sample t-test

The results show that, for each question, the gap is significantly different from zero (0). Thus, the expectations and the perceptions of the respondents are significantly different. In each case, since the test statistic (t) is a negative number, one can conclude that the rating for expectation is higher than the rating for perception.

When one orders the GAPS, the following result was obtained:

	-
DIFF13	0.29114
DIFF3	-0.35
DIFF16	-0.4
DIFF20	-0.4
DIFF1	-0.425
DIFF12	-0.425
DIFF19	-0.425
DIFF18	-0.45
DIFF17	-0.4875
DIFF2	-0.525
DIFF4	-0.525
DIFF21	-0.55
DIFF6	-0.575
DIFF15	-0.575
DIFF22	-0.6
DIFF14	-0.6125
DIFF10	-0.6625
DIFF9	-0.675
DIFF11	-0.675
DIFF5	-0.725
DIFF8	-0.8125
DIFF7	-0.9

Table 25: GAPS were ordered.

Q7 (Performing the service right the first time) is clearly the item which falls furthest from expectation. This question falls in the reliability dimension. This is an unexpected finding as the literature research has shown this to be the most important dimension.

Q13 (employees are never too busy to respond to requests of Customers) is the item which comes closest to expectation. This finding falls in the responsiveness dimension.

6.5.3 ANALYSIS OF THE DIMENSIONS

The analyses of the five dimensions are represented in table 27 below.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Dimension 1	80	-.4563	.60034	.06712
Dimension 2	80	-.7375	.80918	.09047
Dimension 3	80	-.5146	.81529	.09115
Dimension 4	80	-.5188	.74287	.08306
Dimension 5	80	-.4850	.70927	.07930

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Dimension 1	-6.798	79	.000	-.4563	-.5898	-.3227
Dimension 2	-8.152	79	.000	-.7375	-.9176	-.5574
Dimension 3	-5.645	79	.000	-.5146	-.6960	-.3332
Dimension 4	-6.246	79	.000	-.5188	-.6841	-.3534
Dimension 5	-6.116	79	.000	-.4850	-.6428	-.3272

Table 26: Analysis of the dimensions

The questions were grouped into their dimensions and, for each dimension; the following average gap rating was calculated.

Dimension	Average gap rating
Tangibles	-0.46
Reliability	-0.74
Responsiveness	-0.51
Assurance	-0.52
Empathy	-0.49

SORTED=>

Dimension	Average gap rating
Tangibles	-0.46
Empathy	-0.49
Responsiveness	-0.51
Assurance	-0.52
Reliability	-0.74

Thus, the Tangibles rate nearest to expectation and Reliability falls furthest from expectation.

As all the questions tested on a t-test showed significant difference in expectation and perception, the same can be concluded for each dimension.

6.6 INFERENTIAL STATISTICS

6.6.1 Paired sample t-test

A paired sample t-test was carried out on each of the 22 questions to determine whether the mean rating of perceptions is different from the mean rating of expectations. For a complete statistical analysis, (Refer to appendix 5).

A t-test was carried out on each of the 22 questions to determine whether the mean rating of perceptions is different from the mean rating of expectations. The paired sample form of the t-test was applied since the same subjects were used to rate both expectation and perception.

The null hypothesis can be stated as:

H0: Mean Expected rating - Mean Perceived rating =0

If the null hypothesis is rejected, it can be said that the mean rating of perception is significantly different from the mean rating of expectation and not just by chance alone.

In order to apply this test, it is important to meet the following assumption. The difference measure between expectation and perception follows a normal distribution. In this case, since the sample size of 80 is large, one can proceed with the test even if the assumption of normality is not met.

From the results of this analysis, it is seen that the mean perception ratings and the mean expectation ratings for each area of service quality are clearly different from each other and statistically significant at $p < 0.05$. Furthermore, the calculated test statistic (t) is positive which indicates that the mean expectation rating is greater than the mean perception rating for each question. One can deduce, from this finding, that perceived service quality in each area does not meet expectations.

6.6.2 Chi-square goodness-of-fit test

A Chi square goodness - of – fit test was conducted on the 22 questions to determine the frequency of any rating. The analysis is represented in table 27 below.

Question	Asymp. sig	Occurred significantly more often than expected	Occurred significantly less often than expected
Exp1	<.0005	Agree	
Exp2	<.0005	Agree	
Exp3	<.0005	Agree	
Exp4	<.0005	Agree/Strongly Agree	
Exp5	<.0005	Strongly Agree	
Exp6	<.0005	Strongly Agree	
Exp7	<.0005	Strongly Agree	
Exp8	<.0005	Strongly Agree	
Exp9	<.0005	Agree/Strongly Agree	
Exp10	<.0005	Strongly Agree	
Exp11	<.0005	Strongly Agree	
Exp12	<.0005	Strongly Agree	
Exp13	<.0005	Agree/Strongly Agree	
Exp14	<.0005	Strongly Agree	
Exp15	<.0005	Agree/Strongly Agree	
Exp16	<.0005	Strongly Agree	
Exp17	<.0005	Strongly Agree	
Exp18	<.0005	Strongly Agree	
Exp19	<.0005	Strongly Agree	
Exp20	<.0005	Strongly Agree	
Exp21	<.0005	Strongly Agree	
Exp22	<.0005	Strongly Agree	
Per1	<.0005	Uncertain/Agree	
Per2	<.0005	Uncertain/Agree	
Per3	<.0005	Agree	
Per4	<.0005	Agree	Strongly Disagree
Per5	<.0005	Agree	
Per6	<.0005	Agree	
Per7	<.0005	Agree	
Per8	<.0005	Agree	
Per9	<.0005	Agree	
Per10	<.0005	Agree	
Per11	<.0005	Agree	
Per12	<.0005	Agree/Strongly Agree	
Per13	<.0005	Agree	
Per14	<.0005	Agree	
Per15	<.0005	Agree	
Per16	<.0005	Agree	
Per17	<.0005	Agree	
Per18	<.0005	Agree	
Per19	<.0005	Agree	
Per20	<.0005	Agree	
Per21	<.0005	Agree	
Per22	<.0005	Agree	

Table 27: Chi square goodness - of – fit test

When examining both the expectation and perception of service quality in a specific area, it may be of interest to ascertain whether a particular rating is given more often than another rating. In order to do this result, a chi-square goodness of fit test is applied to test the hypothesis:

H0: The 5 ratings are equally likely to occur

If the null hypothesis is rejected it can be concluded that a particular rating is selected more (or less) often than other ratings and not as expected under the null hypothesis.

From the results, it is clear that for each of the expectation questions, the rating of 'Agree' or 'Strongly agree' was given more that expected. This finding indicates that all areas of service quality are important and are expected to be of a high standard.

For the ratings perception "Agree" occurred more often than expected. Although the agreement of service is not as high for the ratings perception as for the expected ratings, it is clear that all areas of the company are above average with a small room for improvement.

These results are all statistically significant at $p<.0005$.

6.7 MORE INFERENTIAL ANALYSIS

6.7.1 Significance testing on cross tabs by Gender, Department and Position

The chi-squared test of independence is applied to all the cross-tabulated data where different questions are separated by 'personal' information. The data used for this analysis were the Gap measurement data. The crosstabs were calculated as the frequency of certain classifications (e.g. males) scoring a Gap of say -2.

For chi-square results to be valid, the expected frequencies in the cells have to conform to certain conditions. No expected frequency can be less than 1 and at most 20% can be less than 5.

Since the sample size for this study is not very large, the expected frequencies are frequently small and, therefore, the results of the chi-squared tests are not valid. Thus, a Fisher's exact test is done.

Exact tests provide a means of obtaining accurate results when the data fails to meet any of the underlying assumptions necessary for reliable results using the standard asymptotic method. The exact significance is always reliable, regardless of size, distribution, sparseness or balance of the data.

For these analyses, the hypotheses are defined as follows:

H0: The question being measured is independent of gender.
H1: The question being measured is not independent of gender.

H0: The question being measured is independent of position.
H1: The question being measured is not independent of position.

H0: The question being measured is independent of Department.
H1: The question being measured is not independent of Department.

Note that only the significant results were reported and discussed in Chapter 5 for each question, where relevant.

6.8 CONCLUSION

The perceived gap highlighted from the TSAM's technical department could be related to the nature of the business. For the last 3 years, there has been a steady and substantial increase in advanced technology. A huge proportion of

the TSAM workforce had been to Japan for specific training and operation of this technology, but this opportunity had not been offered to the DuPont team.

The TSAM management team includes the senior and middle management together with the team leaders who were also classified as management in a Japanese company. In addition, another factor, which is of significant importance, is the parallel management system of Japanese personnel with their South African counterparts. These two parallel tiers of management had to deliver to world class standards when benchmarked against the other Toyota plants around the world. Their perception of quality service with speedy resolution of problems was compared against this background. The continuous improvement systems (or Kaizen teams) monitor and evaluate performance against these quality system tools that are fundamental to the "Toyota Way".

Chapter seven contains the conclusions and recommendations based on the literature and empirical study.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

Chapter seven contains the conclusions and recommendations based on the literature and empirical study. In addition, a critique of this study is included to take cognizance of certain limitations, which could have influenced the study.

7.2 CONCLUSIONS

The results have indicated that TSAM' expectations of customer service which they receive from DuPont exceed their perceptions. If expectations are greater than performance, then perceived quality is less than satisfactory and, hence, customer dissatisfaction occurs (Parasuraman et al., 1985).

The highest Gap scores were recorded for Reliability, Assurance and Responsiveness respectively. In fact, Gap scores for Assurance and Responsiveness were similar. For DuPont, this is a cause for real concern and provides a foundation for any service improvement initiatives. It is very evident that the customer, who is TSAM, expects most from the reliability dimension of the service provided by DuPont. A relatively lower importance was attributed to the Tangible dimension because; in the main area of service delivery, work attire is a prerequisite. TSAM attached more importance to the delivery aspects of the service from DuPont.

7.3 RECOMMENDATIONS

Shahin (2003) states that there are seven major Gaps. He includes a further two Gaps, that is Gap6 and Gap7. According to the recent research, Gap1, Gap5 and Gap6 are more associated with the external customers.

Gap 6: The discrepancy between customer expectations and employees' perceptions occurred as a result of the differences in the understanding of customer expectations by front-line service providers.

Gap 7: The discrepancy between employee's perceptions and management perceptions occurred as a result of the differences in the understanding of customer expectations between managers and service providers.

These two Gaps include employees who can directly influence delivery of front-line service to customers. There has been rapid change and South African organizations are now on the brink of implementing major changes in the style of governance, which has positively influenced service delivery.

The following are in place at DuPont from a benchmarking perspective:

7.3.1 Analysis of complaints

Dissatisfaction of customers is most clearly voiced through the complaints that they make about service provision. In truly market-orientated organizations, complaints analysis forms a useful guide as to where the process of service delivery is breaking down and, subsequently, appropriate action could be taken. (Palmer, 1998:152-177).

Complaint analysis is also part of the DuPont business excellence framework. Countermeasures are in place to find the root cause of each complaint. This

cause should be revisited so that alignment can take place with the customers' specific needs.

7.3.2 Commitment to ongoing Quality Improvement

The following initiatives were introduced for quality improvement:

- Recent customer audits at TSAM were 90% (2007),
- Quality accreditations to date were QS 9000, ISO 9001/2000, and TS 16949.
- Risk Audit was conducted by Marsh (90%).
- Environmental Compliance Accreditation: ISO 14001.

7.3.3 Business process at DuPont - Benchmarking

The philosophy of Value Based Management (VBM) was introduced at DuPont. VBM is a process whereby the company aims to double the value for its 4 stakeholders every 4 years (i.e. 2 X 4 X 4).
The four stakeholders are:

- Customers;
- Employees;
- Shareholders; and
- Suppliers.

There is an annual internal climate survey of all staff at DuPont to enable managers to keep in touch with employee feelings, views and perceptions about the company and to provide an overall measure of employee satisfaction. This survey is important since there is a very close link between customer and staff satisfaction. The survey also assists to focus on aspects within their businesses that create profitability and value for their customers.

As part of a global employer, DuPont is striving to create a diverse and inclusive company culture where their employees can maximize their potential. This culture helps DuPont to attract and retain talented employees and business partners. Since perceptions change over time, continual monitoring and adjusting action plans will assist the process.

7.3.4 Balanced Scorecard links Vision & Strategy

The balanced scorecard links vision and strategy to employee's actions. This technique is most appropriate when dealing with business-level strategies, but can also apply to corporate-level strategies. Four perspectives are integrated to form the balanced scored card framework at DuPont:

Financial – concerned with growth, profitability, and risk from shareholders' perspective.
Customer – concerned with the amount of value customers perceive was created by the firms' products or services.
Internal business processes – concerned with a focus on the priorities for various business processes that create customer and shareholder satisfaction.
Learning and growth – concerned with the firm's effort to create a climate that supports change, innovation and growth.

The balanced scorecard has the customer as one of the key stakeholders. The strategic vision, mission and intent should be re-examined to fit in with the current customer requirements. With regard to Toyota, it is a requirement that suppliers or service providers comply with the "Toyota Way".

7.3.5 Recruitment and Training

It is imperative that the future recruitment process at DuPont take cognizance of the candidate profile that suits customer service interface and servicing.

Customer service programmes and training in the future should be relevant to address the shortcomings that were highlighted in the survey. In addition, management involvement and support in addressing these weaknesses that contribute to a poorer customer service perception should be a priority item on the strategy plan agenda. A system should be put in place to evaluate continuous monitoring and improvement interventions.

More focus and attention should be paid to this important area in the company. Training and recruitment should be analyzed to align this important point of contact with the customer.

7.4 CRITIQUE OF THIS STUDY

Certain limitations could have influenced the study that was conducted. Surveying people' attitudes or perceptions is subject to certain biases. The names of the respondents were obtained during the survey; in order to protect their confidentiality the respondents may have provided socially desirable answers to questions, in some cases. Sometimes there is a tendency to furnish inappropriate answers on purpose due to mistrust, fear and conformity.

In addition, individuals may interpret and respond to the same event in a different manner. Responses to the interview questions are based on perceptions which may fail to capture actual effects, where English may not be the home language of the respondent. The survey took place during the Motor Industries Industrial action. The mood and climate during this period could have influenced the responses. The survey was conducted with a multi-linguistic and multi-cultural society, whose interpretations of a similar concept may vary significantly. Some respondents may have been cautious of being over critical while others might have used this opportunity to protest against certain issues without giving reasons.

According to Bless & Higson-Smith (2000), the interviewer can also bias the information by recording inaccurately, either by translating the response of the participant into the interviewer's own views or interpretation. There is also a possibility of the researcher's bias, which could affect the answer of the respondent through personal characteristics, such as being too impatient, partial or aggressive. Although the questionnaires were pre-tested, there is a possibility that the respondents did not understand and interpret the questions according to the way that it was presented.

7.5 RECOMMENDATIONS FOR FUTURE RESEARCH

The study investigated TSAMs' perception of service quality at DuPont. The old concept of customer satisfaction and service delivery should be revisited in aligning the organization's strategic mission with the delivery of a superlative customer service. It is recommended that research continue on a yearly basis to measure performance in terms of improvement interventions that will be formulated at DuPont to address the areas of concern.

It is also recommended that the SERVQUAL tool be used to assess the performance within DuPont extended to the other six motor plants in the country. In this way, an industry benchmark can be developed with DuPont being the industry leader and setting service standards.

Both Gap6 and Gap7 should be fully investigated and integrated to subsequently improve internal and external customer service levels.

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APPENDICES

Appendix 1

Acknowledgement of Consent

I am currently undertaking a research project as part of my studies towards an MBA with the Business Studies Unit at the Durban University of Technology.

The aim of the research is to investigate TSAM's perception of service quality at DuPont.

The answers you will provide in the questionnaire will be for research purposes only. Participation is voluntary and you may decide to withdraw from the study at any time.

As a willing participant in this research, can you please sign and date your consent.

I .....voluntarily agree to participate by completing the attached questionnaire and fully understand that I may withdraw at any time.

Signature.....Date.....
.....

Your participation in this research is greatly appreciated.

Yours faithfully,
K Silas Naidoo
DuPont Barloworld

Appendix 2

Please provide the following information regarding your position at the TSAM:

DEPARTMENT	
POSITION	
GENDER	

Directions for Service Expectations Questionnaire

Based on your experiences as an employee of TSAM, please consider what you believe is quality service. What would you consider as an ideal service level from your supplier? Rating guide is as follows:

	RATINGS
1	STRONGLY DISAGREE
2	DISAGREE
3	UNCERTAIN
4	AGREE
5	STRONGLY AGREE

		EXPECTATIONS QUESTIONNAIRE				
		Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
1	An excellent Supplier will have modern-looking equipment.	1	2	3	4	5
2	The physical facilities at an excellent Supplier will be visually appealing.	1	2	3	4	5
3	Employees at an excellent Supplier will be neat appearing.	1	2	3	4	5
4	Materials associated with the service (such as procedures or mission statements) are visually appealing at DuPont.	1	2	3	4	5
5	When an excellent Supplier promises to do something by a certain time, they will do so.	1	2	3	4	5
6	When a Customer has a problem, an excellent Supplier will show a sincere interest in solving it.	1	2	3	4	5
7	An excellent Supplier will perform the service "right the first time".	1	2	3	4	5
8	An excellent Supplier will provide their services at the time they promise to do so.	1	2	3	4	5
9	An excellent Supplier will insist on error-free records.	1	2	3	4	5

		EXPECTATIONS QUESTIONNAIRE				
		Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
10	Employees at an excellent Supplier will tell Customers exactly when services will be performed.	1	2	3	4	5
11	Employees at an excellent Supplier will give prompt service to Customers.	1	2	3	4	5
12	Employees at an excellent Supplier will always be willing to help Customers.	1	2	3	4	5
13	Employees at an excellent Supplier will never be to busy to respond to Customers' requests.	1	2	3	4	5
14	The behaviour of employees at an excellent Supplier will instill confidence in Customers.	1	2	3	4	5
15	Customers of an excellent Supplier will feel safe in their transactions.	1	2	3	4	5
16	Employees at an excellent Supplier will be constantly courteous with Customers.	1	2	3	4	5

		EXPECTATIONS QUESTIONNAIRE				
		Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
17	Employees at an excellent Supplier will have the knowledge to answer Customers' questions.	1	2	3	4	5
18	An excellent Supplier will give Customers individual attention.	1	2	3	4	5
19	An excellent Supplier will have operating hours convenient to all their Customers.	1	2	3	4	5
20	An excellent Supplier will have employees who give Customers personal attention.	1	2	3	4	5
21	An excellent Supplier will have the Customers' best interest at heart.	1	2	3	4	5
22	The employees of an excellent Supplier will understand the specific needs of their Customers.	1	2	3	4	5

Directions for Service Perceptions Questionnaire

Show the extent to which you believe DuPont has a feature described by the statement. Once again, circling a 1 means you strongly disagree that DuPont has that feature, and circling a 5 means that you strongly agree. You may circle any of the numbers in the middle that show how strong your feelings are. There are no right and wrong answers - all this indicates is a number that best shows your perceptions about DuPont.

		PERCEPTIONS QUESTIONNAIRE				
		Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
1	DuPont has modern-looking equipment.	1	2	3	4	5
2	DuPont's physical facilities are visually appealing.	1	2	3	4	5
3	DuPont's employees are neat-appearing.	1	2	3	4	5
4	Materials associated with the service (such as procedures or mission statements) are visually appealing at DuPont	1	2	3	4	5
5	When DuPont promises to do something by a certain time, it does so.	1	2	3	4	5
6	When you have a problem, DuPont shows sincere interest in solving it.	1	2	3	4	5
7	DuPont performs the service "right the first time".	1	2	3	4	5
8	DuPont provides its services at the time it promises to do so.	1	2	3	4	5

		PERCEPTIONS QUESTIONNAIRE				
		Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
9	DuPont insists on error-free records.	1	2	3	4	5
10	Employees at DuPont tell you exactly when services will be performed.	1	2	3	4	5
11	Employees at DuPont give you prompt service.	1	2	3	4	5
12	Employees at DuPont are willing to help you.	1	2	3	4	5
13	Employees at DuPont are never to busy to respond to your requests.	1	2	3	4	5
14	The behaviour of employees at DuPont instills confidence in you.	1	2	3	4	5
15	You feel safe in your transactions with DuPont	1	2	3	4	5
16	Employees at DuPont are consistently courteous with you.	1	2	3	4	5
17	Employees at DuPont have the knowledge to answer your questions.	1	2	3	4	5
18	DuPont gives you individual attention.	1	2	3	4	5
19	DuPont has operating hours convenient to all its customers.	1	2	3	4	5

		PERCEPTIONS QUESTIONNAIRE				
		Strongly Disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
20	DuPont has employees who give you personal attention.	1	2	3	4	5
21	DuPont has your best interests at heart.	1	2	3	4	5
22	Employees at DuPont understand your specific needs.	1	2	3	4	5

Appendix 3 - Output Frequency Tables

Expect modern-looking equipment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	3	3.8	3.8	5.0
	Uncertain	10	12.5	12.5	17.5
	Agree	38	47.5	47.5	65.0
	Strongly Agree	28	35.0	35.0	100.0
	Total	80	100.0	100.0	

Expect visually appealing physical facilities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	1	1.3	1.3	2.5
	Uncertain	8	10.0	10.0	12.5
	Agree	48	60.0	60.0	72.5
	Strongly Agree	22	27.5	27.5	100.0
	Total	80	100.0	100.0	

Expect neat-appearing employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	5	6.3	6.3	6.3
	Agree	40	50.0	50.0	56.3
	Strongly Agree	35	43.8	43.8	100.0
	Total	80	100.0	100.0	

Expect visually appealing service materials

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	15	18.8	18.8	18.8
	Agree	33	41.3	41.3	60.0
	Strongly Agree	32	40.0	40.0	100.0
	Total	80	100.0	100.0	

Expect promises to be carried out timeously

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	2	2.5	2.5	2.5
	Agree	26	32.5	32.5	35.0
	Strongly Agree	52	65.0	65.0	100.0
	Total	80	100.0	100.0	

Expect sincere interest in solving Customer problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	2	2.5	2.5	2.5
	Agree	18	22.5	22.5	25.0
	Strongly Agree	60	75.0	75.0	100.0
	Total	80	100.0	100.0	

Expect correct service performance the first time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1.3	1.3	1.3
	Uncertain	2	2.5	2.5	3.8
	Agree	28	35.0	35.0	38.8
	Strongly Agree	49	61.3	61.3	100.0
	Total	80	100.0	100.0	

Expect services to be provided when promised

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1.3	1.3	1.3
	Uncertain	2	2.5	2.5	3.8
	Agree	21	26.3	26.3	30.0
	Strongly Agree	56	70.0	70.0	100.0
	Total	80	100.0	100.0	

Expect error-free records

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	6	7.5	7.5	7.5
	Agree	36	45.0	45.0	52.5
	Strongly Agree	38	47.5	47.5	100.0
	Total	80	100.0	100.0	

Expect clear communication regarding services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1.3	1.3	1.3
	Uncertain	1	1.3	1.3	2.5
	Agree	31	38.8	38.8	41.3
	Strongly Agree	47	58.8	58.8	100.0
	Total	80	100.0	100.0	

Expect prompt service for Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	2	2.5	2.5	2.5
	Agree	29	36.3	36.3	38.8
	Strongly Agree	49	61.3	61.3	100.0
	Total	80	100.0	100.0	

Expect willing employees to help Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	1	1.3	1.3	1.3
	Agree	23	28.8	28.8	30.0
	Strongly Agree	56	70.0	70.0	100.0
	Total	80	100.0	100.0	

Expect employees never to be too busy to respond to Customers' requests

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Uncertain	5	6.3	6.3	7.5
	Agree	37	46.3	46.3	53.8
	Strongly Agree	37	46.3	46.3	100.0
	Total	80	100.0	100.0	

Expect behaviour of employees to instill confidence in Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	2	2.5	2.5	2.5
	Agree	22	27.5	27.5	30.0
	Strongly Agree	56	70.0	70.0	100.0
	Total	80	100.0	100.0	

Expect Customers to feel safe in their transactions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	5	6.3	6.3	6.3
	Agree	36	45.0	45.0	51.3
	Strongly Agree	39	48.8	48.8	100.0
	Total	80	100.0	100.0	

Expect employees to show courtesy to Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	4	5.0	5.0	5.0
	Agree	26	32.5	32.5	37.5
	Strongly Agree	50	62.5	62.5	100.0
	Total	80	100.0	100.0	

Expect employees to have the knowledge to answer Customers' questions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	2	2.5	2.5	2.5
	Agree	30	37.5	37.5	40.0
	Strongly Agree	48	60.0	60.0	100.0
	Total	80	100.0	100.0	

Expect individual attention for Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2.5	2.5	2.5
	Uncertain	2	2.5	2.5	5.0
	Agree	34	42.5	42.5	47.5
	Strongly Agree	42	52.5	52.5	100.0
	Total	80	100.0	100.0	

Expect convenient operating hours for all Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1.3	1.3	1.3
	Uncertain	13	16.3	16.3	17.5
	Agree	29	36.3	36.3	53.8
	Strongly Agree	37	46.3	46.3	100.0
	Total	80	100.0	100.0	

Expect there to be employees to give Customers personal attention

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1.3	1.3	1.3
	Uncertain	7	8.8	8.8	10.0
	Agree	34	42.5	42.5	52.5
	Strongly Agree	38	47.5	47.5	100.0
	Total	80	100.0	100.0	

Expect the institution to have the Customers' best interest at heart

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	4	5.0	5.0	5.0
	Agree	29	36.3	36.3	41.3
	Strongly Agree	47	58.8	58.8	100.0
	Total	80	100.0	100.0	

Expect the employees to understand the specific needs of the Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	2	2.5	2.5	2.5
	Agree	29	36.3	36.3	38.8
	Strongly Agree	49	61.3	61.3	100.0
	Total	80	100.0	100.0	

DuPont has modern-looking equipment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2.5	2.5	2.5
	Uncertain	32	40.0	40.0	42.5
	Agree	35	43.8	43.8	86.3
	Strongly Agree	11	13.8	13.8	100.0
	Total	80	100.0	100.0	

DuPont has visually appealing physical facilities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2.5	2.5	2.5
	Uncertain	34	42.5	42.5	45.0
	Agree	39	48.8	48.8	93.8
	Strongly Agree	5	6.3	6.3	100.0
	Total	80	100.0	100.0	

DuPont has neat-appearing employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	7	8.8	8.8	8.8
	Uncertain	3	3.8	3.8	12.5
	Agree	51	63.8	63.8	76.3
	Strongly Agree	19	23.8	23.8	100.0
	Total	80	100.0	100.0	

DuPont has visually appealing service materials

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	5.0	5.0	5.0
	Uncertain	30	37.5	37.5	42.5
	Agree	33	41.3	41.3	83.8
	Strongly Agree	13	16.3	16.3	100.0
	Total	80	100.0	100.0	

DuPont carries out promises timeously

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	4	5.0	5.0	6.3
	Uncertain	13	16.3	16.3	22.5
	Agree	46	57.5	57.5	80.0
	Strongly Agree	16	20.0	20.0	100.0
	Total	80	100.0	100.0	

DuPont shows sincere interest in solving Customer problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	3	3.8	3.8	5.0
	Uncertain	5	6.3	6.3	11.3
	Agree	45	56.3	56.3	67.5
	Strongly Agree	26	32.5	32.5	100.0
	Total	80	100.0	100.0	

DuPont performs the service right the first time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	7	8.8	8.8	10.0
	Uncertain	22	27.5	27.5	37.5
	Agree	38	47.5	47.5	85.0
	Strongly Agree	12	15.0	15.0	100.0
	Total	80	100.0	100.0	

DuPont provides its services when promised

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.5	2.5	2.5
	Disagree	4	5.0	5.0	7.5
	Uncertain	15	18.8	18.8	26.3
	Agree	43	53.8	53.8	80.0
	Strongly Agree	16	20.0	20.0	100.0
	Total	80	100.0	100.0	

DuPont insists on error-free records

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.5	2.5	2.5
	Disagree	2	2.5	2.5	5.0
	Uncertain	24	30.0	30.0	35.0
	Agree	40	50.0	50.0	85.0
	Strongly Agree	12	15.0	15.0	100.0
	Total	80	100.0	100.0	

DuPont has clear communication regarding services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	5.0	5.0	5.0
	Uncertain	17	21.3	21.3	26.3
	Agree	43	53.8	53.8	80.0
	Strongly Agree	16	20.0	20.0	100.0
	Total	80	100.0	100.0	

DuPont gives prompt service for Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	6	7.5	7.5	8.8
	Uncertain	11	13.8	13.8	22.5
	Agree	43	53.8	53.8	76.3
	Strongly Agree	19	23.8	23.8	100.0
	Total	80	100.0	100.0	

The behaviour of DuPont employees instills confidence in Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	4	5.0	5.0	6.3
	Uncertain	8	10.0	10.0	16.3
	Agree	43	53.8	53.8	70.0
	Strongly Agree	24	30.0	30.0	100.0
	Total	80	100.0	100.0	

DuPont Customers feel safe in their transactions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	3	3.8	3.8	5.0
	Uncertain	16	20.0	20.0	25.0
	Agree	47	58.8	58.8	83.8
	Strongly Agree	13	16.3	16.3	100.0
	Total	80	100.0	100.0	

DuPont employees show courtesy to Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	1	1.3	1.3	2.5
	Uncertain	5	6.3	6.3	8.8
	Agree	49	61.3	61.3	70.0
	Strongly Agree	24	30.0	30.0	100.0
	Total	80	100.0	100.0	

DuPont employees have the knowledge to answer Customers' questions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	1	1.3	1.3	2.5
	Uncertain	10	12.5	12.5	15.0
	Agree	46	57.5	57.5	72.5
	Strongly Agree	22	27.5	27.5	100.0
	Total	80	100.0	100.0	

DuPont gives individual attention to Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	3	3.8	3.8	5.0
	Uncertain	12	15.0	15.0	20.0
	Agree	43	53.8	53.8	73.8
	Strongly Agree	21	26.3	26.3	100.0
	Total	80	100.0	100.0	

DuPont has convenient operating hours for all Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.5	2.5	2.5
	Disagree	1	1.3	1.3	3.8
	Uncertain	17	21.3	21.3	25.0
	Agree	47	58.8	58.8	83.8
	Strongly Agree	13	16.3	16.3	100.0
	Total	80	100.0	100.0	

DuPont has employees who give Customers personal attention

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.5	2.5	2.5
	Disagree	3	3.8	3.8	6.3
	Uncertain	10	12.5	12.5	18.8
	Agree	46	57.5	57.5	76.3
	Strongly Agree	19	23.8	23.8	100.0
	Total	80	100.0	100.0	

DuPont has the Customers' best interest at heart

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1.3	1.3	1.3
	Uncertain	17	21.3	21.3	22.5
	Agree	44	55.0	55.0	77.5
	Strongly Agree	18	22.5	22.5	100.0
	Total	80	100.0	100.0	

DuPont employees understand the specific needs of the Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	5.0	5.0	5.0
	Uncertain	16	20.0	20.0	25.0
	Agree	37	46.3	46.3	71.3
	Strongly Agree	23	28.8	28.8	100.0
	Total	80	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	11	13.8	13.8	13.8
	Male	69	86.3	86.3	100.0
	Total	80	100.0	100.0	

Department

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Logis	8	10.0	10.0	10.0
	Maint	3	3.8	3.8	13.8
	MRP	4	5.0	5.0	18.8
	PP3	38	47.5	47.5	66.3
	QA	5	6.3	6.3	72.5
	SHE	1	1.3	1.3	73.8
	TAC	1	1.3	1.3	75.0
	TAC1	8	10.0	10.0	85.0
	TAC2	6	7.5	7.5	92.5
	VFL	6	7.5	7.5	100.0
	Total	80	100.0	100.0	

Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Admin	6	7.5	7.5	7.5
	Chemist	1	1.3	1.3	8.8
	Eng-Audi	2	2.5	2.5	11.3
	Engineer	4	5.0	5.0	16.3
	Manager	32	40.0	40.0	56.3
	Operator	20	25.0	25.0	81.3
	Tech Spe	15	18.8	18.8	100.0
	Total	80	100.0	100.0	

DuPont has willing employees to help Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	6.3	6.3	6.3
	Uncertain	3	3.8	3.8	10.0
	Agree	38	47.5	47.5	57.5
	Strongly Agree	34	42.5	42.5	100.0
	Total	80	100.0	100.0	

DuPont employees are never too busy to respond to Customers' requests

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.3	1.3	1.3
	Disagree	4	5.0	5.1	6.3
	Uncertain	7	8.8	8.9	15.2
	Agree	43	53.8	54.4	69.6
	Strongly Agree	24	30.0	30.4	100.0
	Total	79	98.8	100.0	
Missing	System	1	1.3		
Total		80	100.0		

Department

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Logis/MRP	12	15.0	15.0	15.0
	QA/SHE	6	7.5	7.5	22.5
	TAC	15	18.8	18.8	41.3
	PP3/VFL	44	55.0	55.0	96.3
	Maint	3	3.8	3.8	100.0
	Total	80	100.0	100.0	

Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Admin	6	7.5	7.5	7.5
	Manager	32	40.0	40.0	47.5
	Operator	20	25.0	25.0	72.5
	Technical	22	27.5	27.5	100.0
	Total	80	100.0	100.0	

Appendix 4 - Output Frequency Tables

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Gap 1	Equal variances assumed	6.301	.014	-2.471	78	.016	-.81	.327	-1.461	-.157
	Equal variances not assumed			-1.749	11.239	.107	-.81	.462	-1.824	.206
Gap 2	Equal variances assumed	3.720	.057	-1.894	78	.062	-.61	.321	-1.249	.031
	Equal variances not assumed			-1.224	10.927	.247	-.61	.497	-1.704	.486
Gap 3	Equal variances assumed	1.152	.286	-1.642	78	.105	-.51	.311	-1.131	.109
	Equal variances not assumed			-1.847	14.777	.085	-.51	.277	-1.102	.080
Gap 4	Equal variances assumed	.001	.979	-.708	78	.481	-.19	.264	-.713	.339
	Equal variances not assumed			-.712	13.438	.489	-.19	.263	-.753	.379
Gap 5	Equal variances assumed	.416	.521	2.192	78	.031	.64	.290	.058	1.212
	Equal variances not assumed			2.433	14.597	.028	.64	.261	.077	1.193
Gap 6	Equal variances assumed	.636	.428	2.722	78	.008	.81	.297	.217	1.401
	Equal variances not assumed			2.315	12.132	.039	.81	.349	.049	1.569
Gap 7	Equal variances assumed	.014	.906	1.591	78	.116	.54	.338	-.135	1.210
	Equal variances not assumed			1.755	14.507	.100	.54	.306	-.117	1.193
Gap 8	Equal variances assumed	.767	.384	1.570	78	.120	.53	.340	-.143	1.210
	Equal variances not assumed			1.974	16.698	.065	.53	.270	-.038	1.105
Gap 9	Equal variances assumed	.481	.490	1.068	78	.289	.38	.353	-.326	1.080
	Equal variances not assumed			1.144	14.148	.271	.38	.329	-.329	1.082
Gap 10	Equal variances assumed	.550	.461	2.220	78	.029	.60	.271	.062	1.142

	Equal variances not assumed			1.932	12.278	.077	.60	.312	-.075	1.280
Gap 11	Equal variances assumed	.028	.868	2.654	78	.010	.90	.341	.226	1.582
	Equal variances not assumed			2.683	13.497	.018	.90	.337	.179	1.629
Gap 12	Equal variances assumed	.427	.515	1.818	78	.073	.56	.309	-.053	1.176
	Equal variances not assumed			1.678	12.698	.118	.56	.334	-.163	1.286
Gap 13	Equal variances assumed	2.801	.098	1.592	77	.116	.51	.318	-.127	1.141
	Equal variances not assumed			1.268	11.783	.229	.51	.400	-.366	1.379
Gap 14	Equal variances assumed	4.456	.038	1.430	78	.157	.45	.314	-.176	1.075
	Equal variances not assumed			1.712	15.769	.106	.45	.262	-.108	1.006
Gap 15	Equal variances assumed	.196	.659	1.224	78	.225	.39	.316	-.243	1.017
	Equal variances not assumed			1.154	12.867	.269	.39	.336	-.338	1.113
Gap 16	Equal variances assumed	.003	.955	.992	78	.324	.27	.276	-.276	.824
	Equal variances not assumed			1.035	13.832	.319	.27	.265	-.295	.843
Gap 17	Equal variances assumed	.097	.756	1.278	78	.205	.38	.300	-.214	.981
	Equal variances not assumed			1.214	12.927	.246	.38	.316	-.299	1.066
Gap 18	Equal variances assumed	.742	.392	1.429	78	.157	.43	.299	-.168	1.022
	Equal variances not assumed			1.492	13.844	.158	.43	.286	-.187	1.041
Gap 19	Equal variances assumed	.137	.712	.097	78	.923	.03	.352	-.666	.734
	Equal variances not assumed			.110	14.836	.914	.03	.311	-.630	.699
Gap 20	Equal variances assumed	1.900	.172	1.253	78	.214	.38	.303	-.223	.982
	Equal variances not assumed			.954	11.543	.360	.38	.398	-.491	1.250
Gap 21	Equal variances assumed	.487	.487	.725	78	.470	.21	.283	-.359	.770
	Equal variances not assumed			.704	13.109	.494	.21	.292	-.425	.836
Gap 22	Equal variances assumed	.124	.726	.931	78	.355	.25	.272	-.288	.794
	Equal variances not assumed			.811	12.285	.433	.25	.312	-.425	.930

Appendix 5 – Paired sample t-test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Expect modern-looking equipment - DuPont has modern-looking equipment	0.42	1.041	0.116	0.19	0.66	3.653	79	0.000
Pair 2	Expect visually appealing physical facilities - DuPont has visually appealing physical facilities	0.52	1.006	0.112	0.3	0.75	4.668	79	0.000
Pair 3	Expect neat-appearing employees - DuPont has neat-appearing employees	0.35	0.969	0.108	0.13	0.57	3.23	79	0.002
Pair 4	Expect visually appealing service materials - DuPont has visually appealing service materials	0.53	0.811	0.091	0.34	0.71	5.791	79	0.000
Pair 5	Expect promises to be carried out timeously - DuPont carries out promises timeously	0.73	0.914	0.102	0.52	0.93	7.097	79	0.000
Pair 6	Expect sincere interest in solving Customer problems - DuPont shows sincere interest in solving Customer problems	0.57	0.952	0.106	0.36	0.79	5.404	79	0.000
Pair 7	Expect correct service performance the first time - DuPont performs the service right the first time	0.9	1.051	0.117	0.67	1.13	7.662	79	0.000
Pair 8	Expect services to be provided when promised - DuPont provides its services when promised	0.81	1.057	0.118	0.58	1.05	6.878	79	0.000
Pair 9	Expect error-free records - DuPont insists on error-free records	0.68	1.088	0.122	0.43	0.92	5.548	79	0.000
Pair 10	Expect clear communication regarding services - DuPont has clear communication regarding services	0.66	0.856	0.096	0.47	0.85	6.922	79	0.000
Pair 11	Expect prompt service for Customers - DuPont gives prompt service for Customers	0.68	1.088	0.122	0.43	0.92	5.548	79	0.000

Pair 12	Expect willing employees to help Customers - DuPont has willing employees to help Customers	0.42	0.965	0.108	0.21	0.64	3.94	79	0.000
Pair 13	Expect employees never to be too busy to respond to Customers' requests - DuPont employees are never too busy to respond to Customers' requests	0.29	0.989	0.111	0.07	0.51	2.616	78	0.011
Pair 14	Expect behaviour of employees to instill confidence in Customers - The behaviour of DuPont employees instills confidence in Customers	0.61	0.974	0.109	0.4	0.83	5.623	79	0.000
Pair 15	Expect Customers to feel safe in their transactions - DuPont Customers feel safe in their transactions	0.57	0.978	0.109	0.36	0.79	5.259	79	0.000
Pair 16	Expect employees to show courtesy to Customers - DuPont employees show courtesy to Customers	0.4	0.851	0.095	0.21	0.59	4.205	79	0.000
Pair 17	Expect employees to have the knowledge to answer Customers' questions - DuPont employees have the knowledge to answer Customers' questions	0.49	0.928	0.104	0.28	0.69	4.7	79	0.000
Pair 18	Expect individual attention for Customers - DuPont gives individual attention to Customers	0.45	0.926	0.104	0.24	0.66	4.345	79	0.000
Pair 19	Expect convenient operating hours for all Customers - DuPont has convenient operating hours for all Customers	0.43	1.077	0.12	0.19	0.66	3.531	79	0.001

Pair 20	Expect there to be employees to give Customers personal attention - DuPont has employees who give Customers personal attention	0.4	0.936	0.105	0.19	0.61	3.823	79	0.000
Pair 21	Expect the institution to have the Customers' best interest at heart - DuPont has the Customers' best interest at heart	0.55	0.87	0.097	0.36	0.74	5.654	79	0.000
Pair 22	Expect the employees to understand the specific needs of the Customers - DuPont employees understand the specific needs of the Customers	0.6	0.836	0.093	0.41	0.79	6.42	79	0.000