

EFFECTS OF TOTAL QUALITY MANAGEMENT IMPLEMENTATION IN A MANUFACTURING INDUSTRY

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Abstract

In today's highly competitive market, the demand for quality is important factor for companies to survive in the ever-expanding global marketplace. The unprecedented pace of globalisation, trade liberalisation, and technological changes in addition to human capital movement in the later years profoundly poses serious challenges for African companies to compete in an open market. African trade liberalisation through the elimination of intraregional tariffs, imposed to serve as a protective barrier to local industries have also worsen the plight of local infant industries. African Free Trade Agreement (AFTA) poses challenges for South African companies as they have to compete with more industrialised and older companies. The concept of Total Quality Management (TQM) developed as a result of intense global competition has therefore become a compelling concept for African companies seeking to survive in an uneven grounds of competition. This paper seeks to examine whether the implementation of TQM has effect on LMI in Durban by developing a research model to uncover the barriers and benefits of TQM. A sample population of employees from a manufacturing industry were selected to participate in this study. It became clear that, this study have found a significant relationship between the positions at the manufacturing industry and their opinion of TQM. The Spearman correlation coefficient indicated a significant relationship between TQM and factors such as Management and Commitment Leadership Importance, Work Environment and Culture Importance, Customer Focus Importance, Customer Focus Practice, Resource Management Importance. These findings are in agreement with other studies of scholars that highlights the benefits and barriers of TQM.

Keywords: Industry, Management, Manufacturing, Total Quality Management

1. INTRODUCTION

To prosper in today's economic climate, organizations must be dedicated to never-ending improvement, and more efficient ways to obtain products or services that consistently meet customer's needs (Kaur et al. 2012:67). Total Lubricants is a manufacturing plant situated in Island View Durban that manufactures and supplies lubricants to its clients throughout Africa. Total Lubricants is therefore bound to adhere to the above profound statement if it wants to remain competitive in a market that is highly demanding for the best quality products and services from its customers. Rawlins (2008: 19), in discussing TQM state: *"Total Quality Management is a way of managing to improve the effectiveness, flexibility, and competitiveness of an organization as a whole. It applies just as much to service industries as it does to manufacturing. It involves whole organizations getting organised, in every department, every activity, and every single person, at every level"*

The challenge that the Total Lubricant Manufacturing Industry (LMI) is faced with is that there is not enough quality focus throughout the entire plant, especially in the production department which is responsible for the blending, filling and packaging of lubes for their customers. Customer complaints have led to high reject rate of products

supplied which results in added costs to company. Total is searching to rectify and find solutions to retain integrity and restore large customer base and long relationships with customers. Total does have competition in the market, and as discussed by Rawlins, quality should be embraced holistically for it to survive. Total faces a challenge of focusing greatly on meeting sales target and as a result focuses more on mass production, at the expense of quality. This has led to a high rate of customer complaints and subsequently product returns as a result of poor packaging material used at the industry.

This paper investigates the implementation of TQM at the Total Lubricants Manufacturing Industry in Durban and to recommend actions based on the outcome of the results. In light of the above, the following objectives is pursued:

To determine the perceived opinion of TQM by the Total staff.

To evaluate the level of TQM implementation at Total.

To determine the perceived perception on the barriers of TQM Implementation.

To determine the benefits of TQM implementation at Total and make recommendations to management for the effective implementation of TQM.

The rest of the paper is formulated with reviews of relevant literature upon which this study is based, discussion of the research design and methodology used, analyses of results from the study and discussion of the findings. Finally, it presents a final conclusion and recommendations of the study.

2. LITERATURE REVIEW

The literature of this study reviews the concept of quality by assessing various definitions and views of numerous authors. A discussion of quality and the level of implementation in organisations in aid of achieving customer satisfaction is also looked at. The road path to TQM implementation follows the concept of quality, where the various stages and characteristics of these stages are discussed. The benefits of TQM and the hindrance to its implementations are also reviewed.

2.1. The Concept of Quality

Quality has different meanings to different people in different institutions, public or private, depending on their specific perspective. Quality is often defined as 'fitness for purpose'. In other words a quality product is one that meets the needs and requirements of its consumer. Quality is a significant element of production or services in keeping up with customer satisfaction. There are different definitions and hostile views of the term quality by different people and the common element of the business definitions is that the quality of a product or service refers to the perception or the degree to which the product or service meets the customer's expectations. In light of this, Bagad (2008: 2) viewed quality as excellence which leads a firms' product to dominate another and to guarantee its survival by establishing a new standard of quality whereas Crosby (1979), defined quality as the conformance to requirements or specifications and also suggested that to manage quality adequately it must be able to be measured. Therefore, quality can be defined as a state of conformance to valid requirements where valid requirement are defined as conditions that meets the needs of customers, measurable and achievable.

2.2. Quality Management

Quality management involves the formulation of strategies, setting goals and objectives, planning and implementing the plans; and using control systems for monitoring feedback and taking corrective actions. An organisation's quality management implementations are of two folds: a) Satisfying customer's expectation and b) Improvement in the overall business efficiency (Dale, et al 1994). In this sense, Lemak and Reed (2000: 68) defined quality management as: *"A business-level strategy with components of process and content that are necessary but not sufficient conditions for success."*

2.3. Inspection

In manufacturing, incoming goods and output would be measured and physically inspected for defaults. Inspection method at some stage in time would have

been the only method that was able to ensure a certain level of quality for a product or service. While Webber and Wallace (2007:47) mention that inspection is the analysis or examination of an item carried out to determine whether it is defective, they further agreed that, product that is created or the service that is provided needs to go through a series of step before reaching the customer and this is inspection. Nevertheless, inspection with the aim of finding bad product and taking them out might be too late, ineffective and costly (Deming 1986). Therefore, quality should come from the improvement in the process of manufacturing rather than inspection.

2.4. Quality Control

quality control is a system that maintains a desired level of quality, through feedback on product/service characteristics and implementation of remedial actions, in case of a deviation of such characteristics from a specific standard (Mitra 2008: 11). In essence quality control is concerned with checking and reviewing work that has been done mainly by inspection of products and services, to make sure that what is being produced is meeting the required standard. It is the regulatory process through which we measure actual performance, against standards, and act on the difference. It is a more sophisticated management tool that aims at preventing goods and services which do not conform to basic requirements.

2.5. Quality Assurance

Quality assurance (QA) is the prevention of quality problems through planned and systematic activities (including documentation), which includes the establishment of a good quality management system and the assessment of its adequacy, the audit of the operation of the system, and the review of the system itself (Bagad 2008:9). Quality assurance emphasis on defect prevention, unlike quality control that focuses on defect detection once the item is produced. "Quality assurance" tends to be associated with industry and implies an emphasis on procedures and documentation. As Dawson and Palmer (1995: 14-15) put it, *"...QA operates by the use of documented formalised procedures which can be monitored and evaluated by internal QA inspectors and assessed by external quality agents for local, national and international accreditation."* With so much competition and such few margins, no manufacturing industry can afford to spend time and money on rework. Every activity in the industry costs money and so does rework, but customers do not pay for rework. Hence to assure good quality to customers, quality assurance plays a significant role and this must be linked to TQM.

2.6. Total Quality Management

Total Quality Management (TQM) is an initiative which aims to involve every member of an organisation, at all levels, in improving the standard of product or services that they provide.

TQM is philosophy of management which lay emphasis on the need to meet internal and external needs of the customers as well as on the importance

of doing the things correctly at the first time. 'TQM is defined as a philosophy embracing all activities through which the needs and expectations of the customer and the community, and the objectives of the organisation are satisfied in most efficient and cost effective way by maximising the potentials of all employees in a continuing drive for improvement.' (Dale et al, 1994) as cited in BS.4778; part 2(1991). TQM is an effective system for integrating the quality development, quality maintenance and quality improvement efforts of various aspects of a system so as to enable services at most economical level derive full satisfaction. It is aimed at the satisfaction of customer needs in an efficient, reliable and profitable manner and therefore should no longer be considered only the quality department's responsibility, but everyone's.

2.7. Total Involvement

The TQM approach involves 'achieving broad employee interest, participation and contribution in the process of quality management' (Dale and Cooper, 1993). The concept assumes a companywide quality culture, which gives autonomy or a level of freedom to employees in taking decisions that affect their job. Thus, employees are encouraged to perform functions such as information processing, problem solving and decision making (Dimitrades, 2000). This argument is supported by Omachonu and Ross (1994), who noted that intrinsic motivation is at the heart of TQM, where empowerment and involvement in decision making is viewed as essential for sustained result. The main aim for the Total involvement of employee is to boost internal and external customer satisfaction by developing a flexible environment which allows for innovation. To achieve this, employees have to understand it as a corrective and developmental strategy for the good of all stakeholders in the organisation. For employees to practise this level of commitment and involvement, it is imperative that management consciously transfer skills and the power to take necessary decisions, to them. Employees must believe that management genuinely trusts them with the custodianship for quality achievement and continuous improvement.

2.8. Benefits of TQM Implementation

The effective implementation of TQM will increase customer satisfaction with the service offerings (Omachonu and Ross, 1994). Quality enhances customer loyalty through satisfaction; this in turn can generate repeat business and lead to the attraction of new customers through positive word of mouth phenomenon. The word of mouth communication will help in cost reduction. This Omachonu and Ross (1994) noted will provide competitive edge to the company. The improvement in quality will result in increased market share and profitability.

3. RESEARCH METHODOLOGY

3.1. Research Design

The correlational and descriptive research design forms the bedrock of the current study. Correlation research refers to studies in which the purpose is to discover relationships between variables through the use of correlational statistics such as the Spearman's correlation coefficient. The study has chosen the correlational research design, to be able to quantify the strength of the linear relationship between two quantifiable variables (Saunders, Lewis, Thornhill, 2007:450). That is, the relationship between TQM and its effect on performance, while the descriptive element is to determine characteristics of a population or phenomenon to answer the *who, what, when, where* and *how* questions (Zikmund 1997: 38). Through descriptive research, researchers are able to determine the extent of differences in the needs, perceptions, attitudes and characteristics of the target population, and the mere description of a situation provided important information which in many situations is all that is needed to solve business problems (Zikmund 1997: 38).

The target population of this study is the management employees of the manufacturing industry who totalled around 60. Sixty (60) questionnaires were therefore despatched to these targeted population and 55 were returned, representing a 91.6% response rate. This sampling provides a valid alternative to a whole population study as there are budget and time constraints to manage the collection of data for a quick result (Saunders et al. 2007:206).

3.2. The Research Instrument

This study made use of questionnaire as the research instrument to collect data. The questionnaire consists of closed questions which are quicker and easier to answer as they require amount of minimal writing. The questionnaire consists of 126 questions divided into section 1 to section 5. Section 1 deals with biographical data and section 2 - 5 deals with questions relating to the TQM in a rating form. A pilot study was first conducted, where 10 participants were asked to volunteer to test the first draft of the questionnaire. The following were found: Section 5 was unclear as to what was being asked. This was immediately reworded to make it easy to understand. The average time taken to complete the questionnaire was approximately twenty minutes. After correcting section 5, the volunteers reported that the document was simple to understand now.

The questionnaires were then administered by face to face contact to employee of Total as this method allowed for delivery and collection of questionnaires at the point of contact and eliminated the need for follow up. Through face to face contact any uncertain questions were clarified by the field workers, postage costs and the risks of questionnaires being lost in the mail were avoided and participants that have limited or no access to email / telephone were still able to participate in the study.

4. DATA ANALYSIS

Through descriptive statistics the study was able to provide a concise description of the data in terms of statistics such as percentages, frequencies, means

and standard deviations and the inferential statistics was able to infer something about the population from which the sample was drawn based on the information summarized in the descriptive statistics. Through the use of the Pearson's correlation coefficient, this study was able to quantify the strength of the linear relationship

between two quantifiable variables. A p-value of <0.05 was considered statistically significant.

4.1. SECTION 1 – Descriptive Statistics

The table below describes the gender distribution by age.

Table 1. Gender distribution at Total by age

Age Group (years)	Characteristics	Male	Female	Total	Age Group (years)	Characteristics	Male	Female	Total
18-25	Count	4	2	6	46-50	Count	6	2	8
	% within Age Group	66.7%	33.3%	100.0%		% within Age Group	75.0%	25.0%	100.0%
	% within Gender	10.5%	11.8%	10.9%		% within Gender	15.8%	11.8%	14.5%
	% of Total	7.3%	3.6%	10.9%		% of Total	10.9%	3.6%	14.5%
26-35	Count	13	6	19	Over 50	Count	1	0	1
	% within Age Group	68.4%	31.6%	100.0%		% within Age Group	100.0%	0.0%	100.0%
	% within Gender	34.2%	35.3%	34.5%		% within Gender	2.6%	0.0%	1.8%
	% of Total	23.6%	10.9%	34.5%		% of Total	1.8%	0.0%	1.8%
36-45	Count	14	7	21	Total	Count	38	17	55
	% within Age Group	66.7%	33.1%	100.0%		% within Age Group	69.1%	30.9%	100.0%
	% within Gender	36.8%	41.2%	38.2%		% within Gender	100.0%	100.0%	100.0%
	% of Total	25.5%	12.7%	38.2%		% of Total	69.1%	30.9%	100.0%

The ratio of males to females is approximately 7:3 (69.1%:30.9%). The highest percentage of employees i.e. 25.5 %, were male that were between 36 to 45 years of age and the highest percentage of female employees were between the ages of 36 to 45

as well 72.7% of the employees were between the ages of 26 to 45 years.

The table below indicates the frequency distribution between the type of employment and the number of years' service.

Table 2. Frequency distribution between employment type and the years of service

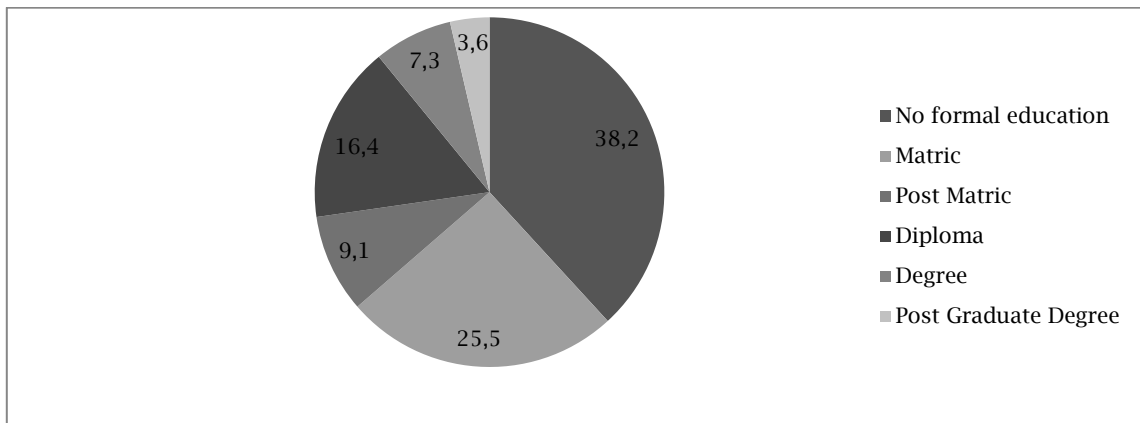
Age Group (Years)		Characteristics	Type of employment currently at Total				Total
			Permanent	Temporary	Contractor	Learnership	
How long have you been employed at TOTAL?	0 - 5	Count	14	4	1	2	21
		% within period of employed at Total?	66.7%	19.0%	4.8%	9.5%	100.0%
		% within type of employment at Total?	29.8%	80.0%	100.0%	100.0%	38.2%
		% of Total	25.5%	7.3%	1.8%	3.6%	38.2%
	6 - 10	Count	13	1	0	0	14
		% within period of employed at Total?	92.9%	7.1%	0.0%	0.0%	100.0%
		% within type of employment at Total?	27.7%	20.0%	0.0%	0.0%	25.5%
		% of Total	23.6%	1.8%	0.0%	0.0%	25.5%
	11 - 15	Count	15	0	0	0	15
		% within period of employed at Total?	100.0%	0.0%	0.0%	0.0%	100.0%
		% within type of employment at Total?	31.9%	0.0%	0.0%	0.0%	27.3%
		% of Total	27.3%	0.0%	0.0%	0.0%	27.3%
16 - 20	Count	5	0	0	0	5	
	% within period of employed at Total?	100.0%	0.0%	0.0%	0.0%	100.0%	
	% within type of employment at Total?	10.6%	0.0%	0.0%	0.0%	9.1%	
	% of Total	9.1%	0.0%	0.0%	0.0%	9.1%	
Total	Count	47	5	1	2	55	
	% within period of employed at Total?	85.5%	9.1%	1.8%	3.6%	100.0%	
	% within type of employment at TOTAL?	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	85.5%	9.1%	1.8%	3.6%	100.0%	

The majority of the respondents were permanent employees (85.5%). Within this category, more than a quarter of the respondents (27.3%)

(Which is the largest grouping) had worked for Total between 11 to 15 years.

The figure below illustrates the educational qualifications of the respondents.

Figure 1. Educational Qualification



Approximately 38% of the respondents did not have a formal education. A little more than a quarter of the respondents (27.3%) had some form of tertiary

qualification. The position and department at which respondents worked is shown in the table below.

Table 3. Position and departments which respondents worked at TOTAL

			What is your position at TOTAL?									Total	
			Plant Operator	Filling Operator	Supervisor	Section Manager	Technician	Administrator	Line / Shift Leader	Other	Learner		
Which section / department do you work at TOTAL?	Blending	Count	6	2	0	0	0	0	0	0	0	0	8
		% of Total	10.9%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.5%
	Grease Plant	Count	2	0	1	0	0	0	1	0	0	0	4
		% of Total	3.6%	0.0%	1.8%	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	7.3%
	Maintenance	Count	0	0	0	1	0	0	0	0	0	0	1
		% of Total	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%
	Lubricants Filling	Count	9	10	1	0	0	0	3	0	0	0	23
		% of Total	16.4%	18.2%	1.8%	0.0%	0.0%	0.0%	5.5%	0.0%	0.0%	0.0%	41.8%
	Laboratory / HSEQ	Count	0	0	2	2	3	0	0	2	2	2	11
		% of Total	0.0%	0.0%	3.6%	3.6%	5.5%	0.0%	0.0%	3.6%	3.6%	3.6%	20.0%
	Admin / Finance	Count	0	0	0	1	0	3	0	0	0	0	4
		% of Total	0.0%	0.0%	0.0%	1.8%	0.0%	5.5%	0.0%	0.0%	0.0%	0.0%	7.3%
	Distribution	Count	0	0	1	0	0	0	0	0	0	0	1
		% of Total	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%
	Planning	Count	0	0	1	0	0	1	0	0	0	0	2
		% of Total	0.0%	0.0%	1.8%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	3.6%
	Other	Count	0	0	0	0	0	1	0	0	0	0	1
		% of Total	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	1.8%
Total	Count	17	12	6	4	3	5	4	2	2	2	55	
	% of Total	30.9%	21.8%	10.9%	7.3%	5.5%	9.1%	7.3%	3.6%	3.6%	3.6%	100.0%	

The largest grouping of respondents were Plant Operators (30.9%). Most of the respondents (41.8%) were in the department of Lubricants Filling. This distribution is proportional to the staff population at Total as approx. 50 % of the shop floor workers are from the lubricant filling department.

4.2. Validity and Reliability

Face validity requires the research instrument to be relevant to participants in the study. The study established face validity by asking respondents to comment on the relevance, balance and adequacy of the research instrument in relation to the research objectives (Cooper and Schindler 2008:289). Respondents agreed that the study was frank with

them and they were not being misrepresented. Content validity is the extent to which the instrument provides adequate coverage of the investigative questions guiding the study (Cooper and Schindler, 2008: 290). This was address by making sure that the questionnaire adequately covered the topics that have been defined as the relevant dimensions.

4.2.1. Reliability is concerned with the robustness of the questionnaire and in particular, whether or not it will produce consistent findings at different times and under different conditions such as with different samples. Reliability was established as the study undertook pilot test before the actual collection which involves administering the questionnaire

twice to respondents under as near equivalent conditions as possible (Saunders et al. 2007:367). This was determined by comparing the responses of the pilot study with the actual. When these two were compared, the study saw a correlation between the two sets of responses.

4.2.2. Reliability statistics

A reliability coefficient of 0.70 or higher is considered as “acceptable”. The table below reflects the Cronbach’s alpha score for all the items that constituted the questionnaire.

Table 4. Cronbach’s alphas scores for the items that constituted the questionnaire

Section		Number of Items	Cronbach's Alpha	
2	TQM	10 of 10	.797	
			Importance	Practice
3.1	Management Leadership and Commitment	5 of 5	0.744	0.787
3.2	Education and Training 1	5 of 5	.601	.843
3.3	Work Environment and Culture	5 of 5	.812	.858
3.4	Customer Focus	5 of 5	.755	.822
3.5	Teamwork	4 of 4	.749	.780
3.6	Continuous Improvement	4 of 4	.569	.728
3.7	Resource management	4 of 4	.747	.849
3.8	Total Involvement	5 of 5	.789	.741
3.9	Measurement and Feedback		.812	.824
4	What prevents TQM implementation at TOTAL?	14 of 14	.978	
5	Benefits of TQM implementation at TOTAL	10 of 10	.957	

All but 2 sections had reliability scores greater than the minimum required value of 0.70. This indicates a high (overall) degree of acceptable consistent scoring for this research. The two sections relating to the importance of education had values that are slightly lower than the standard. Primary amongst the reason for this is that the construct is newly developed and would require further testing.

collapsed to show a single category of “Disagree”. A similar procedure was followed for the levels of agreement (positive statements). This is allowed due to the acceptable levels of reliability. The results are first presented using summarised percentages for the variables that constitute each section, and then further analysed according to the importance of the statements.

5. SECTION 2-5

5.1. What Is the Perceived Opinion of TQM by the Total Staff?

The section that follows analyses the scoring patterns of the respondents per variable per section. Levels of disagreement (negative statements) were

The summarised scoring patterns are shown in the table below.

Table 5. Responses relating to opinion of TQM

	Disagree %	Neutral %	Agree %
QM is a management philosophy and practice to ensure effective and efficient use of all available resources	5.5	13.0	81.5
Teamwork and participation are important for achieving a continuous improvement culture	0	5.5	94.5
Statistical techniques (such as SPC, etc.) are important to ensure consistency of product and process quality	3.6	7.3	89.1
Management leadership, commitment and support determine the success of new change initiatives	0	5.5	94.5
A work environment, which is conducive for improvement, is created through management-worker partnerships	0	5.6	94.4
TQM aims to make customer satisfaction as the focus of a business	3.7	1.9	94.4
Training and education are vital elements with respect to TQM implementation	0	5.5	94.5
Supplier involvement is vital in supporting quality improvement	3.6	5.5	90.9
Management must provide adequate resources in every aspect of the business	0	5.5	94.5
Initiatives such as suggestion schemes and quality discussions will motivate employees to participate in quality improvement.	1.8	0	98.2
AVERAGE DATA, %	1.8	5.53	92.7

The figure above represents the percentage responses to the questions relating to the perceived opinion of TQM by Total staff. The average level of agreement with the statements in this section is

92.7%. This is high and indicates that respondents, in effect, agreed with most of the statements that comprised this section which justifies the statement by Dale et al, (1994). The first statement has the

lowest level of agreement and the last has the highest, meaning, respondents agreed the least that TQM is a quality management philosophy and practice to ensure effective use of all available resources, and agreed the most being initiatives and quality discussions that will motivate employees to participate in quality improvements.

5.1.1. Hypothesis:

Usually, the traditional approach to reporting result requires a statement of statistical significance. A p-

value is generated from a test statistic and a significant result is indicated with "p < 0.05". These values are highlighted with a * henceforth.

The Chi square test is also performed to determine whether there was a statistically significant relationship between the variables (rows vs columns), with a null hypothesis which states that there is no association between the two. The alternate hypothesis indicates that there is an association. This is assumed for all the sections of the research model in this paper.

Table 6. Chi-Square statistics relating to opinion of TQM

	Gender	Age Group	What type of employment do you currently give at Total?	How long have you been employed at Total?	What is your level of education?	What is your position at Total?	Which section / department do you work at Total?
TQM	0.339	0.548	0.8	0.627	0.616	.046*	0.611

*Relationship significant at the 0.05 level

As reflected in Table 6 above, there is a significant relationship between the position of the staff and opinion of TQM (r = 0.046, p < 0.05). This means that the position of a respondent does play a role in terms of their opinion regarding TQM. Interestingly, variables such as age group, employment type, years of service, level of education and sectional department of employment did not play any significant role in terms of opinion regarding TQM. As stated above 92.7 % agreed with the opinions and perceptions of what TQM is all about. None of the respondents were in disagreement that teamwork, management leadership, commitment, conducive work environment, training and education and management provision of resources are part of TQM.

5.1.2. Correlations (inferential stats): Bivariate correlation was also performed on the (ordinal) data. (This can be made available for inspection upon request). The above results indicate some of the following patterns. There is a significant relationship between "TQM" and the following factors: Management and Commitment Leadership

Importance (r=0.391, p < 0.01), Work Environment and Culture Importance (r=0.324, p<0.05), Customer Focus Importance (r=0.312, p<0.05), Customer Focus Practice (r=0.321, p<0.05), Resource Management Importance (r=0.543, p<0.05). This means that respondents agree that the more the importance and practice of these factors above are given the needed seriousness, the better the improvement in TQM in the Total organization.

6. SECTION 3

This section attempts to determine the level of TQM implementation at Total. The sections for Importance and Practice (Sections 3.1 to 3.9 of Table 4) were analysed using mean values and tabulated below. Gap scores were identified and represented percentage wise. Even though the scales are not identically worded, the gap score reflects the difference between what is practiced and what is desired.

6.1. Management Leadership and Commitment

Table 7. Table of responses relating to importance and practice of Management Leadership and commitment at Total

		Importance (%)			Practice (%)			Mean		Gap	p-value
		Low Importance	Neutral Importance	Important	Low	Moderate	High	Importance	Practice		
Management and Supervisors empower employees	Q3.1.1	0.0	7.4	92.6	9.4	47.2	43.4	4.7	3.4	-1.3	.000
Top management takes care of employee well-being (e.g. welfare, health and safety provision, etc.)	Q3.1.2	0.0	1.8	98.2	15.1	26.4	58.5	4.5	3.6	-0.9	.000
Top management ensures that every employee knows the company's mission and business objectives	Q3.1.3	1.8	0.0	98.2	7.5	32.1	60.4	4.6	3.8	-0.8	.000
Top management strongly promotes staff involvement in quality management and improvement activities	Q3.1.4	0.0	5.6	94.4	14.8	29.6	55.6	4.5	3.6	-1.0	.000
Company fulfils its social responsibilities (such as environment friendly operation, contributions to stakeholders, etc)	Q3.1.5	0.0	3.7	96.3	3.7	35.2	61.1	4.6	3.8	-0.9	.000

It is noted from the above that, the Practice scores are all lower than the Importance scores. The average score for importance of management leadership and commitment is 4.6. This implies that the respondents of Total felt that Management commitment and leadership fell into the category of important to very important. However the mean score for the practice of Management commitment and leadership is 3.6, implying that the respondents were of the opinion that Management commitment and leadership fell into the category of moderate to high practice in the organization.

Q3.1.1 has the largest gap. This deals with the empowerment of employees. Employees feel that the organisation is not doing enough. Although all of the statements are regarded as being Very Important, there are lower levels of Practice in reality. For example, even though 92.6% of the respondents identified Q3.1.1 as having high importance, only 43.4% indicated a high practice value. The smallest gap (0.8) is for “Top management ensures that every

employee knows the company's mission and business objectives”. Employees feel that the organization is efficient in this practice and regards this as being important to the organization.

The Wilcoxon signed-rank test is the nonparametric test equivalent to the dependent t-test. As the Wilcoxon signed-ranks test does not assume normality in the data, it is used when this assumption has been violated and the use of the dependent t-test is inappropriate. It is used to compare two sets of scores that come from the same participants. Such Wilcoxon results are shown in the last column in the tables following hypothesis test in this paper. As all of the p-values are less than 0.05 (the level of significance) in this instance, it implies that there is a significant difference in the centre values (median) of the distributions.

6.1.1. Hypothesis results:

Table 8. Chi Square statistics relating to management leadership and commitment

	Gender	Age Group	What type of employment do you currently give at Total?	How long have you been employed at Total?	What is your level of education?	What is your position at Total?	Which section / department do you work at Total?
Management Leadership Commitment Importance and -	0.576	.036*	.040*	0.551	0.381	0.882	0.768
Management Leadership Commitment Practice and -	0.64	0.843	0.8	0.72	0.094	0.144	0.432

*Relationship significant at the 0.05 level

As reflected in table 8 above, there is a significant relationship between the age group

($r = 0.036$, $p < 0.05$) and the type of employment at Total ($r = 0.04$, $p < 0.05$) on the importance of management leadership and commitment. This means that the age group and employment type at TOTAL does play a role in terms of their opinion regarding the importance of management leadership and commitment. Interestingly, variables such as age gender, employment type, years of service, level of education and sectional department of employment did not play a significant role in terms of management leadership commitment and practice at Total.

6.1.2. Correlations (inferential stats): Bivariate correlation was also performed on the (ordinal) data. The results can be found in the appendix A1. The results indicate some of the following patterns: There is a significant relationship between “Management Leadership and Commitment Importance and the following factors: Education and training Importance ($r=0.541$, $p < 0.01$), Work environment and culture importance ($r=0.586$, $p < 0.01$), Customer focus importance ($r=0.671$, $p < 0.01$). This means that respondents agree that the better the management and leadership importance

is, the better the improvement in the importance in education and training, work environment and culture and customer focus at Total. There is also significant relationship between “Management Leadership and Commitment Practice between the following: Education and training Practice ($r=0.658$, $p < 0.01$), Work environment and culture Practice ($r=0.672$, $p < 0.01$), Customer focus Practice ($r=0.597$, $p < 0.01$). This means that respondents agree that the better the management and leadership practice at Total is, the better the improvement in the practice in education and training, work environment and culture and customer focus at Total.

As the rest of the results in this section (section 3.2-3.9) of Table 4 follows the same method of analysis as section 3 above, these are shown as Appendix (A) to prevent repetitions.

7. SECTION 4

7.1. What Prevents TQM Implementation at TOTAL?

The summarised scoring patterns are shown in the table below:

Table 9. Responses relating to barriers in TQM implementation

	Disagree %	Neutral %	Agree %
Lack of Vision	27.3	9.1	63.6
Lack of Preparation (No budget, no Sponsor)	21.8	5.5	72.7
Lack of Top Management commitment	21.8	3.6	74.5
Availability to training	23.6	7.3	69.1
Lack of effective measurement criteria	21.8	10.9	67.3
Lack of systems and structures for TQM initiatives	23.6	10.9	65.5
Lack of rewards and recognition	14.5	9.1	76.4
Lack of Understanding	21.8	5.5	72.7
Resistance to change	16.4	3.6	80.0
Lack of resources	20.0	10.9	69.1
Costly consultants and training programs	25.5	9.1	65.5
Lack of customer focus	21.8	7.3	70.9
Training with no purpose	20.0	12.7	67.3
Lack of evaluation procedures and benchmark indices	18.2	7.3	74.5
AVERAGE DATA , %	21.3	8.0	70.7

The average level of agreement with the statements is 70.7%, indicating majority of respondents agrees with most of the statements. This justifies the statement by Oakland (1995), whom identified factors that hinder the implementation of TQM. These include the thought that its implementation can be time consuming,

bureaucratic, formalistic, rigid and impersonal. Ugboro and Obeng, (2000) also found out that the half-hearted implementation of TQM is a major reason for its failure in most organizations. According to them, organizations are only willing to implement just those aspects of TQM which is supported by existing organizational culture.

7.1.1. Hypothesis Results:

Table 10. Chi Square statistics relating to barriers of TQM Implementation

	Gender	Age Group	What type of employment do you currently give at Total?	How long have you been employed at Total?	What is your level of education?	What is your position at Total?	Which section / department do you work at Total?
What prevents TQM implementation at TOTAL?	0.252	.023*	.001*	0.526	0.277	.036*	.006*

*Relationship significant at the 0.05 level

A reflection of table 4.26 above indicates that there is a significant relationship between the Age Group (r=0.023, p<0.05), type of employment (r=0.01, p<0.05), position of the staff (r=0.036, p<0.05) and section department of employment (r = 0.006, p<0.05), of the employees. This means that these factors did play a role in terms of the employees' opinion regarding barriers to TQM implementation at Total, while 70.7% of the

respondents agreed with the factors that prevent TQM implementation at Total.

8. SECTION 5

8.1. What are the Benefits of TQM Implementation at Total?

The summarised scoring patterns are shown in the table below:

Table 11. Responses relating to benefits of TQM implementation at Total

	Disagree %	Neutral %	Agree %
I think that TQM can reduce quality defects	3.6	0.0	96.4
I think that TQM can improve OEE	3.8	1.9	94.3
I think that TQM can improve business efficiency and effectiveness	1.8	1.8	96.4
I think that TQM can improve customer satisfaction	1.9	3.7	94.4
I think that TQM can encourage management commitment to quality	3.6	7.3	89.1
I think that TQM can improve the workplace environment	3.6	3.6	92.7
I think that TQM can improve long term competitiveness	3.7	1.9	94.4
I think that TQM can enable employees to play an active part in achieving quality in the Plant	3.6	1.8	94.5
I think that TQM will lead to cost savings and profitability	3.6	3.6	92.7
I support TQM implementation at TOTAL	3.6	1.8	94.5
AVERAGE DATA , %	3.3	2.7	94.0

The average level of agreement with the statements in this section is 94%. This is high and indicates that respondents, in effect, agreed with most of the statements in this section. This means that most of the respondents agreed that the benefits of TQM implementation at Total could lead to: Reducing Quality defects, Improvement of OEE, Improve business efficiency and effectiveness, Improve customer satisfaction, Encourage management commitment to quality, Improve the workplace environment, Improve long term

competitiveness, Enable employees to play an active role in achieving quality in the plant, Lead to cost saving and profitability. This agreement is in line with Porter (1996), statement that *“Implementation of TQM further ensures that organisations change how they perform activities so as to eliminate inefficiency, improve customer satisfaction and achieve the best practice.”*

8.1.1. Hypothesis Results:

Table 12. Chi-Square statistics relating to opinion of TQM

	Gender	Age Group	What type of employment do you currently gave at Total?	How long have you been employed at total?	What is your level of education?	What is your position at Total?	Which section / department do you work at Total?
Benefits of TQM implementation at TOTAL	0.652	.039*	.000*	0.184	0.165	.000*	.001*

**Relationship significant at the 0.05 level*

Table 4.28 above, shows a significant relationship between Age Group (r=0.039, p<0.05), Type of employment, position of staff (r=0.000, p<0.05), and the section department (r = 0.046, p <0.05) of Total employees. This means these factors do play a role in terms of their opinion regarding the benefits of TQM implementation at Total. 94.0 % agreed with the opinions of the benefits of TQM implementation at Total.

8.1.2. Correlations (inferential stats): indicates a significant relationship between “Benefits of TQM Implementation” and some of the following factors: Management and Commitment Leadership Importance (r=0.361, p <0.01), Education and Training Importance (r=0.473, p<0.01), Work

Environment and Culture Importance (r=0.405, p<0.01), Customer Focus Importance (r=0.477, p<0.01), Continuous Improvement Importance (r=0.508, p<0.01), Resource Management Importance (r=0.432, p<0.01), Resource Management Importance (r=0.346, p<0.05), Measurement and feedback Importance (r=0.352, p<0.01).

9. DISCUSSIONS

9.1. Implementation of TQM at Total

The table below summarises the overall means and gap scores for each of the factors outlined in Section 3.

Table 13. Overall Mean and Gap scores TQM implementation

		Importance	Practice	Gap
Management Leadership and Commitment	3.1	4.6	3.6	-0.9
Education and Training	3.2	4.5	3.6	-0.9
Work Environment and Culture	3.3	4.4	3.5	-0.9
Customer Focus	3.4	4.6	3.8	-0.8
Teamwork	3.5	4.5	3.6	-0.9
Continuous Improvement	3.6	4.5	3.7	-0.8
Resource management	3.7	4.5	3.7	-0.8
Total Involvement	3.8	4.4	3.7	-0.8
Measurement and Feedback	3.9	4.5	3.6	-0.9

It is noted that the Practice scores for all these aspects of TQM were all lower than the Importance scores. The mean scores for importance for these factors pointed out that the staff of Total felt that these were important criteria of TQM. However the mean scores for the practice of these factors implies that the respondents of Total staff felt that these criteria were moderately to highly practice in the organization. There were signification relationships between the importance and practice of these factors which indicated that if these factors were important to Total and practiced, then TQM would be highly practiced in the organization. The findings of this study suggest that there is a gap in the current system of TQM implementation and there is greater room for improvement.

9.2. Barriers of TQM Implementation at Total

The average level of agreement with this statements is 70.7% which stands to reason that most of the respondents agreed on the barriers to TQM as Lack of understanding, Lack of preparation (No budget, No Sponsor), Resistance to change, Lack of Top Management Commitment, Lack of Customer Focus, Lack of rewards and recognition and Lack of evaluation procedures and benchmark indices. The study found significant relationship between the Age Group (r=0.023, p<0.05), type of employment (r=0.01, p<0.05), position of the staff (r=0.036, p<0.05) and section department of employment (r = 0.006, p <0.05), of Total employees.

9.3. Benefits of TQM Implementation at Total

This statements saw a 94.0% level agreement among respondents, meaning, most of the respondents agreed TQM implementation was beneficial to Total. The benefits of TQM implementation included the following criteria such as reducing quality defects, improvement of OEE, improvement of business efficiency and effectiveness, improvement of customer satisfaction, encourage of management commitment to quality, improvement of the workplace environment, improve long term competitiveness, enabling of employees to play an active role in achieving quality in the plant and overall cost saving and profitability. The findings of this study also suggests that when these same factors are applied in organizations similar to the Total, they are likely to reap the benefits being discovered in the current study.

10. LIMITATION AND CONCLUSIONS

The main limitation of this study has to do with the population size used to investigate the issue under study. It would have been an ideal with this size were a little bigger than 55 participant.

This study has successfully investigated the implementation of TQM at the Total industry based in Island View Durban. Findings from this study has satisfied the objectives of this study by showing the employees view on TQM, the level of TQM implementation at Total as well as the barriers and benefits to TQM implementation at Total. A number of different definitions came across during the review stage which is likely to cause some form of discrepancies. Despite these ambiguities, they were a lot of key elements in all of them that helped the study to reach its aim. Firstly, it was discovered that, the value that a product or service can add to production if the quality of product or service is continuously addressed and improved is obvious. The second element is that of conformance to standards. This refers to the process of managing quality in such a way that the customers are aware the organisation is now setting and maintaining quality standards. The third point that this research come up with is that, quality cannot be achieved without a motivated workforce. Total industry needs suitable qualified human resources to be able to produce products of high standards and to deliver high-quality services. Service delivery is therefore an important aspect of quality management and, in South Africa, the "Batho Pele" initiative was developed to let employees know the importance of ensuring quality. These findings forms the basis for the recommendations discussed here.

The most important recommendation to note from this study is probably the changing paradigm of quality and the way it is measured, implemented or observed and finally adopted as an approach in its Totality. The shift should be away from inspection, whereby an external person or body measures performance against standards to the one whereby the organisation (Total) is able to assess them and continually recommend improvements of their own accord. In other words, Total does not improve quality because they have to be ready for an

inspection, but rather, they improve quality because they believe it is important to have quality products and services to satisfy customers.

This study can be replicated by other lubricant manufacturing industries to compare differences/similarities amongst TQM implementation and researches can explore the monetary benefit of implementing TQM in a lubricants manufacturing organizations. There is also scope for further research on the impact of organisational culture on TQM implementation in a lubricants manufacturing industry.

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APPENDIX A:

Education and Training

Table of responses relating to importance and practice of Education and Training at Total

		Importance (%)			Practice (%)			Mean		Gap	p-value
		Low Importance	Neutral importance	Important	Low	Moderate	High	Importance	Practice		
Employees are trained for the required job skills	Q3.2.1	0.0	5.7	94.3	5.5	43.6	50.9	4.5	3.6	-0.9	.000
Employees are trained on the concept of Quality	Q3.2.2	1.9	1.9	96.2	7.5	30.2	62.3	4.4	3.7	-0.7	.000
Top managers always update their knowledge	Q3.2.3	1.9	1.9	96.3	5.6	33.3	61.1	4.6	3.7	-0.9	.000
Continuous learning is provided through education and training	Q3.2.4	0.0	5.6	94.4	9.3	37.0	53.7	4.5	3.6	-0.9	.000
Employees are encouraged to broaden their knowledge and skills.	Q3.2.5	1.9	1.9	96.3	11.1	35.2	53.7	4.5	3.5	-1.0	.000

Chi Square statistics relating to Education and training

	Gender	Age Group	What type of employment do you currently give at Total?	How long have you been employed at Total?	What is your level of education?	What is your position at Total?	Which section / department do you work at Total?
Education and Training - Importance	0.727	0.237	.001*	0.868	0.423	.007*	0.448
Education and Training - Practice	0.459	0.405	0.076	.040*	0.506	0.117	0.097

*Relationship significant at the 0.05 level

Work Environment and Culture

Table of responses relating to importance and practice of Work Environment and Culture at Total

		Importance (%)			Practice (%)			Mean		Gap	p-value
		Low Importance	Neutral importance	Important	Low	Moderate	High	Importance	Practice		
A pleasant work environment exists in all working areas.	Q3.3.1	0.0	9.1	90.9	11.1	42.6	46.3	4.4	3.4	-1.0	.000
Teamwork and involvement are normal practices in the organization	Q3.3.2	1.8	3.6	94.5	14.8	44.4	40.7	4.4	3.4	-1.0	.000
Positive values such as trust, honesty, hardworking are fostered by management.	Q3.3.3	1.8	5.5	92.7	9.3	31.5	59.3	4.4	3.6	-0.9	.000
Employees are not influenced negatively on performance by other work colleagues.	Q3.3.4	3.6	3.6	92.7	5.6	38.9	55.6	4.5	3.7	-0.8	.000
Employees are willing to embrace and support new quality initiatives.	Q3.3.5	1.8	3.6	94.5	13.0	27.8	59.3	4.5	3.6	-0.9	.000

Chi Square statistics relating to Work Environment and Culture

	Gender	Age Group	What type of employment do you currently give at Total?	How long have you been employed at Total?	What is your level of education?	What is your position at Total?	Which section / department do you work at Total?
Work Environment and Culture - Importance	0.295	0.159	.011*	0.754	0.182	0.286	.001*
Work Environment and Culture - Practice	0.452	0.605	0.305	0.157	.025*	.040*	0.406

*Relationship significant at the 0.05 level

Customer Focus
Table of responses relating to importance and practice of Customer Focus at Total

		Importance (%)			Practice (%)			Mean		Gap	p-value
		Low Importance	Neutral importance	Important	Low	Moderate	High	Importance	Practice		
Company ensures that customers are supplied with quality product meeting the quality specifications.	Q3.4.1	0.0	3.7	96.3	1.9	38.9	59.3	4.5	3.8	-0.7	.000
Customers regularly conducts quality audits	Q3.4.2	1.9	0.0	98.1	7.5	41.5	50.9	4.5	3.6	-0.9	.000
Company works closely with customers towards long term partnerships and improvement	Q3.4.3	0.0	5.6	94.4	3.8	34.0	62.3	4.6	3.8	-0.8	.000
Company provides relevant quality records and data.	Q3.4.4	0.0	5.5	94.5	5.6	27.8	66.7	4.5	3.9	-0.6	.000
Customer complaints and non-conforming product are well managed.	Q3.4.5	0.0	0.0	100.0	1.9	31.5	66.7	4.7	3.9	-0.9	.000

Chi Square statistics relating to Customer focus

	Gender	Age Group	What type of employment do you currently give at Total?	How long have you been employed at Total?	What is your level of education at Total?	What is your position at Total?	Which section / department do you work at Total?
Customer Focus - Importance	0.333	0.448	0.928	0.7	0.082	0.104	0.332
Customer Focus - Practice	0.776	.014*	.006*	0.492	0.089	.036*	0.185

*Relationship significant at the 0.05 level

Teamwork
Table of responses relating to importance and practice of Teamwork at Total

		Importance (%)			Practice (%)			Mean		Gap	p-value
		Low Importance	Neutral importance	Important	Low	Moderate	High	Importance	Practice		
Does the organization encourage Team work	Q3.5.1	1.9	5.6	92.6	5.5	47.3	47.3	4.6	3.5	-1.0	.000
Teamwork increases the efficiency within a department and organization as a whole	Q3.5.2	1.9	7.4	90.7	7.3	40.0	52.7	4.2	3.6	-0.6	.000
Employees are willing to work as part of a team	Q3.5.3	0.0	5.6	94.4	7.3	41.8	50.9	4.5	3.5	-1.0	.000
Knowledge and Ideas can be freely shared	Q3.5.4	0.0	3.7	96.3	9.1	32.7	58.2	4.6	3.6	-0.9	.000

Chi Square statistics relating to Teamwork

	Gender	Age Group	What type of employment do you currently give at Total?	How long have you been employed at Total?	What is your level of education?	What is your position at Total?	Which section / department do you work at Total?
Teamwork - Importance	0.633	0.573	0.211	0.592	0.817	0.904	0.722
Teamwork - Practice	0.779	0.207	0.835	0.417	.009*	.031*	0.581

*Relationship significant at the 0.05 level

Continuous Improvement
Table of responses relating to importance and practice of continuous Improvement Total

		Importance (%)			Practice (%)			Mean		Gap	p-value
		Low Importance	Neutral importance	Important	Low	Moderate	High	Importance	Practice		
There is a management representative for quality that handles all quality related issues in the plant.	Q3.6.1	0.0	5.6	94.4	1.9	31.5	66.7	4.6	3.8	-0.7	.001
Improvement teams are active in all departments	Q3.6.2	0.0	3.7	96.3	14.5	41.8	43.6	4.4	3.4	-1.0	.000
Quality improvement techniques and tools are widely used (e.g. SPC.s ,RCAT.)	Q3.6.3	0.0	7.3	92.7	7.4	37.0	55.6	4.5	3.6	-0.9	.000
TOTAL practices continuous improvement of all it products, services and processes	Q3.6.4	0.0	1.8	98.2	7.3	25.5	67.3	4.7	3.9	-0.8	.000

Chi Square statistics relating to Continuous Improvement

	Gender	Age Group	What type of employment do you currently give at Total?	How long have you been employed at Total?	What is your level of education?	What is your position at Total?	Which section / department do you work at Total?
Continuous Improvement - Importance	0.486	0.114	.004*	0.413	0.052	0.157	.008*
Continuous Improvement - Practice	0.852	0.237	0.148	0.442	0.211	0.412	0.067

*Relationship significant at the 0.05 level

Resource management
Table of responses relating to importance and practice of Resource Management at Total

		Importance (%)			Practice (%)			Mean		Gap	p-value
		Low Importance	Neutral importance	Important	Low	Moderate	High	Importance	Practice		
Human resource ability considered in improvement activities	Q3.7.1	0.0	9.3	90.7	7.5	41.5	50.9	4.4	3.5	-0.9	.000
Employees are given tools they need to do their job effectively	Q3.7.2	0.0	3.8	96.2	7.3	29.1	63.6	4.5	3.8	-0.7	.000
Employees are given the information and training that they need to do their job effectively	Q3.7.3	0.0	3.6	96.4	7.4	27.8	64.8	4.6	3.7	-0.9	.000
Company manages their material resources effectively.	Q3.7.4	0.0	9.1	90.9	10.9	38.2	50.9	4.5	3.6	-0.8	.000
Sufficient financial resources are provided to support improvement activities	Q3.7.5	0.0	7.3	92.7	3.7	29.6	66.7	4.5	3.8	-0.7	.002

Chi Square statistics relating to Resource Management

	Gender	Age Group	What type of employment do you currently give at Total?	How long have you been employed at Total?	What is your level of education?	What is your position at Total?	Which section / department do you work at Total?
Resource management Importance	0.408	0.37	.006*	0.127	0.055	0.28	.001*
Resource management Practice	0.996	0.416	0.697	0.082	0.112	0.138	.001*

*Relationship significant at the 0.05 level

Total Involvement
Table of responses relating to importance and practice of Resource Management at Total

		Importance (%)			Practice (%)			Mean		Gap	p-value
		Low Importance	Neutral importance	Important	Low	Moderate	High	Importance	Practice		
Systems and procedures for quality assurances are implemented.	Q3.8.1	1.9	13.5	84.6	5.6	37.0	57.4	4.5	3.7	-0.8	.001
Internal data collection system is established	Q3.8.2	0.0	9.3	90.7	3.8	32.7	63.5	4.3	3.7	-0.5	.001
Employees involved in different processes know how to evaluate them	Q3.8.3	1.9	5.6	92.6	11.3	39.6	49.1	4.5	3.5	-1.0	.000
Feedback system, e.g. internal audits, suggestion box etc. is established	Q3.8.4	1.9	5.6	92.6	11.3	32.1	56.6	4.4	3.6	-0.9	.000

Chi Square statistics relating to Total Involvement

	Gender	Age Group	What type of employment do you currently give at Total?	How long you have been employed at Total?	What is your level of education?	What is your position at Total?	Which section / department do you work at Total?
Total Involvement - Importance	0.333	.045*	.006*	0.433	0.361	.003*	.029*
Total Involvement - Practice	0.239	0.967	.002*	0.764	0.377	0.126	.021*

**Relationship significant at the 0.05 level*

Measurement and Feedback

Table 4.23. Responses relating to importance and practice of Measurement and Feedback at Total

		Importance (%)			Practice (%)			Mean		Gap	p-value
		Low Importance	Neutral importance	Important	Low	Moderate	High	Importance	Practice		
Customer satisfaction levels are measured and monitored	Q3.9.1	0.0	5.6	94.4	5.7	41.5	52.8	4.5	3.7	-0.9	.000
Information on operational and financial performances are collected and analysed	Q3.9.2	0.0	3.7	96.3	7.5	30.2	62.3	4.5	3.7	-0.8	.000
Information on quality and customers are collected and analysed	Q3.9.3	0.0	5.6	94.4	9.4	34.0	56.6	4.5	3.7	-0.9	.000
Employees views are listened to and acted upon	Q3.9.4	0.0	5.7	94.3	9.3	37.0	53.7	4.5	3.6	-1.0	.000
Employees performance are measured and recognized	Q3.9.5	1.9	3.8	94.3	11.1	38.9	50.0	4.5	3.5	-1.0	.000

Table 4.24: Chi Square statistics relating to Measurement and Feedback

	Gender	Age Group	What type of employment do you currently give at Total?	How long have you been employed at Total?	What is your level of education?	What is your position at Total?	Which section /department do you work at Total?
Measurement and Feedback - Importance	0.685	0.427	0.712	0.652	0.193	.032*	.000*
Measurement and Feedback - Practice	0.264	0.804	0.894	0.36	0.065	0.224	0.115

**Relationship significant at the 0.05 level*