Assessing quality management within a selected South African manufacturer

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Mini-dissertation submitted in partial fulfilment of the requirements for the degree *Master of Business Administration* at the North-West University

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Graduation May 2018

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ACKNOWLEDGEMENTS

I dedicate this thesis to my Lord and Saviour, for giving me the strength, insight and perseverance to complete this study.

A special word of gratitude to:

- My loving wife Estie, for all your support you gave me during the late nights and weekends, especially all the encouragement and small extraordinary reminders that kept me motivated during those long hours.
- My lovely daughter Chené, for your support and for enduring the long study hours with limited quality time.
- My toddler son Wian (being three days older than this MBA), for being patient during the long study hours despite limited quality time.
- Mr. Johan Jordaan, for his dedicated support and professional guidance as my study leader.
- Mr. André Conradie, for his support, friendship and encouragement during my MBA studies.

ABSTRACT

The aim of this study was to evaluate whether employees believe that increasing quality assurance rather than quality control would benefit the South African manufacturer. The primary objective was therefore to get a clear understanding of how employees perceive these quality-related terms and how quality assurance can assist in improving product quality and customer satisfaction.

A literature study was conducted on the history, differences between quality assurance and quality control (as illustrated in

The distinction between QC, QA and TQM is powerfully illustrated in figure 2.4,

Figure 2-4), training, quality culture, people and systems.

During the empirical study it was found that there is no clear understanding of the distinction between the terms “quality assurance”, “quality control” and “total quality management”. A factor analysis identified seven factors that can be regarded as significant. These were: *quality culture*, *ownership*, *non-conformance*, *increase (in quality), management*, *assurance* and *training*. The responses indicated the existence of a strong quality culture, a high degree of personal ownership towards quality; and significant differences between groups on definition of non-conformances, on the need to increase quality measures, on management’s role in quality achievement, on quality assurance measures to be implemented and on the need for training.

Conclusions are presented and recommendations are made based on the empirical analyses. The conclusions were validated against the research objectives and it was found that the primary and secondary objectives were achieved.

Keywords: Quality Control, Quality Assurance, Quality Culture, Training

ACRONYMS

ADDIE	-	Analysis, Design, Development, Implementation, and Evaluation
ANOVA	-	Analysis of variance (statistical procedure)
CFA	-	Confirmatory Factor Analysis
EFA	-	Exploratory Factor Analysis
EMS	-	Environmental Management Systems
FMECA	-	Failure Mode, Effect and Criticality Analysis
HR	-	Human Resources
ISO	-	International Standards Organization
IT	-	Information Technology
KMO	-	Kaiser-Meyer-Olkin
NWU	-	North-West University
OEM	-	Original Equipment Manufacturer
OSHAS	-	Occupational Health and Safety Management System
QA	-	Quality Assurance
QC	-	Quality Control
QMS	-	Quality Management System
R&D	-	Research and Development
SPC	-	Statistical Process Control
SPSS	-	Statistical Package for the Social Sciences
SQC	-	Statistical Quality Control
TQA	-	Total Quality Assurance
TQM	-	Total Quality Management

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CHAPTER 1. NATURE AND SCOPE OF STUDY

1.1 INTRODUCTION

In an environment where sales are increasing and manufacturing time is reducing, manufacturers are forced to outsource more components (and even services), reducing the level of control they have over the outsourced products or services. This creates a challenge for South African manufacturers to optimise their operations to ensure a quality product, customer satisfaction and growth in their business. To achieve this goal, the manufacturer needs to align all departments and their resources to achieve product and service quality. This also applies to the manufacturer where this study is undertaken. (The name of the company and the industry where they operate are withheld at the request of the company. Further reference will be to “the company” and “the industry under discussion”).

1.2 PROBLEM STATEMENT

Limited research has been done on the perceived difference between quality assurance (QA) and quality control (QC) in the manufacturing industry and on organisations’ preference regarding QA or QC. Furthermore, it is not clear whether QC or QA is the current norm in the industry under discussion. Quality Management in general, *Quality Assurance* (QA) and *Total Quality Management* (TQM) are complementary methodologies. They provide a range of management methods within which QA can be associated with the more rigid or formal end of the spectrum, whilst TQM covers the more flexible and dynamic end (Anon, 2016:279). Within traditional QC systems, the inspectors are experts in identifying defects, but do not have the process/operation working knowledge to assist in root cause analysis to enhance QA. Through TQM systems, inspections are used as diagnostic tools that are integrated in the TQM system as described by Skrabec (1994:324) to improve the system and prevent future defects.

“Total Quality Management” focuses on management methods that are used to enhance quality and productivity within an organization. TQM works horizontally across an organization to include all departments and employees and cater for both suppliers and clients. TQM therefore encompasses a comprehensive quality management approach. Within this framework, TQM provides for the implementing of effective quality and productivity initiatives that can increase the profitability and competitiveness of the organizations.

“Quality Assurance” focusses on preventing defects through focusing on processes (Rouse, 2007) whilst “Quality Control” focusses on defect identification, since it is product-oriented (Rouse, 2015).

Based on the amount of money spent annually on re-work, re-testing of product, warranty claims and penalties related to quality issues, the manufacturing industry of South Africa can benefit by investing time and money in raising the quality standard of sub-contractors to the level required by the manufacturing organisation. Investment in assisting sub-contractors with procedures and quality management techniques can benefit the company in the long run. Such an investment can be justified as a strategic step in increasing quality, which could lead to an increased market share.

When components and raw materials enter the manufacturing facilities from sub-contractors, it has led to more QC checks being done to ensure compliance to ISO 9000 standards. Since there is a correlation between the quality of the finished product and the control systems employed by the manufacturer who manufacture it (Ferrel & Elmaghraby, 1990:853), QA at suppliers is becoming increasingly important due to the fact that QC identifies, but does not eliminate, quality problems at the components (original equipment) manufacturer (OEM).

Manufacturers cannot inspect 100% of incoming materials and must therefore rely on QA measures to alert them so that they can make sound business decisions. Management need to support these measures by implementing the required procedures and policies to ensure that all stakeholders are aware of their function within the total quality measurement (TQM) system (Burke & Polimeni, 2012:56). Where these procedures and policies are in place, employees would be aware of what management's views are and of what is expected from each individual employee. These QA systems should also form part of each sub-contractors quality measurement system to reduce pressure on the manufacturer, who integrates all these components into a final product that conforms to the highest quality and safety standards.

Quality and safety often go hand in hand. In the manufacturing industry the safety of employees and the safety of the end user needs to be guaranteed. Millions of Rands are lost annually on re-work or on having to delay delivery due to bad quality components needing to be re-manufactured at sub-contractors. Such delays increase the possibility of incurring penalties for late delivery by the manufacturer (Suradi *et al.*, 2015:1017).

Insufficient quality systems do not only impact on the manufacturer but also on its sub-contractors and lead to excessive re-work cost and ineffective use of organisational resources. Manufacturers therefore need to establish procedures to protect their assets (Burke & Polimeni, 2012:56). Eliminating quality-related risks at the earliest possible point in the manufacturing process, whether at a sub-contractor or at the manufacturer themselves, will ensure that a quality product is supplied at the highest possible profit. This is achieved by QA, which will also have the benefit of reducing cost and minimising waste as a result of producing defective products (Suradi *et al.*, 2015:1017). Tools such as LEAN manufacturing (an efficiency-oriented philosophy that perfectly

dovetails with quality management) and improved quality measurement systems would therefore enhance TQM. Furthermore, Orr (1999:275) indicates that research places QA and control as the second most important area to focus on apart from plant and equipment.

Since QC can be seen as a reactive process (as it focuses on inspection of final product), QC on its own cannot ensure a high quality product (Wingate, 2014:1). It is evident that, to lower possible rework costs, sub-contractors should adapt the same QA and QC standards as used by the manufacturer. Using similar standards should reduce the difference between the standards used by the sub-contractor and the manufacturer. Wingate (2014:1) has shown that manufacturers need to move beyond QC to achieve the highest levels of safety and quality. In a global environment where the market is extremely competitive, entry into new markets forces manufacturers to adopt way of achieving better profit margins.

Clients increasingly require extremely short delivery schedules whilst expecting the highest quality standards. Therefore manufacturers might be expected to do things radically differently, especially concerning the quality of both internally and externally acquired raw materials, components and processes used. This could also mean adopting a completely new operational structure to accomplish mutual goals. Consistent with Lee *et al.* (2009:1248), employee participation allows for ideas from operator level, through engineering to management.

As part of QA, improved quality and a quality-oriented operational structure would add value to the process. Through quality-related tools such as flow charts, problem areas are easily identified. If this is accompanied by well-trained employees, quality can ultimately become a way of living (QA), rather than something that needs to be controlled by quality inspectors (QC) policing employees and raising red flags throughout the process. When quality becomes part of the organisation's way of living, the manufacturer can then focus on TQM through ongoing improvement of processes and increasing efficiencies while maintaining the highest quality standard. Making better use of the available resources (Burke & Polimeni, 2012:56) will give management more freedom to be more competitive, take on bigger contracts, be more profitable, and grow the business and secure a better future for all its employees.

The research objectives of the study follow below:

1.3 RESEARCH OBJECTIVES

The research objectives are split into a primary objective and secondary objectives.

1.3.1 PRIMARY OBJECTIVE

To suggest measures to improve product quality and thereby increase customer satisfaction within the South African manufacturer.

1.3.2 SECONDARY OBJECTIVES

- To determine whether the employees understand the difference between QA and QC.
- To determine factors affecting a quality environment through a literature study.
- To test workers' perception of quality management in the company.
- To recommend to the South African manufacturer the route they should follow to improve product quality and increase customer satisfaction.

1.4 SCOPE OF THE STUDY

- The study population consists of all employees (permanent - and contract labour) directly involved in the production (operations) area within four of the manufacturer's sites (situated in the North West, Gauteng and Western Cape provinces of South Africa respectively). The size of the population is approximately 1040 employees.
- These four sites mainly focus on chemical manufacturing (Western Cape 2 and North-West), mechanical manufacturing (Gauteng), processing plants (Western Cape 1) and loading, assembly and packaging (Western Cape 1 and North-West) facilities.
- Data was captured to measure employee perception on the level of quality assurance present in the organisation through a self-developed questionnaire, collecting quantitative and qualitative data. (See Annexure A). The population includes a variety of cultures, genders, age groups, educational levels and positions within the company.
- The primary focus of this study was to improve product quality with the analysis of data obtained from the population, using various measurement tools.
- Empirical analysis results are related to the period when the study took place and should be treated as such.

1.5 RESEARCH QUESTION

Is there an advantage in focusing on establishing a system of quality assurance (QA) rather than increasing quality control (QC) within the South African manufacturer?

1.6 RESEARCH METHOD

This section summarises the methodology used to conduct this research.

1.6.1 RESEARCH APPROACH

This study was mainly based on quantitative research (through a self-administered questionnaire) for the following reasons:

- The large population size would make a qualitative study very time-consuming and expensive.
- The entire population (from operators to top management level) could easily complete questionnaires irrespective of geographical location of the sites.
- The operators' perception or views were critical in answering the primary research question.

This study therefore follows a cross-sectional research approach, due to the fact that workers' perceptions needed to be captured during a specific time period (Trochim & Donnelly, 2007:6) to determine the current shortcomings in terms of QA.

To also cater for alternative responses, a few qualitative responses were collected through a questionnaire, rather than through a series of one-on-one interviews. This helped to identify inherent patterns, which might have been missed when purely answering quantitative questions focusing on a preconceived idea (Bryman *et al.*, 2014). The questionnaire therefore also takes into account human resource issues, policies, training, procedures, scheduling and management issues as factors that have an impact on the perceived current quality culture. The study was conducted in two phases:

1.6.2 PHASE 1: LITERATURE REVIEW

In this phase, the problem was identified and a literature study has been conducted with the aim to determine which variables to consider that could potentially affect the mentioned research question.

1.6.3 PHASE 2: EMPIRICAL STUDY

An empirical study has been done to collect data to address the research question and problem statements. The following aspects were taken into account during the empirical research:

1.6.3.1 Research participants

Welman *et al.* (2005:55) define a population as "a group of potential participants to whom you want to generalise the results of a study." A sample is the portion of the population selected for analysis.

The study population for this survey consisted of all employees (permanent - and contract labour) at the four sites (factories) of the manufacturer involved in operations.

- This implies that all service departments (i.e. HR, finance, marketing, R&D, IT, and security) were excluded.
- Included were, operators, foremen, building supervisors, team leaders, area managers and heads of operations within the operations department.
- The maintenance and plant engineering departments were included, since they are directly involved with equipment and utilities used.
- From the business systems (quality) department, only personnel directly involved in the quality of the product were included.

The reason for using all four sites was to ensure that the sample would be representative of the population, so that the results would be representative and accurate and so that statistical analysis could be done with confidence (Maree, 2007:178).

The study population (N) was approximately 766 and the sample size (n) was 615, representing an 80% response rate.

1.6.3.2 Measuring instrument(s) and research procedure

A self-developed questionnaire (quantitative and qualitative) was used as instrument in obtaining the relevant information (attached as Annexure A), employing a 4-point Likert scale (Welman *et al.*, 2005:149, 156). The questionnaire was designed to obtain the following information (Welman *et al.*, 2005:152):

- Biographical data on the respondents;
- Knowledge of what QC, QA and TQM entails;
- Opinions, beliefs and convictions regarding quality; and
- Attitudes on their own responsibility and participation towards quality.

The intended process through which data was collected, was as follows: The questionnaires were delivered as hard copies to the respective heads of the operations and business systems departments at the four sites for distribution to their employees. The completed surveys were collected and data coded (Welman *et al.*, 2005:214) into a format applicable for statistical analysis.

1.6.3.3 Statistical analysis

As stated by Bryman *et al.* (2014:312), it is important to determine which data analysis techniques is best suited for a specific study. A questionnaire, including dichotomous variables, nominal

variables, ordinal variables, interval variables and ratio variables (attached as Annexure A) was designed to collect data (Bryman *et al.*, 2014:313).

Statistical analysis of the data was done by the Statistical Consultation Services, North-West University, Potchefstroom Campus, using IBM SPSS Version 24.

Four examples of typical questions and the associated coding are given below (Bryman *et al.*, 2014:314-315):

A4	Department:	Operations	1	Maintenance	2	Business Systems	3	Plant Engineering	4

A9	**Qualification:**	< Grade 12	1	Grade 12	2	Artisan	3
		Diploma	4	Graduate/Higher diploma	5	Post-Graduate	6

No	Question	Strongly Disagree	Disagree	Agree	Strongly Agree
B10	I believe that quality control is done well enough in the operations department	1	2	3	4

No	Question	Never	Seldom	Sometimes	Often
C1	I receive training in quality control	1	2	3	4

The detailed statistical analyses follows in Chapter 3.

1.7 LIMITATIONS

1.7.1 TIME FRAME

The study is a cross-sectional study, since all the data was collected during a single week. The responses therefore only represent the perceptions of the respondents during that week. The nature of the study is therefore such that no control sample, other than comparing different sites and different departments, would be possible. A more longitudinal study is proposed as part of the proposals/recommendations for future exploration given in the final chapter of this study.

1.7.2 IMPACT OF STUDY

The perceived impact of employees on quality was tested in this South African manufacturing company only and might not be representative of any other company or in another country.

1.8 CHAPTER DIVISION

The chapters in this mini-dissertation are as follows:

CHAPTER 1: INTRODUCTION AND ORIENTATION.

The discussion in this chapter provides a general introduction, stating the research question and problem statement, objectives of the research, research methodology, limitations of the study and the division of the chapters to follow.

CHAPTER 2: LITERATURE REVIEW.

This chapter contains a literature study on specific aspects of quality training, quality culture, employee involvement, quality systems, quality guidelines, as well as the quality measurement tools.

CHAPTER 3: RESEARCH METHODOLOGY.

In this chapter the method followed during the study and the statistical analyses is described.

CHAPTER 4: DATA ANALYSIS.

This chapter contains the results and the analysis of the results.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

In this final chapter, conclusions are drawn and recommendations on ways to move towards TQM are presented.

1.9 CHAPTER SUMMARY

This chapter provided the background and the research question for this study. It defined the problem statement together with the primary - and secondary objectives. In addition to the research methodology, the limitations of the study were described.

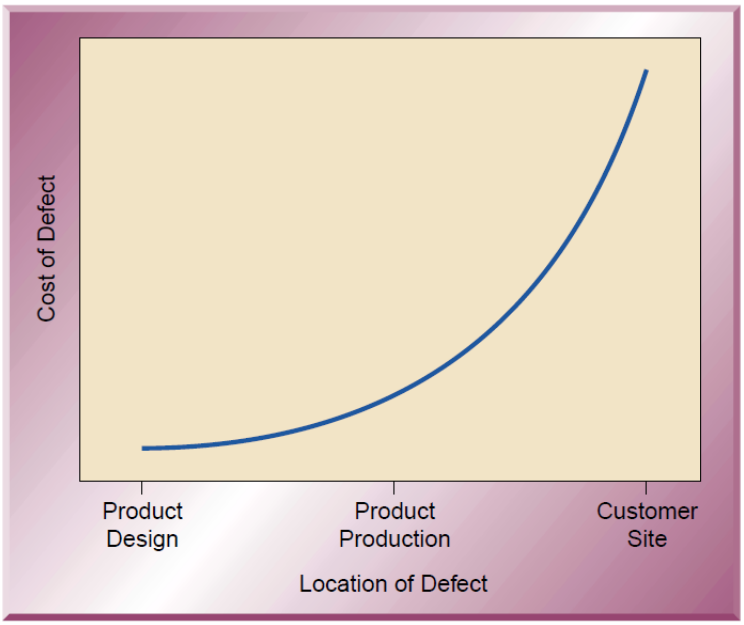
Chapter 2 will discuss literature specific to this study, with specific focus on the following aspects: history of quality management, differences between quality assurance and quality control, quality-related training, quality culture, people, systems, evaluation, status of equipment, technology, tools in TQM and risk-based management.

CHAPTER 2. LITERATURE STUDY

2.1 INTRODUCTION

Companies regard quality as important. Therefore they spend vast amounts of money to avoid internal and external failure costs. Prevention is often less costly than correcting product failures. Detecting and correcting defects during the product design and product production phases are usually less costly and embarrassing than when the defects are found at the customer (see Figure 2-1). External quality failure can potentially put a company out of business relatively quickly. (Wiley, 2017:141).

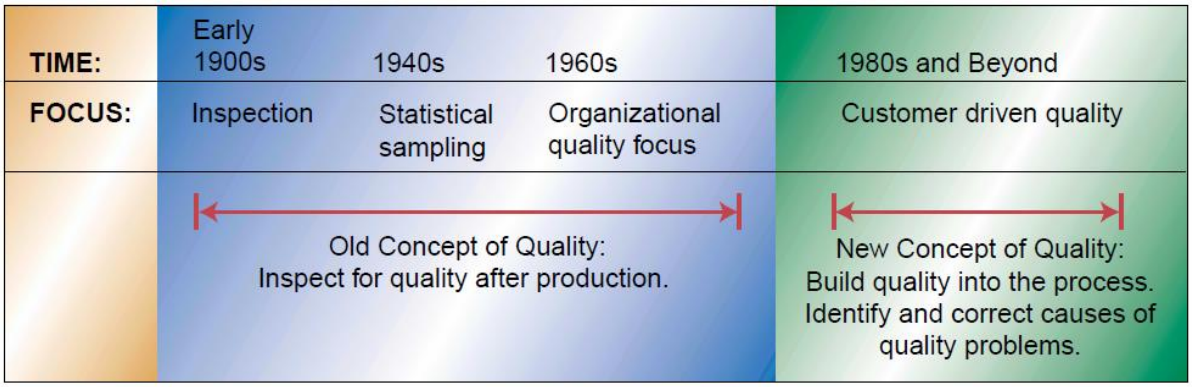
Figure 2-1: Cost of defects



Source: Wiley (2017:141)

Figure 2-2 below presents a time line of the development of quality concepts. Wiley (2017:143) describes the development of quality concepts as moving from reactive, designed to correct quality problems after they occur, to proactive, designed to build quality into the product and process design.

Figure 2-2: Timeline showing the differences between old and new concepts of quality



Source: Wiley (2017:143)

Quality Guru	Main Contribution
Walter A. Shewhart	Contributed to understanding of process variability. Developed concept of statistical control charts.
W. Edwards Deming	Stressed management's responsibility towards quality. Developed "14 Points" to guide companies in quality improvement.
Joseph M. Juran	Defined quality as "fitness for use." Developed concept "cost of quality".
Armand V. Feigenbaum	Introduced concept of total quality control.
Philip B. Crosby	Coined phrase "quality is free". Introduced concept of zero defects.
Kaoru Ishikawa	Developed cause-and-effect diagrams. Identified concept of "internal customer".
Genichi Taguchi	Focused on product design quality. Developed Taguchi loss function.

Source: Wiley (2017:143)

In Figure 2-3, the major contributors to the development of quality as a philosophy and their contributions towards our understanding of quality are summarised (Wiley, 2017:143).

Figure 2-3: Quality gurus and their contributions

Quality Guru	Main Contribution
Walter A. Shewhart	Contributed to understanding of process variability. Developed concept of statistical control charts.
W. Edwards Deming	Stressed management's responsibility towards quality. Developed "14 Points" to guide companies in quality improvement.
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Kaoru Ishikawa	Developed cause-and-effect diagrams. Identified concept of “internal customer”.
Genichi Taguchi	Focused on product design quality. Developed Taguchi loss function.

Source: Wiley (2017:143)

Deming has proposed 14 points, raising two important points to assist companies to improve their quality and productivity: The first is that there should be a common purpose in the organisation to improve products and services, and the second is that the dependence on inspection to achieve quality should cease (Deming, 2017). He also listed the “seven deadly diseases in pursuing quality”, of which emphasis on short-term profits is one .

2.2 QUALITY AS A MANAGEMENT PRINCIPLE

Quality management is essentially a series of building blocks, starting with inspection and from there developing progressively into quality control (QC), statistical process control (SPC), quality assurance, (QA) and ultimately pursuing total quality management (TQM) (Gee & Nystrom, 1999:14). The essence of TQM will first be discussed, followed by a discussion of the distinction between QA and QC (the latter being the objective of this study).

Essop (2015:204) found empirical proof that an organisation’s product or service quality will improve, if a philosophy of TQM is adopted to lay down principles for continuous improvement.

If quality management is a philosophy embraced by top management, rather than a sub-goal implemented by middle management, it would create an organisational culture fostering employee creativity for quality (Lee & Ebrahimpour, 1985:31). Lack of management commitment has been identified as the main cause of failure of TQM (David & Sepic, 1995:369). TQM as a philosophy implies that everybody is involved and striving towards continuous quality improvement and achieving customer satisfaction. Making quality an organisational priority entails exceeding customer expectations through an integrated by people on all levels in the organisation (Wiley, 2017:137). However, management behaviour has been identified as the most critical factor that influences the implementation of TQM (Porter & Parker, 1993:21).

The above principles are well summarised by Iruobe *et al.* (2012:46), who described the three principal philosophies of TQM as:

- Continuous improvement as a never–ending push to improve;
- Involvement of everyone in the organization as the goal of customer's satisfaction; and
- All team members who perform quality functions should endeavour to produce quality products at first attempt. This will ensure client's satisfaction and save cost for rework.

Table 2-1: Two views of quality

Traditional view of Quality	Total Quality
Measure process performance in defective parts per hundred of products (acceptable benchmark)	Measure process performance in defective parts per million of products (high performance benchmark)
Focused on after-the-fact	Continual improvement of product, process and people in order to prevent the problems before they occur
Employees are passive	Employees are empowered to think and make decisions (85% of problems are management's fault)
Expected one improvement per employee per year	Expected at least 10 improvement per employee per year
Focus on short-te profit	Focus on long-term profit
Productivity and quality are always in conflict	Productivity made as a result of Quality improvement
Customer satisfaction	Satisfying customer need and exceed expectation
Quality is inspected into product	Quality is determined by product, process and people

- Source: Goetsch and Davis (2010:11)

From **Error! Reference source not found.** above it can be seen that the benefit of total quality c ompared to the traditional way is easily distinguishable.

A good strategy for a manufacturer has always been having an effective quality management system (QMS) (Li *et al.*, 2015:1). Van Dyk (2013:iii) regards sustaining such a QMS as the biggest challenge for any organisation. Other scholars agree with this statement, saying that the biggest challenge for management however remains sustaining interest in any QMS (Hammar, 2017; Jura, 2008:47). Flohr (1974:25-26) highlighted that total quality assurance (TQA) requires the entire production management team to focus on satisfying the customer's quality needs, which will ultimately raise product quality and increase job motivation through mutual responsibilities.

With more demanding customers, market globalisation and economic liberalisation, shorter product life-cycles is required (Bani Ismail, 2012:5). This results in organisations being more innovative and competitive to survive through continuous improvement of operational systems to

provide products and services of higher quality. This is achieved by giving employees the required tools and techniques, specifically when involved with continuous improvement. Quality could give organisations the strategic differentiation factor that is not easily duplicated or copied to maintain a competitive edge in the global environment (Bani Ismail, 2012:123). Quality therefore forms the cornerstone for organisations to secure and widen their client base, enhancing their competitive strategies (Bani Ismail, 2012:123).

Consistent with Wiley (2017:139), dimensions of quality for manufacturing organisations include:

- Conforming to specifications;
- Reliability, to function without failure;
- Features superior to normal requirements;
- Durability, to ensure the operational life of the product; and
- Serviceability, to ensure ease of repair.

Table 2-2 gives a systematic comparison of quality assurance versus quality control.

Table 2-2: QA versus QC comparison chart

EDIT	QA	QC
Definition	QA is a set of activities for ensuring quality in the processes by which products are developed or produced.	QC is a set of activities for ensuring quality in final products. The activities focus on identifying defects in the actual products produced.
Focus on	QA aims to prevent defects with a focus on the process used to make the product. It is a proactive quality process.	QC aims to identify (and correct) defects in the finished product. QC. Therefore, is a reactive process.
Goal	The goal of QA is to improve development and test processes so that defects do not arise when the product is being developed.	The goal of QC is to identify defects after a product is developed and before it is released.
How	Establish a good quality management system and the assessment of its adequacy. Periodic conformance	Finding & eliminating sources of quality problems through tools & equipment so that customer's requirements are continually met.

EDIT	QA	QC
	audits of the operations of the system.	
What	Prevention of quality problems through planned and systematic activities, including documentation.	The activities or techniques used to achieve and maintain product quality, process and service.
Responsibility	Everyone on the team is involved in developing the product is responsible for QA.	QC is usually the responsibility of a specific team that tests the product for defects.
Example	Verification is an example of QA	Validation/Software testing is an example of QC
Statistical Techniques	Statistical tools & techniques can be applied in both QA & QC. When they are applied to processes (process inputs & operational parameters), they are called Statistical Process Control (SPC) and it becomes part of QA.	When statistical tools & techniques are applied to finished products (process outputs), they are called Statistical Quality Control (SQC) & falls under QC.
As a tool	QA is a managerial tool	QC is a corrective tool
Orientation	QA is process oriented	QC is product oriented

Source: Anon (2017a)

The distinction between QC, QA and TQM is powerfully illustrated in figure 2.4,

Figure 2-4: QC, QA and Total Quality Management

Source: Bennett (2017)

Bennett (2017) posits that QC remains at the heart of any process, even though it is a subset of QA, which includes quality improvements, focussing on the end goal, which is customer satisfaction. A clear understanding of the distinction between QC and QA is therefore vital in deciding where to focus on when enhancing quality within an organisation. Furthermore TQM encompasses all quality measures to improve quality and performance to meet and exceed customer expectations.

2.3 THE ROLE OF TRAINING IN QUALITY

Training can be defined as an organised activity with the goal to embark on improving the recipient's performance or to help them obtain the level of knowledge or skill associated with a specific operation (Anon, 2017b).

In a changing business environment, people need to be more multi-skilled, adaptable and motivated. Workers need to have a broad conceptual capability and knowledge to perform the required task. To achieve this continuous education and training, it is necessary to create a culture that values continuous learning (Essop, 2015:204). This ultimately provides the employee with the skill to be more efficient and effective in performing his/her task.

The role of training in quality is further supported by Japanese companies, who believe that training should start at the top and be filtered downwards (Kondo, 1990:309). Higher levels of skills training impacts positively on better quality management (Gee & Nystrom, 1999:12).

2.4 QUALITY CULTURE

El Safty (2012) defines organisational culture as shared beliefs, attitudes, values and behaviour patterns that characterises the members of an organisation.

It was found by Waldersee and Griffiths in a longitudinal study done on 500 large organisations in 1997 that employee resistance remains the most frequent problem when a culture change is implemented Bani Ismail (2012:120); (Jancikova & Brychta, 2009:93).

Training (as described above) could be used to change the work culture of people by influencing the way they think, act and feel. Such changed behaviour could be used to focus on TQM and achieving customer satisfaction, as well as to strengthen customer-supplier relationships (Borror, 2009:319; Kanji & Asher, 1993:81).

One of the characteristics of TQM lies in establishing continuous improvement as part of the organisation's culture (Essop, 2015:151). A continuous improvement culture would build awareness, employee commitment to policies and company strategy, enhance teamwork and increase performance standards, by strengthening the abilities and skills of employees (Irani *et al.*, 2004:649; Palo & Padhi, 2003:203).

Often misunderstood by both management and the workforce is that a change in quality culture is not just to change the behaviour of people on shop floor level, but that TQM is actually a unified approach the get everybody in the organisation to commit to quality most of the time (Kanji & Asher, 1993:82). This is normally initiatied by enforcing quality standards and procedures to align all the activities taking place in the organisation towards quality (Kanji & Asher, 1993:83).

Problem solving groups as a part of TQM can create interdependencies between employees based on exchange of ideas (data) rather than being based on hierarchy (Osland, 1997:298). Management-driven quality improvement teams could be used to break down inter- and intradepartmental barriers and to assist with problem solving and with increasing the morale of all in the organisation (Wynne & Lancaster, 1992:23).

The implementation of TQM is described as not simply being about installing systems and procedures, but also about cultural change that supports teamwork, employee participation and empowerment, continuous improvement, a customer focus and suitable leadership, without which TQM cannot be sustained (Oakland & Waterworth, 1995:299). Furthermore, driving cultural change focuses on two issues: behavioural and technical. The behavioural focus is on the actions that the people and the organisation as a whole need to take to support TQM, whereas the technical focus is on the techniques, tasks and strategies required to improve processes in the company (Oakland & Waterworth, 1995:301-302). The implication is that the focus on inspection changes from inspecting final product to monitoring of processes that is aimed at prevention of product failure (Wynne & Lancaster, 1992:23).

Jancikova and Brychta (2009:93) are persistent that it is important to sustain a competitive ability through the implementation of TQM through a change in culture. This is crucial, since implementation of total quality management (TQM) takes three to four years to be accepted by employees and eight to ten years for full implementation.

Five focus areas can assist in creating a quality culture (El Safty, 2012):

1. A view of "we're all in this together";
2. Honest and open communication;
3. Access to information;
4. A process focus; and

5. The knowledge that all successes and failures are merely learning experiences.

2.5 PEOPLE IN QUALITY

The value of an ISO quality management system is only as successful as the support given by top management (Berger, 2009:14). By empowering their employees, top management uses their biggest asset to produce at a more consistent level of quality, which creates sustainable value.

Acknowledging that people are an essential part of a quality management system would assist organisations to deal with their quality-related problems. This can be achieved through training of personnel, by which they are empowered and developed to strive towards quality as a personal objective rather than just achieving value creation for stakeholders of the organisation (Matlhape & Lessing, 2002:21).

Zhihai (2001:192) compares the scenario where people are included as part of a quality system with the scenario where they are left out.

Table 2-3: Inclusions or exclusion of people in quality management

People included	People excluded
TQM implementation influences employee satisfaction, product quality, and strategic business performance and customer relations positively.	Training and education do not influence employees positively.
Proper leadership influenced strategic business performance and employee satisfaction positively.	Supplier quality management concerning product design, evaluation and improvements to the quality system do not influence product quality positively.
Employee recognition, participation and rewards influenced employee satisfaction positively.	Customer satisfaction does not influence strategic business performance positively.
Product quality is positively influenced by a vision and plan statement, process control and associated improvements.	
Quality system improvement influence strategic business performance.	
Customer focus positively influences customer satisfaction.	
Employee satisfaction are positively influenced by product quality and customer satisfaction.	
Product quality influence customer satisfaction and product quality.	

Bani Ismail (2012:112) argues that people within an organisation have different competencies, contributing to the success of the organisation. Tapping into this competency base shapes the organisational culture and should be channelled towards a contribution towards quality. Employees should be empowered to make decisions, rather than just following instructions. Teams also require proper training (Borror, 2009:81) to influence their effectiveness.

Key factors in the development of employees (human resources) are employee training and motivation to create quality awareness among them. Training programs should be based on documented procedures, and should be focused on all levels of employees. Assessment of skills and capabilities of employees should be done periodically. Quality improvement efforts can be further supported by motivational programs and recognition of job performance (Borror, 2009:89).

2.6 QUALITY SYSTEMS

Considering the importance of systems theory as basis for the implementation of a stable quality management system, creating a culture of systems thinking would avoid a silo mentality, which would in turn support a culture of continuous improvement (Brits, 2011:1295). Systems thinking aligns the organisation to move towards interaction, collaboration and mutual adjustments since all levels of people are convinced that they are better as one team than as separate units (Brits, 2011:1296).

Organisations increasingly use integrated management systems that cover safety (OHSAS 18001), environment (EMS 14001) and quality (ISO 9001) to govern and guide their operations (Singh, 2008:32). Smith *et al.* (2014:76) found that ISO 9000 certification series measurably assist organisations to improve their total business performance (Easton & Jarrell, 1998:253). However, In a more precision-oriented environment, ISO standards alone have proven not to be adequate. In such industries it was found that additional TQM techniques, such as failure mode, effect and criticality analysis (FMECA) and statistical process control (SPC) was needed (Wynne & Lancaster, 1992:20).

ISO 9001:2008 requirements (ISO (International Standard Organization), 2008:1) assist organisations to implement, establish and maintain a quality management system (QMS) to:

- Determine QMS process required (and their function throughout the organisation);
- Determine the sequence of processes and interactions;
- Determine process operation and control methods and criteria;
- Confirm that resources and supporting data are available;
- Monitor, measure (if applicable) and analyse processes; and

- Introduce actions to ensure planned results are achieved through continuous process improvement.

Furthermore QMS documentation is governed by the organisation's size, the activities performed, complexity of processes as well as the employees competence (ISO (International Standard Organization), 2008:2).

Under ISO 9001, competence, training and awareness criteria áre supplied to the organisation with regards to human resources (Hoyle, 2009:238; ISO (International Standard Organization), 2008:6) to:

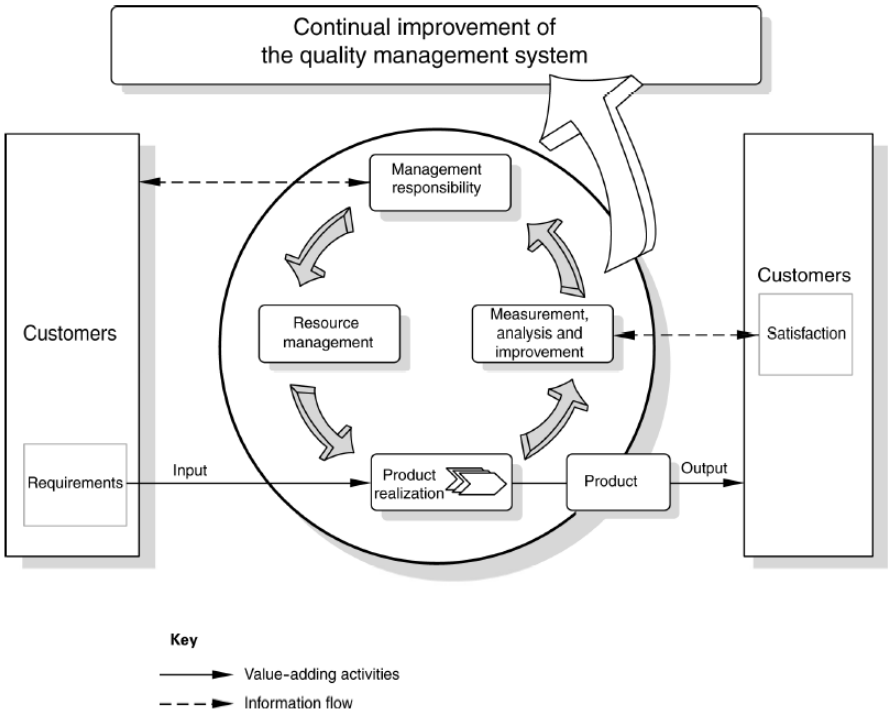
- Determine competency level required for employees;
- Provide training where necessary;
- Assess effectiveness of actions taken;
- Make employees aware of the importance and relevance of their activities;
- Ensure employees understand their contribution towards achieving quality objectives; and
- Keep experience, training, and education and skill records.

Based on ISO 10005 (ISO (International Standard Organization), 2005:3) the development and need of a quality plan are governed by a number of situations, such as:

- To show how the organisation's quality management system applies to a specific case;
- To meet statutory, regulatory or customer requirements;
- To develop and validate new products or processes;
- To demonstrate, internally and/or externally, how quality requirements will be met;
- To organise and manage activities to meet quality requirements and quality objectives;
- To optimise the use of resources in meeting quality objectives;
- To minimise the risk of not meeting quality requirements;
- To use as a basis for monitoring and assessing compliance with the requirements for quality;
- In the absence of a documented quality management system.

The process model In Figure 2-5 below (ISO (International Standard Organization), 2005:v) shows that a QMS entails more than just quality plans, with the focus being primarily on product requirements that would provide customer satisfaction.

Figure 2-5: Model of a process based QMS



Source: ISO ISO (International Standard Organization) (2005:v)

Companies that implement both TQM and ISO 9000 standards outperform other companies in terms of quality processes, quality culture and quality performance (Duran *et al.*, 2014:76). Furthermore, Hajji *et al.* (2012:3661) found that narrow process specifications normally lead to good quality products with higher market value, although tighter specifications are usually associated with a higher non-conforming rate. Although this leads to a larger percentage of rejects, which would increase cost of non-conformance and reduce plant productivity, the benefit of tighter specifications still outweighs the cost. Therefore, a "simulation based approach" is recommended to ensure that profit determined by a joint production-quality control policy contribute to curbing cost (Hajji *et al.*, 2012:3671).

2.7 EVALUATION

Measuring quality management systems performance has been proven to improve an organisation's overall performance (Smith *et al.*, 2014:76). Being able to identify current quality performance by using diagnostic tools for improvement, does assist the organisation's operations and processes to re-align with their strategy (Smith *et al.*, 2014:77). Smith *et al.* (2014:94) further argue that providing management with quantitative tools to improve overall QMS implementation will positively affect business performance and improve compliance.

2.8 STATUS OF EQUIPMENT

One of the determinants of consistent product quality is the status of its manufacturing and other equipment (Rivera-Gómez *et al.*, 2013:3443). Quality is adversely affected by the deterioration of equipment, such as wear, fatigue, breakdowns, repairs, corrosion and human errors that affect the quality of the manufacturing system (Rivera-Gómez *et al.*, 2013:3444). Therefore, a quality management system should influence the design of production lines and should include the maintainability of the system. Rivera-Gómez *et al.* (2013:3444) found that plant optimisation can only be achieved if the following two factors are considered: a) machine repair history (rate of defects) and b) ageing that take place between failures (reducing quality yield). A control policy should be in place that addresses maintenance of the manufacturing system at operational level (Rivera-Gómez *et al.*, 2013:3461) to reduce the overall effect of plant deterioration on production, and hence on product quality.

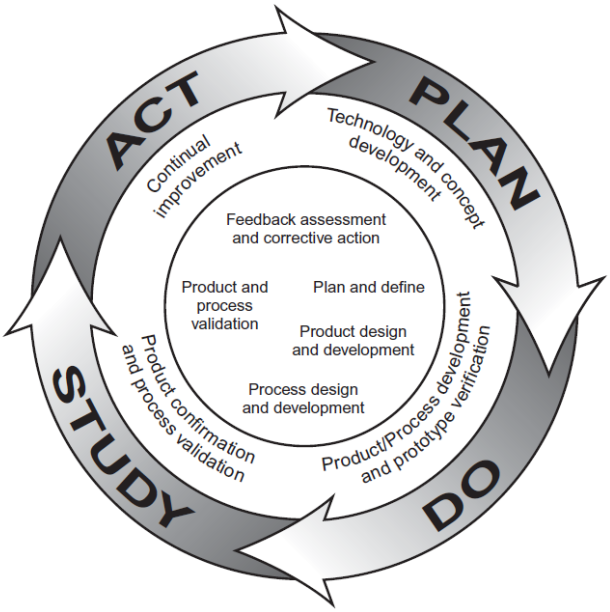
2.9 TECHNOLOGY

The complexities related to multistage systems present substantial challenges for effective QC and improvements. New technologies do exist to collect information using sensor technology, which should have a positive effect on product quality. (Shi & Zhou, 2009:745).

2.10 TOOLS IN TQM

Using Six Sigma methodologies as a TQM tool have been proven to improve organisations' bottom line performance considerably (Claasen & Odendaal, 2002:25). Hoyle (2009:70) has established that the Six Sigma methodology also provides other positive spin-offs, such as management decisions being based on real data, improved leadership commitment, better training and a positive cultural change.

Figure 2-6: Basic plan–do–study–act cycle



Source: Borror (2009:321)

The basic Six Sigma PDCA cycle shown in Figure 2.6 (Borror, 2009:322) can be used as assessment tool for organisations that gets caught up in day-to-day activities to ensure that they do not lose sight of process-focused improvements or reengineering changes that need to be completed to ensure the survival of the organisation in the long run.

There are many quality management methods and philosophies that an organisation can use to measure and manage performance. Some of these include the Balanced Scorecards, Business Excellence Models, and QMS Standards. The selection of a quality management method depends on the industry and the competitive environment, product strategies and market situation (Smith *et al.*, 2014:76).

However, there is a danger in relying overly on quality management systems. Dahlgaard and Dahlgaard-Park (2006:279) warn that organisations that focus only on technical training of employees in techniques and tools of LEAN production and Six Sigma quality could forget to focus on the human factor, and could therefore do more harm than good to the company culture.

2.11 RISK BASED MANAGEMENT

With the evolution of various management systems, Labodová (2004:571) suggest two ways to integrate quality management, environmental management and health and safety management to ensure an organisational advantage. Firstly, organisations should implement each system separately and only then should an integrated management system be developed and implemented.

2.12 CHAPTER CONCLUSION

This chapter provided literature specific to this study and focussed on a few main concepts, such as quality history, concepts, training, quality culture, people, systems, policies, specifications, equipment, technology and tools to understand all possible variables that could influence this research question.

The distinction between QC, QA and TQM is powerfully illustrated in figure 2.4,

Figure 2-4 provides a good illustration of how the fundamental quality concepts of QC, QA and TQM link into one another. In Chapter 3, respondents' understanding of these three terms will be highlighted. The research methodology, survey approach and how these quality terms affected the researcher's findings will be further explained.

CHAPTER 3. RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter details the empirical research study conducted within the South African manufacturing company to explore perception towards quality of employees within the operations sections of the manufacturer. Information regarding the sample, means of data collection, and the statistical data analysis are addressed in this chapter.

3.2 RESEARCH METHODOLOGY

3.2.1 TARGET POPULATION

The target population can be seen as the population the researcher would preferably like to generalise his or her results (Welman *et al.*, 2005:55) to. For this specific study the population consisted of about 766 employees (permanent and part-time) working as in the operations departments at the South African manufacturer.

3.2.2 SURVEY APPROACH

The empirical research conducted followed a quantitative approach. This is due to the size of the population, which is conducive to quantitative research. Another reason for using quanititative research is due to the distance between factories. Welman *et al.* (2005:188-192) opine that quantitative researchers have the benefit of an outsider's perspective to understand the facts gathered from a research investigation, aimed at larger numbers of respondents and small communities.

For the purpose of this research, respondents (n) were selected from departments within the organisation that are directly involved with operations (production) on all the manufacturers' sites, situated in three provinces.

The self-developed questionnaire tested respindents' understanding and experience of quality within the specific manufacturer. It consisted of four sections namely Section A – Demographics, Section B – Your Choice, Section C - Training and Section D – Your opinion.

A four-point Likert scale was utilised to assess employee choice: Strongly Disagree (1), Disagree (2), Agree (3) and Strongly Agree (4). Employee training was assessed on a four-point Likert scale: Never (1), Seldom (2), Sometimes (3) and Often (4).

Neutral was discarded from normal five-point Likert scale to force respondents to make a decision rather than staying neutral.

3.2.3 DATA COLLECTION

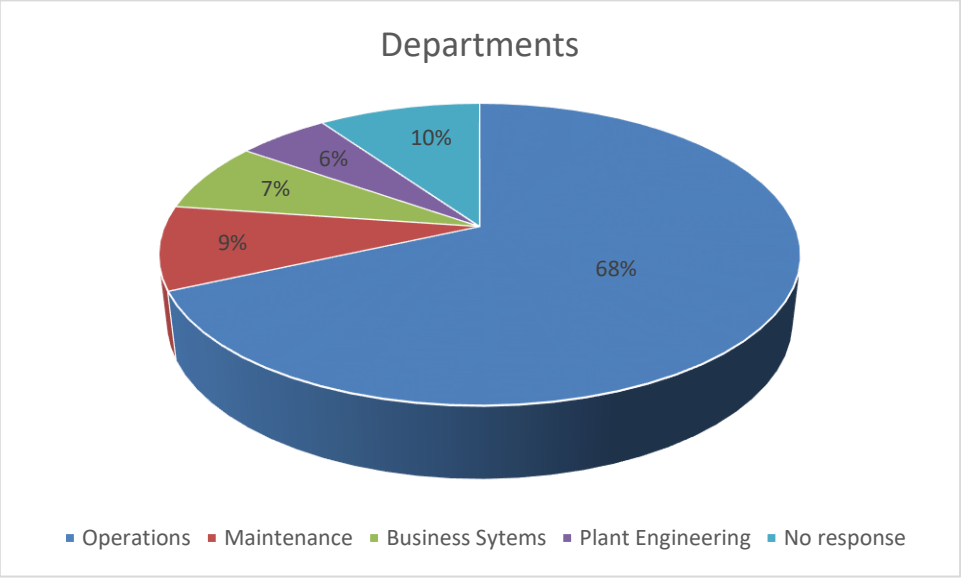
3.2.3.1 Section A – Demographics

Most questionnaires were distributed in hard copy format to allow for quick response from respondents, especially bearing in mind that the majority of operations employees do not have access to electronic mail. However, some questionnaires were distributed by e-mail to those employees working abroad at the time of distribution. Their responses were scanned and emailed back. Assurance was given to all respondents that their responses would be treated as confidential to ensure objectivity. For this reason a respondent's level in the organisation was excluded from the questionnaire, so that no employee would feel that completing this section of the questionnaire would compromise his or her anonymity. A total of 615 responses of the 766 questionnaires distributed were returned, of which 535 were usable.

Section A - Demographics

indicated that the production departments, i.e. operations, maintenance, business systems and plant engineering, were well represented with an overall response rate of 90,2%.

Figure 3-1: Population distribution considering departments



3.2.3.2 Section A - Demographics

Table 3-1: Demographic A1 - Age

A1: Age		N	Percent	Mean	Std. Deviation
Age Groups	18 - 29	181	33,83%	0,92	0,268
	30 - 39	159	29,72%	0,90	0,302
	40 - 49	87	16,26%	0,97	0,184
	50 - 59	86	16,07%	0,87	0,336
	60+	22	4,11%	0,95	0,213
	Total	535	100,00%	0,92	0,278
Mean		37,00			
Standard Deviation		11,823			

Source: SPSS

The respondents are spread into two main age brackets (Table 3-1) with an almost equal spread between the ages: 1) 18 to 29 and 30 to 39 (representing 63,55% of the sample) and 2) 40 to 49 and 50 to 59 (representing 32,34% of the sample). Respondents between 60 and 65 (representing 4,11% of the population) are low because 65 is the retirement age.

Table 3-2: Demographic A2 – Years of Employment

A2: Years of Employment	N	Percent
0 - 5	191	48,48%
6 - 10	69	17,51%
11 - 20	54	13,71%
21 - 30	51	12,94%
31+	29	7,36%
Total	**394**	**100,00%**
Mean	11,19	
Standard Deviation	11,088	

Source: SPSS

Almost half of the respondents have less than 5 years' experience, while 51,52% have more than 5 years' experience (up to 42 years' experience). With 34,01% of respondents having more than 10 years' experience (See Annexure C for detail), it shows a wealth of human capital.

Table 3-3: Demographic A3 - A9

The rest of the demographic information is summarised in **Table 3-3**.

A3	**Sex:**	Male	67,9%	Female	32,1%						
A4	**Department:**	Operations	75,7%	Maintenance	9,9%	Business Systems	8,3%	Plant Engineering	6,1%		
A5	**Site:**	Gauteng	18,2%	North-West	29,4%	Western Cape 1	43,1%	Western Cape 2	9,3%		
A6	**Status:**	Permanent employee		46,1%	Service provider		53,9%				
A7	**Ethnicity:**	Black	40,1%	Coloured	50,1%	Indian	0,7%	White	8,6%	Other	0,5%
A8	**Language:**	Afrikaans		47,9%	English		14,3%	Tswana		9,9%	
		Xhosa		12,0%	Zulu		5,5%	Other		10,4%	
A9	**Qualification:**	< Grade 12		30,5%	Grade 12		39,8%	Artisan		8,6%	
		Diploma		10,0%	Graduate/Higher diploma		7,5%	Post-Graduate		3,6%	

Source: SPSS (See Annexures D for detail)

- Male respondents represent two thirds of the sample.
- Operations represented the largest portion of respondents (75,7%) while maintenance and plant engineering, as departments delivering a service to operations, together represented 16,0%. Business systems, the department that is in charge of the quality function, represented 8,3% of respondents.
- From a site perspective the Western Cape 1 site (43,1%) represents the most respondents, followed by the North-West site (29,4%), Gauteng(18,2%) and the smallest percentage of respondents are from Western Cape 2 site (9,3%).
- The survey was almost equally represented by permanent staff (46,1%) and contract labour (53,9%). The latter is employed through a service provider.

- The majority of the respondents have indicated their first language to be Afrikaans, whilst at least 27,4% have a African language as their first language.
- Finally, a large portion of the respondents (30,5%) have less than grade 12, while 29,7% of respondents have some qualification beyond grade 12.

3.2.3.3 Section B1 – Own Choice

In answering the primary question, the purpose of the analysis was to determine whether people understand the difference between QC, QA and TQM and how their understanding of these concepts would influence their perception towards their role and responsibility in delivering a quality product. For this reason, the first nine questions required that the respondent select one of the three possible options next to each of the three quality concepts.

From the surveys in general most respondents marked agree next to each of the first nine questions, which focussed on the respondents ability to associate one of the three options with each of the quality terms (QA, QC & TQM) as it is understood within the manufacturer.

From Table 3-4 below, respondents could not distinguish the difference between the three concepts. Following this analysis, the original statistical analysis was adapted to determine whether respondents really did not understand the difference statistically or whether they simply were confused between the three terms. The analysis was also adapted to see how this lack of understanding would affect their own perception and attitude towards quality as further described in Paragraph 3.2.4 (STATISTICAL DATA ANALYSIS). Note, the correct answers are given in boldface.

Table 3-4: Own Choice B1 - B9

No	Question	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Standard Deviation
B1	**QA means preventing defects**	2,0%	4,8%	**61,1%**	32,2%	3,23	0,628
B2	QA means minimising defects	3,0%	9,0%	**62,5%**	25,4%	3,10	0,674
B3	QA means identifying defects	1,5%	8,0%	**59,2%**	31,3%	3,20	0,643
B4	QC means preventing defects	1,4%	9,0%	**60,2%**	29,4%	3,18	0,638
B5	QC means minimising defects	1,9%	12,0%	**59,4%**	26,7%	3,11	0,671
B6	**QC means identifying defects**	0,7%	7,7%	**58,7%**	33,0%	3,24	0,614
B7	TQM means preventing defects	1,4%	7,9%	**58,5%**	32,2%	3,22	0,641
B8	**TQM means minimising defects**	2,4%	8,8%	**60,0%**	28,7%	3,15	0,670
B9	TQM means identifying defects	2,4%	9,8%	**61,5%**	26,3%	3,12	0,667

Source: SPSS

- The first three items tested understanding of the term Quality Assurance (QA). Counting those who chose 3 and 4 (agree and strongly agree), it is clear that respondents do not understand the term QA, as 93,2% chose QA as being preventative (the correct definition), 88,0% chose QA as being minimising defects and 90,5% of respondents chose QA as identifying defects.
- The next three terms tested understanding of the term Quality Control (QC). Counting those who chose 3 and 4 (agree and strongly agree), it is clear that respondents do not understand the term QC, as 91,7% chose QA as being identifying defects (the correct definition), 89,7% chose QC as being preventing defects and 86,1% of respondents chose QC as minimising defects.

- The next three terms tested understanding of the term Total Quality Management (TQM). Counting those who chose 3 and 4 (agree and strongly agree), it is clear that respondents do not understand the term TQMC, as 90,7% chose TQM as being preventing defects (the correct definition), 88,8% chose TQM as being minimising defects and 87,7% of respondents chose TQM as identifying defects.
- Furthermore it is also notable that the majority of respondents (around 60%) selected agree (3) in answering all the questions posed in Table 3-4, therefore seeing all descriptions as being correct.

3.2.3.4 Section B2 – Own Choice

The next questions tested respondents' perception of how well quality is managed at the company, as well as whose responsibility quality management is.

Table 3-5: Own Choice B10 – B38

No	Question	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Standard Deviation
B10	QC is done well enough in the operations department	2,7%	21,5%	61,1%	14,6%	2,88	0,675
B11	QC is done well enough in the business systems department (quality)	3,1%	23,3%	59,3%	14,4%	2,85	0,691
B12	We always receive good quality product from our main supplier (internal or external) to my department	6,1%	34,1%	50,3%	9,5%	2,63	0,739
B13	I am familiar with the work instruction(s)	1,3%	2,8%	57,0%	38,9%	3,33	0,599

No	Question	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Standard Deviation
B14	The Quality department (business systems department) is responsible for QC	5,8%	21,7%	51,3%	21,2%	2,88	0,806
B15	I am personally responsible for QC	2,2%	9,5%	53,9%	34,5%	3,21	0,695
B16	My department is responsible for QC	2,0%	13,0%	56,7%	28,3%	3,11	0,693
B17	My management is responsible for QC	2,7%	14,7%	57,8%	24,8%	3,05	0,709
B18	I have received sufficient quality related training to perform my work well	3,9%	20,3%	56,6%	19,2%	2,91	0,737
B19	QA is sufficient within the operations department	2,7%	19,4%	64,3%	13,6%	2,89	0,653
B20	QA is sufficient within business systems department	2,8%	16,5%	67,5%	13,2%	2,91	0,633
B21	QA of our internal suppliers are sufficient	3,7%	22,0%	64,3%	10,0%	2,81	0,657
B22	QA of our external suppliers are sufficient	3,7%	27,6%	58,1%	10,6%	2,76	0,687
B23	Our processes is designed to enhance QA	1,2%	13,6%	65,3%	19,9%	3,04	0,618
B24	I am personally responsible for QA	1,4%	9,8%	59,0%	29,8%	3,17	0,649
B25	My department is responsible for QA	1,2%	13,4%	61,4%	24,0%	3,08	0,645
B26	My management is responsible for QA	2,1%	16,3%	59,0%	22,6%	3,02	0,687
B27	QA is the responsibility of the maintenance department	11,0%	35,9%	43,3%	9,8%	2,52	0,817

No	Question	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Standard Deviation
B28	QA is more important than QC	6,4%	34,3%	47,2%	12,1%	2,65	0,774
B29	If I had a say, I would increase QC within my department	1,7%	10,7%	66,2%	21,3%	3,07	0,621
B30	If I had a say, I would increase QA within my department	1,2%	10,7%	64,8%	23,3%	3,10	0,616
B31	Chasing production targets has a negative effect on QA	2,7%	15,2%	51,9%	30,1%	3,09	0,745
B32	Chasing production targets has a positive effect on QA	12,8%	39,4%	35,9%	11,9%	2,47	0,863
B33	There is good cooperation between the maintenance department and operations department	2,3%	18,4%	66,4%	12,9%	2,90	0,628
B34	Most quality non-conformance is caused by poor maintenance	7,2%	39,6%	45,4%	7,7%	2,54	0,741
B35	Most quality non-conformance is caused by old equipment	4,5%	22,9%	57,0%	15,6%	2,84	0,734
B36	Most quality non-conformance is caused by chasing production targets	3,5%	20,6%	55,9%	20,1%	2,93	0,735
B37	Most quality non-conformance is caused by the skill level of employees	4,5%	23,7%	56,7%	15,1%	2,82	0,734
B38	The company can be described as having a quality culture	3,5%	15,5%	62,6%	18,4%	2,96	0,691

Source: SPSS

- The majority of respondents (75,8%) feel that QC is done well enough in the operations department (B10).
- The majority of respondents (73,7%) feel that QC is done well enough in the business systems department, although this percentage is slightly smaller than for the operations department (B11).
- Only 59,8% of respondents believe that they always receive good quality product from their main supplier (internal or external) (B12).
- An extremely high number of respondents (95,9%) feel that they are familiar with the work instruction(s) (B13).
- The majority of respondents (72,5%) feel that the Quality department (business systems department) is responsible for QC (B14).
- The majority of respondents (88,4%) feel that they are personally responsible for QC (B15).
- The majority of respondents (85,0%) feel that their department is responsible for QC (B16).
- The majority of respondents (82,6%) feel that management is responsible for QC (B17).
- The majority of respondents (75,8%) feel that they have received sufficient quality related training to perform my work well (B18).
- The majority of respondents (77,9%) feel that QA is sufficient within the operations department (B19).
- The majority of respondents (80,7%) feel that QA is sufficient within business systems department (B20).
- The majority of respondents (74,3%) feel that QA of their internal suppliers are sufficient (B21).
- Only 68,7% of respondents feel that QA of their external suppliers are sufficient. This aligns with results obtained in B12 of Table 3-5 (B22).
- The majority of respondents (85,2%) feel that their processes is designed to enhance QA (B23).
- The majority of respondents (88,9%) feel that I am personally responsible for QA (B24).
- The majority of respondents (85,4%) feel that their department is responsible for QA (B25).
- The majority of respondents (81,6%) feel that their management is responsible for QA (B26).
- Only half of the respondents (53,1%) feel that QA is the responsibility of the maintenance department (B27).
- Only 59,3% of the respondents feel that QA is more important than QC (B28).
- The majority of respondents (87,5%) feel that if they had a say, they would increase QC within their department (B29).
- The majority of respondents (88,1%) feel that if they had a say, they would increase QA within their department (B30).

- The majority of respondents (82,0%) feel that chasing production targets has a negative effect on QA (B31).
- Less than half of the respondents (47,8%) feel that chasing production targets has a positive effect on QA (B32).
- The majority of respondents (79,4%) feel that there is good cooperation between the maintenance department and operations department (B33).
- Only 53,3% of respondents feel that most quality non-conformance is caused by poor maintenance (B34).
- The majority of respondents (72,6%) feel that most quality non-conformance is caused by old equipment (B35).
- The majority of respondents (76,0%) feel that most quality non-conformance is caused by chasing production targets (B36).
- The majority of respondents (71,1%) feel that most quality non-conformance is caused by the skill level of employees (B37).
- The majority of respondents (81,0%) feel that the manufacturer can be described as having a quality culture (B38).

3.2.3.5 Section C – Training

This section aims to determine the respondents' level of training and knowledge regarding QC and QA respectively.

Table 3-6: Training C1 - C4

No	Question	Never	Seldom	Sometimes	Often	Mean	Standard Deviation
C1	I receive training in QC	31,2%	16,3%	32,0%	20,5%	2,42	1,131
C2	QC principles are discussed in my department	13,1%	14,5%	35,7%	36,7%	2,96	1,019
C3	I receive training in QA	35,4%	19,2%	27,9%	17,5%	2,27	1,122
C4	QA principles are discussed in my department	15,1%	17,5%	35,7%	31,7%	2,84	1,036

Source: SPSS

- Only 52,5% of respondents state that they receive training in QC.
- The majority of respondents (72,4%) feel that QC principles are discussed in their department.
- Less than half of the respondents feel that they receive training in QA.
- Only 67,4% of respondents feel that QA principles are discussed in their department.

3.2.4 STATISTICAL DATA ANALYSIS

When working with large datasets that contains many variables, these variables can be minimised by clustering "groups" of variables (factors), therefore factor analysis assist the researcher to identify common variables into descriptive categories (Yong & Pearce, 2013:80). Factor analysis from a broad perspective helps to summarise data in order to identify relationships and patterns which can then be interpreted and understood more easily (Yong & Pearce, 2013:79). Focusing on key factors rather than considering all variables assist simplifying interrelated measures through mathematical procedures to discover patterns within a set of variables (Child, 2006) as cited by Yong and Pearce (2013:79).

Yong and Pearce (2013:80) describe the two main factor analysis techniques are Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA tries to reveal complex patterns by exploring the dataset and testing predictions, whereas CFA attempts to confirm

hypotheses and uses path analysis diagrams to represent variables and factors (Child, 2006) as cited by Yong and Pearce (2013:79). For this study, EFA was employed.

3.2.5 VALIDITY AND RELIABILITY

For data to be valid it needs to be reliable, therefore the validity of a survey questionnaire relies on its reliability (Anon, 2017; Van Blerk, 2012:35).

Validity refers to the principle that the research finding are creditable or believable and that findings are genuine (Anon, 2017).

Reliability refers to the principle that when research is done a second time or on a different sample in the same population, the same result would be obtained, therefore focus on the repeatability of findings (Anon, 2017).

Cronbach's alpha coefficient, α (or *coefficient alpha*), developed by Lee Cronbach in 1951 (Glen, 2017), is an equation used to calculate the reliability, or internal consistency, of a set of scale or test items. Cronbach's alpha is a method to measure the strength of consistency. Therefore, the reliability of any given measurement refers to the extent to which it is a consistent measure of a concept as stated by Goforth (2015).

Cronbach's alpha is correlating the score of every scale item with the total score of each observation (individual survey respondents), and thereafter comparing that to the variance of all individual item scores (Goforth, 2015). Cronbach's alpha depends on the number of items in a test, the average covariance between pairs of items, and the variance of the total score (Goforth, 2015).

Equation 1: Cronbach's Alpha Coefficient

$$\alpha = \left(\frac{k}{k-1}\right)\left(1 - \frac{\sum_{i=1}^{k} \sigma_{y_i}^2}{\sigma_x^2}\right)$$

…where: k refers to the number of scale items

$\sigma_{y_i}^2$ refers to the variance associated with item i

σ_x^2 refers to the variance associated with the observed total scores

or, alternatively defined as:

$$\alpha = \frac{k \times \bar{c}}{\bar{v} + (k-1)\bar{c}}$$

…where: k refers to the number of scale items

$\bar{c}$ refers to the average of all covariances between items

$\bar{v}$ refers to the average variance of each item

Source: Goforth (2015).

3.2.6 FACTOR ANALYSIS

Using a correlation matrix (SPSS) a test was done to calculate if correlations are too high for performing factor analysis. With a determinant equal to 3,825E-5 there is no severe multicollinearity since the value is >0,00001.

As described by Field (2009:647) the Kaiser-Meier-Olkin (KMO) measure of sampling adequacy, calculated for single and numerous variables, calculates the ratio of the squared correlation between variables to the squared partial correlation between variables. A value of zero indicates that the sum of partial correlations is large relative to the sum of correlations, indicating diffusion in the pattern of correlations (hence, factor analysis is likely to be inappropriate). A value close to one indicates that patterns of correlations are relatively compact and so factor analysis should produce distinct and reliable factors.

With the KMO measure of sampling adequacy a value of 0,832 was obtained which is great. As an indicator of adequacy the following scale was used (Field, 2009:647):

- < 0,5 : not acceptable
- 0,5 – 0,7 : mediocre
- 0,7 – 0,8 : good
- 0,8 – 0,9 : great
- > 0,9 : superb

Bartlett's Test of Sphericity tests whether correlation between values are high enough, where p<0,05 indicates that correlations are sufficiently high. The significance value of 0,000 shows that correlations are in fact sufficiently high.

Evaluating survey questions in section B (B10 – B38), the proportion of the variance of each question was explained by the extracted factors. Communalities should therefore be greater than 0,3. Only six of the 29 questions gave a slightly lower value than 0,3, but larger than 0,2 (See Annexures G for more detail).

Based on the analysis, it was possible to identify seven main factors, which impact on quality, they are:

1. Quality culture (B10, 11, 12, 14, 18 – 23, 33 & 38)
2. Ownership (B13, 15, 16, 18, 24 & 25)
3. Non-conformance (B34 – 37)
4. Increase (B29 & 30)
5. Management (B17 & 26)
6. Assurance (B27 & 28)
7. Targets (B31 & 32)

At least 50% of the total variance should be explained by the extracted factors. Principle axis factoring used by SPSS shows that only six of the seven factors identified could be considered.

Table 3-7: Total Variance Explained

Factor	Initial Eigenvalues Cumulative %
1 - Quality culture	22,643
2 - Ownership	32,220
3 - Non-conformance	39,396
4 - Increase	44,610
5 - Management	49,450
6 - Assurance	**53,585**
7 - Targets	57,502
… 29	100,000
Extraction Method: Principal Axis Factoring.	

Source: SPSS (See Annexure H for detail)

From the Eigenvalues obtained in Table 3-7 it is therefore fair to accept the research to be valid.

Table 3-8: Pattern Matrix

Factor - Name	Survey Question	No.	1	2	3	4	5	6	7
Factor 1 - Quality Culture (12 items)	QC is done well enough in the operations department	B10	0,622						
	QC is done well enough in the business systems department (quality)	B11	0,578						
	We always receive good quality product from our main supplier (internal or external) to my department	B12	0,539						
	The Quality department (business systems department) is responsible for QC	B14	0,302						
	I have received sufficient quality related training to perform my work well	B18	0,316						
	QA is sufficient within the operations department	B19	0,661						
	QA is sufficient within business systems department	B20	0,679						
	QA of our internal suppliers are sufficient	B21	0,755						
	QA of our external suppliers are sufficient	B22	0,686						
	Our processes is designed to enhance QA	B23	0,482						
	There is good cooperation between the maintenance department and operations department	B33	0,339						
	The company can be described as having a quality culture	B38	0,441						
Factor 2 - Ownership (5 items)	I am familiar with the work instruction(s)	B13		0,282					
	I am personally responsible for QC	B15		0,665					
	My department is responsible for QC	B16		0,454					
	I am personally responsible for QA	B24		0,743					
	My department is responsible for QA	B25		0,531					

Factor - Name	Survey Question	No.	1	2	3	4	5	6	7
Factor 3 - Non-conformance (4 items)	Most quality non-conformance is caused by poor maintenance	B34			0,633				
	Most quality non-conformance is caused by old equipment	B35			0,611				
	Most quality non-conformance is caused by chasing production targets	B36			0,540				
	Most quality non-conformance is caused by the skill level of employees	B37			0,464				
Factor 4 - Increase (only 2 items)	If I had a say, I would increase QC within my department	B29				-0,849			
	If I had a say, I would increase QA within my department	B30				-0,829			
Factor 5 - Management (2 items)	My management is responsible for QC	B17					-0,722		
	My management is responsible for QA	B26					-0,627		
Factor 6 - Assurance (2 items)	QA is the responsibility of the maintenance department	B27						0,598	
	QA is more important than QC	B28						0,623	
Factor 7 - Targets (2 items)	Chasing production targets has a negative effect on QA	B31							-0,577
	Chasing production targets has a positive effect on QA	B32							0,363

Source: SPSS (Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization - a. Rotation converged in 18 iterations.)

From results obtained in Table 3-8 the decision was made to exclude Factor 7 – The two questions in the factor are direct opposites of each other and therefore no meaningful conclusions can be drawn from including this factor and similar to other measurement as described in factor 3 - non-conformance. This will however not influence the research based on the total variance calculated in Table 3-7. The pattern matrix give indication whether groupings make sense.

Table 3-9: Factor Correlation Matrix

Factor	1 - Quality culture	2 - Ownership	3 - Non-conformance	4 - Increase	5 - Management	6 - Assurance
1 - Quality culture	1,000	0,284	0,174	-0,259	-0,205	0,304
2 - Ownership	0,284	1,000	0,069	***-0,302***	**-0,299**	0,045
3 - Non-conformance	0,174	0,069	1,000	-0,133	-0,083	0,183
4 - Increase	-0,259	***-0,302***	-0,133	1,000	0,245	-0,119
5 - Management	-0,205	**-0,299**	-0,083	0,245	1,000	-0,176
6 - Assurance	0,304	0,045	0,183	-0,119	-0,176	1,000
Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalisation.						

Source: SPSS

The factor correlation matrix does not indicate high correlations between the factors. Therefore, we can note that the factors do not overlap; hence, factors are associated with different constructs. All correlations were significant at a 95% level.

From Table 3-9, the negative correlation between *Ownership* (respondents taking ownership for quality) and Management (respondents feeling that quality is only management's problem) makes sense: It is interesting that employees who feel strongly about the fact that they are personally responsible (factor 2) for quality would therefore NOT feel that management (factor 5) is responsible for quality (r=- 0,299).

Furthermore, to increase quality measures (factor 4) is aligned with employee feeling personally responsible for quality (- 0,302).

Section C dealt with training: The correlation matrix (SPSS) was used to calculate if correlations are too high within section C: Training. With a determinant equal to 0,099 there is no severe multicollinearity since the value is >0,00001.

With the Kaiser-Meier-Olkin (KMO) measure of sampling adequacy a value of 0,730 was obtained which is good.

Bartlett's Test of Sphericity tests whether correlation between values are high enough, where $p<0,05$ indicates that correlations are sufficiently high. The significance value of 0,000 shows that correlations are in fact sufficiently high.

Evaluating survey questions in section C (C1 – C4) the proportion of the variance of each question explained by the extracted factors. Communalities should therefore be greater than 0,3. All values were larger than 0,3 as detailed in Table 3-10 below.

Table 3-10: Communalities

Question	Initial	Extraction
C1	0,651	0,644
C2	0,575	0,588
C3	0,674	0,704
C4	0,584	0,595
Extraction Method: Principal Axis Factoring.		

Source: SPSS

Based on the results obtained in Table 3-10 principal axis factoring was used to obtain an Eigenvalue of 72,386% on the percentage of variance. Therefore, only one factor was taken into consideration as detailed in Annexures I.

3.2.7 RELIABILITY STATISTICS

Based on the above-mentioned factors, it was possible to calculate the reliability or internal consistency using Cronbach's alpha coefficient.

Owing to the fact that within paragraph 3.2.3.3, respondents could not clearly distinguish between the three quality terms, an analysis was done where a one is given to all respondents, which answered the quality term in line with the allocated definition, and a zero to every other response.

For this purpose, the following definition links to each quality term to obtain a one:

- B1 - Quality Assurance (QA) means preventing defects.

- B6 - Quality Control (QC) means identifying defects.
- B8 - Total Quality Management (TQM) means minimising defects.

A Cronbach's Alpha value of 0,690 was obtained, which although not exceeding 0,7 as per normal guideline can be used consistent with Field (2014:708-709) as stated below:

"*A Cronbach's Alpha coefficient of 0.7 and above is generally accepted as an indication of reliability but in the early stages of research like in this case values of 0.5 or above will also be sufficient."*

Table 3-11: Cronbach's Alpha Coefficient for Factors Identified

Number	Factor	Number of Items	Cronbach's Alpha Coefficient
1	Quality culture	12	0,858
2	Ownership	5	0,781
3	Non-conformance	4	0,659
4	Increase	2	0,812
5	Management	2	0,745
6	Assurance	2	0,596
7	Training	4	0,873

Source: SPSS

Reference is also made that the Cronbach's Alpha value can be less than 0,7, especially if the number of variables are less than 10 (Pallant, 2007:98; Yong & Pearce, 2013:80).

Based on the Cronbach's Alpha Coefficient obtained in Table 3-11, the reliability of this research is acceptable and therefor the survey questionnaire are valid.

3.2.8 CORRELATIONS

EFA is used to determine the number of factors influencing the variables and to group the variables that fit together. The aim is to select the smallest number of common factors that will validate the correlations. A selected factor is based on the assumption that a linear relationship exist between the factors and the variables when calculating the correlations (Yong & Pearce, 2013:80).

Table 3-12: Frequency Table (B1 - B9)

No. of respondents giving valid answer	Frequency	Valid Percent
.00	5	0,8
1.00	13	2,1
2.00	26	4,2
3.00	433	70,4
4.00	62	10,1
5.00	54	8,8
6.00	**16**	**2,6**
7.00	**5**	**0,8**
9.00	**1**	**0,2**
Total	615	100,0

Source: SPSS

Reviewing the responses received on the first nine questions of section B, only 3,6% (2,6 + 0,8 +0,2) of respondents (22) got more than six of the nine definitions correct. This could mean that only 3,6% knew the difference between QA, QC and TQM. Only one person had all the definitions correct!

Table 3-13: Descriptive Statistics (Factors)

Description	N	Minimum	Maximum	Mean	Std. Deviation
Factor 2 - Ownership (B)	614	1,80	4,00	3,1845	0,47960
Factor 4 - Increase (B)	589	1,00	4,00	3,0840	0,56708
Factor 5 - Management (B)	603	1,00	4,00	3,0249	0,62827
Factor 1 - Quality Culture (B)	614	1,25	4,00	2,8687	0,42979
Factor 3 - Non-Conformance (B)	593	1,00	4,00	2,7806	0,52331
Factor 7 - Training (C)	595	1,00	4,00	2,6261	**0,92195**
Factor 6 - Assurance (B)	589	1,00	4,00	2,5798	0,68976

Source: SPSS

In Table 3-13 the factors are arranged from highest to lowest mean. The summarised responses revealed the following (Mean values given, on a four-point scale):

- Feel personally responsible (ownership) for quality (3,1845);
- Will increase QA and QC within their departments (3,0840);
- Feel that management is responsible for quality (3,0249);
- Feel that the manufacturer has a quality culture in place (2,8687);

- Feel that non-conformance is caused by skill level of employees, chasing production targets, having old equipment and poor maintenance (2,7806);
- Feel that quality training is required (2,6261), whereas the standard deviation of 0,92195 show a large variations since employees also feel that QA and QC principles are discussed which are in contrast to one another; and
- Feel that QA (assurance) is more important than QC and the responsibility of the maintenance department (2,5798).

3.2.9 T-TESTS

T-test is used for the analysis of two sample means by statistical examination; a t-test with two samples is normally used with small sample sizes, testing the difference between the samples when the variances of two normal distributions are not known.

Therefore, a t-test looks at the t-statistic, the t-distribution and degrees of freedom to determine the probability of difference between populations; the test statistic in the test is known as the t-statistic.

Whereas the comparative t-tests tests for **statistical** significance (if $p<0.05$), Cohen's d-value (effect size below in Table 3-14) indicates **practical** significant differences between the means. Where:

- $d \approx 0.2$ Small, No practically significant difference;
- $d \approx 0.5$ Medium, Practically visible difference; and
- $d \approx 0.8$ Large, Practically significant difference.

Table 3-14: Group Statistics (Cohen's d-Value)

Gender (A3)		
Description		**Effect size**
QC - identifying defects	1 - Male	**0,22**
	2 - Female	
Factor 1 - Quality Culture	1 - Male	**0,23**
	2 - Female	
Factor 7 – Training (C)	1 - Male	**0,26**
	2 - Female	

Department (A4)		
Description		**Effect size**
QC - minimising defects	Business Systems	**0,21**
	Other	
TQM - preventing defects	Business Systems	**0,25**
	Other	
Factor 2 - Ownership	Business Systems	**0,33**
	Other	
Factor 6 - Assurance	Business Systems	**0,33**
	Other	
Factor 7 – Training (C)	Business Systems	**0,33**
	Other	

Status of Employment (A6)		
Description		**Effect size**
Factor 1 - Quality Culture	1 - Permanent	**0,23**
	2 - Contract	
Factor 3 - Non-Conformance	1 - Permanent	**0,24**
	2 - Contract	
Factor 6 - Assurance	1 - Permanent	**0,40**
	2 - Contract	

Qualification (A9)		
Description		**Effect size**
QC - preventing defects	1 – Potentially operators	**0,24**
	2 – Potentially Management	
Factor 2 - Ownership	1 – Potentially operators	**0,27**
	2 – Potentially Management	
Factor 6 - Assurance	1 – Potentially operators	**0,34**
	2 – Potentially Management	

Source: SPSS

From the results obtained in Table 3-14 (see detail in Annexures J), there is no large practical significant differences between the mean as well as the effect size of all the measured variables.

Considering all the data, a slight practically visible difference (small to medium) is however noted when evaluating the following variables:

- Gender - Slight difference between how men and women feel regarding:
  - QC means identifying defects (0,22);
  - Perception about quality culture (0,23); and
  - View regarding training (0,26).
- Department - Slight difference between response of business systems department (more quality orientated) and other departments on the following aspects:
  - QC means minimising defects (0,21)
  - TQM means preventing defects (0,25)
  - Ownership regarding who's responsibility quality is (0,33)
  - Implementation of QA (0,33)
  - View regarding training (0,33)
- Status of employment - Slight difference between how permanent and contract employees feel regarding:
  - Perception on level of quality culture in organisation (0,23)
  - View regarding reasons for non-conformance (0,24)
- Status of employment – almost practically visible difference (small to medium) between how permanent and contract employees feel regarding:
  - Implementation of QA (**0,40**)
- All personnel with a qualification higher than grade 12 was compared with personnel with a qualification of grade 12 or less. The pre-scientific assumption is that this should also correspond with the levels of people in the organisation, a fact that was deliberately excluded from the questionnaire for ethical reasons. Qualification - Slight difference between how potentially operators and managers feel regarding:
  - QC means preventing defects (0,24)
  - Ownership regarding who's responsibility quality is (0,27)
  - Implementation of QA (**0,34**)

In general, it seems that the degree to which QA should be implemented had the highest value, which indicates a practical significant difference between highly and less highly qualified personnel..

The T-test for equality of means indicates if there is a **statistical** significant difference between the means (use equal variances not assumed). If the p value < 0,05 there is a statistical significant difference between the means.

Table 3-15: T-Tests for Equality of Means

Gender (A3)		
Description		**t-test for Equality of Means**
		Sig. (2-tailed)
QC - identifying defects	Equal variances assumed	**0,003**
	Equal variances not assumed	**0,007**
Factor 1 - Quality Culture	Equal variances assumed	**0,007**
	Equal variances not assumed	**0,006**
Factor 7 – Training (C)	Equal variances assumed	**0,004**
	Equal variances not assumed	**0,004**

Departments (A4)		
Description		**t-test for Equality of Means**
		Sig. (2-tailed)
TQM - preventing defects	Equal variances assumed	0,091
	Equal variances not assumed	**0,004**
Factor 2 - Ownership	Equal variances assumed	**0,020**
	Equal variances not assumed	**0,036**
Factor 6 - Assurance	Equal variances assumed	**0,028**
	Equal variances not assumed	**0,037**
Factor 7 – Training (C)	Equal variances assumed	**0,034**
	Equal variances not assumed	**0,028**

Status of Employment (A6)		
Description		t-test for Equality of Means
		Sig. (2-tailed)
Factor 1 - Quality Culture	Equal variances assumed	**0,013**
	Equal variances not assumed	**0,013**
Factor 3 - Non-Conformance	Equal variances assumed	**0,011**
	Equal variances not assumed	**0,010**
Factor 6 - Assurance	Equal variances assumed	**0**
	Equal variances not assumed	**0**

Qualification (A9)		
Description		t-test for Equality of Means
		Sig. (2-tailed)
QC – preventing defects	Equal variances assumed	**0,004**
	Equal variances not assumed	**0,016**
Total (B1-9)	Equal variances assumed	**0,038**
	Equal variances not assumed	0,055
Factor 2 - Ownership	Equal variances assumed	**0,009**
	Equal variances not assumed	**0,011**
Factor 6 - Assurance	Equal variances assumed	**0,001**
	Equal variances not assumed	**0,002**

Source: SPSS

Table 3-15 give a summary of items which were identified as having a statistical significance (see Annexures K for more detail) since the difference between the means calculated, implies that there is a possibility that the relationship between two or more variables is caused by something other than random chance since the values are less than 0,05.

In summary:

- Gender presented a statistical difference for:
  - QC means identifying defects
  - Perception regarding quality culture in the organisation
  - Training required / received
- Departments presented a statistical difference for:
  - TQM means preventing defects
  - Ownership regarding who's responsibility quality is

- Implementation of QA
- Training required / received

- Status of employment
  - Perception on level of quality culture in organisation
  - View regarding reasons for non-conformance
  - Implementation of QA
- Qualification
  - QC means preventing defects
  - Understanding of different quality terms (QA, QC and TQM)
  - Ownership regarding who's responsibility quality is
  - Implementation of QA

It seems that the degree to which QA should be implemented had the highest statistical significance considering different variables, followed by a training need.

3.2.10 ANOVA

Similar to the t-test, an analysis of variance (ANOVA) could be used to conduct a test with three or more variables.

Effect sizes indicate **practical significant differences** between the means

- Effect size ≈ 0.2 Small, No practically significant difference
- Effect size ≈ 0.5 Medium, Practically visible difference
- Effect size ≈ 0.8 Large, Practically significant difference

Visible and significant effect sizes are given in the table as shaded cells.

Table 3-16: Descriptives using age groups

A1_recode - **Age**		**Effect Size**			
		<= 29 with…	**<= 39 with…**	**<= 49 with…**	**<= 59 with…**
QA – preventing defects	<= 49	0,16	**0,22**		
	<= 59	0,15	0,08	**0,28**	
	60+	0,12	0,18	0,05	**0,25**
QC – minimising defects	<= 39	**0,24**			
	<= 49	0,01	**0,23**		
	<= 59	0,06	**0,28**	0,07	
	60+	0,18	0,06	0,17	**0,22**

A1_recode - **Age**		**Effect Size**			
		<= 29 with…	**<= 39 with…**	**<= 49 with…**	**<= 59 with…**
QC – identifying defects	<= 49	0,06	**0,21**		
	60+	0,06	**0,21**	0	0,08
Total (B1-9)	<= 59	0,14	**0,30**	0,15	
	60+	**0,35**	0,14	**0,33**	**0,45**
Factor 1 - Quality Culture	<= 39	**0,25**			
	<= 59	0	**0,23**	0,09	
	60+	0	**0,25**	0,1	0,01
Factor 2 - Ownership	<= 39	**0,23**			
	<= 49	0,1	**0,32**		
	<= 59	0,16	**0,40**	0,06	
	60+	**0,39**	0,17	**0,48**	**0,57**
Factor 3 - Non-Conformance	<= 59	**0,21**	0,05	0,03	
	60+	**0,42**	**0,24**	0,19	0,17
Factor 4 - Increase	<= 49	0,15	**0,25**		
	60+	0,18	0,06	**0,35**	**0,28**
Factor 5 - Management	<= 39	**0,27**			
	<= 49	0,02	**0,24**		
	60+	**0,36**	0,09	**0,32**	**0,24**
Factor 6 - Assurance	60+	**0,35**	**0,37**	**0,31**	**0,22**
Factor 7 – Training (C)	<= 39	**0,27**			
	<= 49	0,09	**0,36**		
	<= 59	0,04	**0,31**	0,05	
	60+	**0,23**	0,04	**0,31**	**0,26**

Source: SPSS

Table 3-16 gives a summary of how different age groups feel about the factors identified (see Annexures L for more detail) and there practical significance.

The majority of items does not have any practical significance. Some items with small significance (0,21 and above) are highlighted, and can be summarised as follows:

- Employees of 50 years and older are slightly more in touch with quality terms, specifically QA, QC and TQM.
- Employees between 30-39 years of age feel slightly different about organisational culture from employees 50 years and older.
- Employees of 40 years and older personally feel slightly more responsible for quality (ownership) with a practically visible significance (0,48 & 0,57) as they become older compared to employees younger than 40.
- Employees older than 50, perceive the reasons for non-conformances much differently from employees younger than 40.

- Employees older than 30 feel slightly more in favour of increasing quality measures.
- Employees up to 39 feel slightly more that management are responsible for quality.
- Older employees feel more in favour of increasing QA measures.
- Employees feel slightly different about training over the full age profile, with a higher need for training above 30 years.

Table 3-17: Descriptives using years' experience

A2_recode		Effect Size			
Years' experience		**<= 5 with…**	**<= 10 with…**	**<= 20 with…**	**<= 30 with…**
Total (B1-9)	<= 20	0,17	**0,27**		
	<= 30	0,14	0,04	**0,26**	
	31+	0,13	0,03	**0,24**	0,01
Factor 1 - Quality Culture	<= 10	**0,25**			
	<= 20	0,05	**0,30**		
	<= 30	0,05	**0,21**	0,11	
Factor 2 - Ownership	<= 20	0,15	**0,23**		
	31+	0,09	0,01	**0,25**	0,08
Factor 3 - Non-Conformance	<= 20	**0,39**	0,1		
	<= 30	0,03	0,16	**0,29**	
	31+	**0,39**	0,11	0	**0,29**
Factor 4 - Increase	<= 10	**0,28**			
	<= 20	0,04	**0,31**		
	<= 30	0,11	**0,37**	0,08	
	31+	0,03	**0,25**	0,08	0,16
Factor 5 - Management	31+	**0,24**	**0,42**	**0,43**	**0,21**
Factor 7 – Training (C)	<= 30	0,01	**0,21**	0,07	
	31+	**0,21**	**0,42**	**0,26**	**0,22**

Source: SPSS

Table 3-17 gives a summary of how employees with different years of experience feel about the factors identified (see Annexures L for more detail) Effect sizes are used to test for practical significance.

The majority of items do not have any practical significance. Some items with small significance (0,21 and above) are highlighted, and can be summarised as follows:

- Employees with less than 10 years of experience feel slightly different about company culture from employees with less than 5 years' experience.
- Employees with less than 30 years of experience feel slightly different about company culture from employees with less than 10 years' experience.

- Employees with less than 20 years of experience feel slightly different about quality being their responsibility (ownership) than employees with less than 10 years' experience.
- Employees with more than 30 years of experience feel slightly different about quality being their responsibility (ownership) than employees with less than 20 years' experience.
- Employees with less than 20 years of experience feel slightly different about reasons for non-conformance from employees with less than 5 years' experience.
- Employees with more than 30 years of experience feel slightly different about reasons for non-conformance from employees with less than 5 and 30 years' experience respectively.
- Employees with less than 20 years of experience feel slightly different about reasons for non-conformance from employees with less than 5 years' experience.
- Employees with less than 30 years of experience feel slightly different about reasons for non-conformance from employees with less than 20 years' experience.
- Employees with more than 30 years of experience feel slightly different about reasons for non-conformance from employees with less than 5 and 30 years' experience respectively.
- Employees with less than 10 years of experience feel slightly different about measures to improve quality than employees with less than 5 years' experience.
- Employees with less than 10 years of experience feel slightly different about measures to improve quality than employees with less than 5 years' experience.
- Employees with 10 to more than 30 years of experience feel slightly different about measures to improve quality than employees with less than 10 years' experience.
- Employees with more than 30 years of experience feel almost practically visible different about the fact that management is responsible for quality compared to employees with between 5 and 20 years' experience. These employees also feel slightly different about the role of management from employees with less than 30 years' experience.
- Employees with more than 30 years of experience feel almost practically visible different about training from employees with less than 10 years' experience and slightly different from employees with less than 20 years' experience.

Table 3-18: Descriptives using departments

A4 - **Department**		**Effect Size**		
		1 with…	**2 with…**	**3 with…**
Total (B1-9)	4	**0,24**	**0,34**	**0,23**
Factor 2 - Ownership	3	**0,3**	**0,49**	
	4	0,15	0,06	**0,44**
Factor 3 - Non-Conformance	2	**0,24**		
	3	0,08	**0,37**	

	4	**0,29**	**0,60**	**0,24**
Factor 5 - Management	3	**0,21**	0,11	
Factor 6 - Assurance	2	**0,23**		
	3	**0,31**	**0,54**	
	4	0,14	**0,41**	0,18
Factor 7 – Training (C)	2	**0,54**		
	3	**0,26**	**0,80**	
	4	0,17	**0,37**	**0,46**

Source: SPSS

Table 3-18 gives a summary of how employees in different departments feel about the factors identified (see Annexures L for more detail) and there practical significance.

The majority of items do not have any practical significance. Some items with small significance (0,21 and above) are highlighted, and can be summarised as follows:

- Plant Engineering feels slightly different about the quality terms (QA, QC & TQM) from all other department.
- Maintenance feels almost with practically visible difference (medium) different about their role in ensuring quality (ownership) compared to business systems.
- Business systems feels almost with practically visible difference (medium) different about their role in ensuring quality (ownership) compared to plant engineering.
- Operations feels slightly different from maintenance about reasons for non-conformances.
- Maintenance feels slightly different from business systems about reasons for non-conformances.
- Business systems and operations feels slightly different from plant engineering about reasons for non-conformances.
- Maintenance however feels with practically visible difference (medium) different about reasons for non-conformances from plant engineering.
- Operations feels slightly different about the responsibility of management in ensuring quality than business systems.
- Operations feels slightly different from maintenance and business systems about implementing additional QA measures.
- Maintenance feels with practically visible difference (medium) different about implementing additional QA measures than business systems and almost with practically visible difference (medium) different from plant engineering.
- Operations feels with practically visible difference (medium) different about training from maintenance and slightly different from business systems.
- Maintenance feels with practically visible difference (medium) different about training from business systems, and slightly different from plant engineering.

- Business systems feels with almost practically visible difference (small to medium) different about training from plant engineering, and slightly different from maintenance.

Table 3-19: Descriptives using sites

A5 - **Site**		**Effect Size**		
		1 with…	**2 with…**	**3 with…**
Total (B1-9)	3	0,14	**0,22**	
Factor 2 - Ownership	2	**0,40**		
	3	**0,24**	0,19	
	4	**0,29**	0,12	0,06
Factor 3 - Non-Conformance	3	**0,21**	**0,21**	
	4	0,02	0,02	**0,25**
Factor 4 - Increase	2	**0,51**		
	3	0,20	**0,31**	
	4	**0,42**	0,10	**0,22**
Factor 6 - Assurance	4	**0,21**	0,05	0,03
Factor 7 – Training (C)	3	**0,33**	**0,41**	
	4	0,03	0,03	**0,38**

Source: SPSS

Table 3-19 gives a summary of how employees from different sites feel about the factors identified (see Annexures L for more detail) and there practical significance.

The majority of items does not have any practical significance. Some items with small significance (0,21 and above) are highlighted, and can be summarised as follows:

- North-West site feels slightly different about the quality terms (QA, QC & TQM) from Western Cape 1 site.
- North-West site feels slightly different about their responsibility towards quality from Western Cape 1 site.
- Gauteng site feels almost with practical significance different about their role in ensuring quality (ownership) compared to the North-West site and slightly different from the Western Cape 1 and 2 sites respectively.
- The Gauteng and North-West sites feel slightly different from Western Cape 1 site regarding reasons for non-conformance.
- The Western Cape 1 sites feels slightly different from Western Cape 2 site regarding reasons for non-conformance.

- Gauteng site feels with practically visible difference (medium) different about implementing measures to increase quality compared to the North-West site, and almost with practical significance different from the Western Cape 2 site.
- The North-West site feels slightly different from Western Cape 1 site about implementing measures to increase quality.
- The Western Cape 1 site feels slightly different from Western Cape 2 site about implementing measures to increase quality.
- The Gauteng site feels slightly different from Western Cape 2 site about implementing QA measures to increase quality.
- The Gauteng site feels slightly different from Western Cape 1 site about training required.
- The North-West site feels with almost practical significance different about training required compared to the Western Cape 1 site.
- The Western Cape 1 site feels slightly different from Western Cape 2 site about training required.

Table 3-20: Descriptives using language

A8 - **Language**		**Effect Size**				
		1 with ..	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
Total (B1-9)	5	0,09	0,17	0,16	**0,24**	
	6	0,15	0,11	0,06	0	**0,27**
Factor 1 - Quality Culture	4	**0,43**	**0,21**	**0,22**		
	5	0,04	0,17	0,20	**0,40**	
	6	0,04	0,10	0,15	**0,40**	0,07
Factor 2 - Ownership	4	**0,31**	**0,21**	**0,33**		
	5	**0,43**	**0,37**	**0,45**	0,16	
	6	**0,33**	**0,22**	**0,34**	0,01	0,15
Factor 3 - Non-Conformance	2	**0,31**				
	3	0,11	**0,21**			
	6	**0,25**	0,09	0,12	0,07	0,03
Factor 4 - Increase	4	0,20	**0,25**	0,06		
	5	0,28	0,19	**0,38**	**0,43**	
	6	0,12	0,05	**0,25**	**0,30**	0,14
Factor 5 - Management	3	**0,26**	0,12			
	4	**0,26**	0,11	0,01		
	6	**0,27**	0,16	0,04	0,05	0,16
Factor 6 - Assurance	5	0,09	0,10	0,19	**0,22**	
	6	**0,33**	**0,35**	**0,44**	**0,47**	**0,23**
Factor 7 – Training (C)	4	0,14	0,13	**0,29**		
	5	0,02	0,01	0,14	0,16	
	6	0,15	0,14	0	**0,28**	0,13

Source: SPSS

- North-West site feels slightly different about the quality terms (QA, QC & TQM) from Western Cape 1 site.
- North-West site feels slightly different about their responsibility towards quality from Western Cape 1 site.
- Gauteng site feels almost with practical significance different about their role in ensuring quality (ownership) compared to the North-West site and slightly different from the Western Cape 1 and 2 sites respectively.
- The Gauteng and North-West sites feel slightly different from Western Cape 1 site regarding reasons for non-conformance.
- The Western Cape 1 sites feels slightly different from Western Cape 2 site regarding reasons for non-conformance.
- Gauteng site feels with practically visible difference (medium) different about implementing measures to increase quality compared to the North-West site, and almost with practical significance different from the Western Cape 2 site.
- The North-West site feels slightly different from Western Cape 1 site about implementing measures to increase quality.
- The Western Cape 1 site feels slightly different from Western Cape 2 site about implementing measures to increase quality.
- The Gauteng site feels slightly different from Western Cape 2 site about implementing QA measures to increase quality.
- The Gauteng site feels slightly different from Western Cape 1 site about training required.
- The North-West site feels with almost practical significance different about training required compared to the Western Cape 1 site.
- The Western Cape 1 site feels slightly different from Western Cape 2 site about training required.

Table 3-20 gives a summary of how employees having a different first language feel about the factors identified (see Annexures L for more detail) and their practical significance.

The majority of items do not have any practical significance. Some items with small significance (0,21 and above) are highlighted, and can be summarised as follows:

- Xhosa speaking employees feel slightly different about the quality terms (QA, QC & TQM) from Zulu speaking employees.
- Afrikaans speaking employees feel with almost practically visible difference (medium) different about the state of quality culture within the organisation from Xhosa speaking employees.
- English and Tswana speaking employees feel slightly different about the state of quality culture within the organisation from Xhosa speaking employees.

- Xhosa speaking employees feel with almost practically visible difference (medium) different about the state of quality culture within the organisation from Zulu and other language-speaking employees.
- Afrikaans, English and Tswana speaking employees feel slightly different about their responsibility towards quality (ownership) from Xhosa speaking employees.
- Afrikaans and Tswana speaking employees feel with almost practically visible difference (medium) different about their responsibility towards quality (ownership) from Zulu speaking employees.
- English speaking employees feel slightly different about their responsibility towards quality (ownership) from Zulu speaking employees.
- Afrikaans, English and Tswana speaking employees feel slightly different about their responsibility towards quality (ownership) from other language-speaking employees.
- Afrikaans speaking employees feel slightly different about reasons for non-conformance compared to English speaking employees.
- English speaking employees feel slightly different about reasons for non-conformance compared to Tswana speaking employees.
- Afrikaans speaking employees feel slightly different about reasons for non-conformance compared to other language-speaking employees.
- English speaking employees feel slightly different regarding measures to increase quality compared to Xhosa speaking employees.
- Afrikaans and Tswana speaking employees feel slightly different regarding measures to increase quality compared to Zulu speaking employees.
- Xhosa speaking employee's feel with almost practically visible difference (medium) different regarding measures to increase quality compared to Zulu speaking employees.
- Xhosa and Zulu speaking employees feel slightly different regarding measures to increase quality compared to other language-speaking employees.
- Afrikaans speaking employees feel slightly different about management's responsibility towards quality from Tswana speaking employees.
- Afrikaans speaking employees feel slightly different about management's responsibility towards quality from Tswana, Xhosa and Zulu speaking employees.
- Xhosa speaking employees feel slightly different regarding the implementation of QA measures compared to Zulu speaking employees, and with almost practically visible difference (medium) different from other language-speaking employees.
- Tswana speaking employees feel with almost practically visible difference (medium) different regarding the implementation of QA measures compared to other language-speaking employees.

- Afrikaans and English speaking employees feel slightly different regarding the implementation of QA measures compared to other language-speaking employees.
- Tswana speaking employees feel slightly different regarding training required compared to Xhosa speaking employees.
- Xhosa speaking employees feel slightly different regarding training required compared to other language-speaking employees.

Table 3-21: Descriptives using qualification

A9 - **Qualification**		**Effect Size**				
		1 with ..	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
Total (B1-9)	3	0,04	**0,23**			
	4	**0,33**	0,17	**0,36**		
	5	**0,24**	0,03	**0,27**	0,15	
	6	0,20	0,01	**0,30**	0,18	0,04
Factor 1 - Quality Culture	3	**0,31**	0,16			
	5	**0,31**	0,18	0,05	0,15	
Factor 2 - Ownership	4	**0,34**	**0,27**	**0,23**		
	5	**0,35**	**0,27**	**0,22**	0,01	
Factor 3 - Non-Conformance	4	**0,31**	**0,23**	**0,21**		
	5	0,03	0,06	0,08	**0,28**	
	6	**0,28**	**0,37**	**0,38**	**0,58**	**0,31**
Factor 5 - Management	5	**0,26**	0,16	0,14	0,18	
Factor 6 - Assurance	4	**0,28**	**0,25**	**0,22**		
	5	**0,35**	**0,32**	**0,32**	0,04	
	6	**0,50**	**0,46**	**0,43**	0,18	0,15
Factor 7 – Training (C)	3	**0,34**	**0,21**			
	5	0,06	0,07	**0,29**	0,10	
	6	0,13	**0,25**	**0,48**	**0,28**	0,20

Source: SPSS

Xhosa speaking employees feel slightly different regarding training required compared to other language-speaking employees.

Table 3-21 gives a summary of how employees with different qualifications feel about the factors identified (see Annexures L for more detail) and there practical significance.

The majority of items do not have any practical significance. Some items with small significance (0,21 and above) are highlighted, and can be summarised as follows:

- Employees with grade 12 qualification feel slightly different about the quality terms (QA, QC & TQM) from employees with artisan qualification.

- Employees with artisan qualification feel slightly different about the quality terms (QA, QC & TQM) from employees with diploma, graduate/higher diploma and post-graduate qualifications.
- Employees with less than grade 12 qualification feel slightly different about the quality terms (QA, QC & TQM) from employees with diploma and graduate/higher diploma qualifications.
- Employees with less than grade 12 qualification feel slightly different about the quality culture within the organisation compared to employees with artisan and graduate/higher diploma qualifications.
- Employees with less than grade 12, grade 12 and artisan qualifications feel slightly different about their own responsibility towards quality compared to employees with diploma and graduate/higher diploma qualifications.
- Employees with less than grade 12, grade 12 and artisan qualifications fees slightly different about reasons for non-conformance compared to employees with diploma and post-graduate qualifications.
- Employees with diploma qualifications feel slightly different about reasons for non-conformance compared to employees with graduate/higher diploma qualifications and with practical visible difference different from employees with post-graduate qualifications.
- Employees with graduate/higher diploma qualifications feel slightly different about reasons for non-conformance compared to employees with post-graduate qualifications.
- Employees with less than grade 12 qualifications feel slightly different about management's responsibility towards quality from employees with post-graduate qualifications.
- Employees with less than grade 12, grade 12 and artisan qualifications feel slightly different regarding QA measures to be implemented compared to employees with diploma and graduate/higher diploma qualifications.
- Employees with less than grade 12 feel practically visible difference (medium) different regarding QA measures to be implemented compared to employees with post- graduate qualifications.
- Employees with grade 12 and artisan qualifications feel almost practically visible difference (medium) different regarding QA measures to be implemented compared to employees with post- graduate qualifications.
- Employees with less than grade 12 and grade 12 qualifications feel slightly different regarding training required compared to employees with artisan qualifications.
- Employees with artisan qualifications feel slightly different regarding training required compared to employees with graduate/higher diploma qualifications and with almost practically visible difference (medium) different from employees with post- graduate qualifications.

- Employees with grade 12 and diploma qualifications feel slightly different regarding training required compared to employees with post- graduate qualifications.

ANOVA indicates if there is a **statistical significant** difference between the means, where a p value < 0,05 indicates a statistical significant difference between the means.

Table 3-22: ANOVA - Age

A1_recode - Age		Sig.
Total (B1-9)	Between Groups	0,069
	Within Groups	
Factor 1 - Quality Culture	Between Groups	0,144
	Within Groups	
Factor 2 - Ownership	Between Groups	**0,007**
	Within Groups	
Factor 3 - Non-Conformance	Between Groups	0,223
	Within Groups	
Factor 4 - Increase	Between Groups	0,269
	Within Groups	
Factor 5 - Management	Between Groups	0,083
	Within Groups	
Factor 6 - Assurance	Between Groups	0,549
	Within Groups	
Factor 7 – Training (C)	Between Groups	**0,016**
	Within Groups	

Source: SPSS

Table 3-22 gives a summary of how employees with different ages feel about the factors identified (see Annexures M for more detail) and there statistical significance.

The majority of items does not have any statistical significance. The items with statistical significance are highlighted, and can be summarised as follows:

- Based on age a statistical difference exists for:
  - Employees perception on their personal responsibility towards quality (ownership), and
  - Training required regarding quality.

Table 3-23: ANOVA – Years' experience

A2_recode - Years' experience		Sig.
Total (B1-9)	Between Groups	0,373
	Within Groups	
Factor 1 - Quality Culture	Between Groups	0,246
	Within Groups	
Factor 2 - Ownership	Between Groups	0,693
	Within Groups	
Factor 3 - Non-Conformance	Between Groups	0,069
	Within Groups	
Factor 4 - Increase	Between Groups	0,096
	Within Groups	
Factor 5 - Management	Between Groups	0,393
	Within Groups	
Factor 6 - Assurance	Between Groups	0,792
	Within Groups	
Factor 7 – Training (C)	Between Groups	0,454
	Within Groups	

Source: SPSS

Table 3-23 gives a summary of how employees with different years of experience feel about the factors identified (see Annexures M for more detail).

There are no statistical significance between the items.

Table 3-24: ANOVA - Department

A4 - Department		Sig.
Total (B1-9)	Between Groups	0,317
	Within Groups	
Factor 1 - Quality Culture	Between Groups	0,472
	Within Groups	
Factor 2 - Ownership	Between Groups	**0,042**
	Within Groups	
Factor 3 - Non-Conformance	Between Groups	0,084
	Within Groups	
Factor 4 - Increase	Between Groups	0,907
	Within Groups	
Factor 5 - Management	Between Groups	0,445
	Within Groups	
Factor 6 - Assurance	Between Groups	**0,041**
	Within Groups	

A4 - Department		Sig.
Factor 7 – Training (C)	Between Groups	**0**
	Within Groups	

Source: SPSS

Table 3-24 gives a summary of how employees from different departments feel about the factors identified (see Annexures M for more detail) and there statistical significance.

The majority of items do not have any statistical significance. The items with statistical significance are highlighted, and can be summarised as follows:

- Based on departments a statistical difference exists for:
  - Departments view on their responsibility towards quality (ownership),
  - QA measures to be implemented, and
  - Training required regarding quality.

Table 3-25: ANOVA - Site

A5 - Sites		Sig.
Total (B1-9)	Between Groups	**0,036**
	Within Groups	
Factor 1 - Quality Culture	Between Groups	0,472
	Within Groups	
Factor 2 - Ownership	Between Groups	**0,002**
	Within Groups	
Factor 3 - Non-Conformance	Between Groups	0,059
	Within Groups	
Factor 4 - Increase	Between Groups	**0**
	Within Groups	
Factor 5 - Management	Between Groups	0,399
	Within Groups	
Factor 6 - Assurance	Between Groups	0,303
	Within Groups	
Factor 7 – Training (C)	Between Groups	**0**
	Within Groups	

Source: SPSS

Table 3-25 gives a summary of how employees from different sites feel about the factors identified (see Annexures M for more detail) and their statistical significance.

The majority of items do not have any statistical significance. The items with statistical significance are highlighted, and can be summarised as follows:

- Based on sites a statistical difference exists for:
  - Views regarding quality terms (QA, QC and TQM)
  - Sites view on their responsibility towards quality (ownership),
  - Measures to be taken to increase quality, and
  - Training required regarding quality.

Table 3-26: ANOVA - Language

A8 - Language		Sig.
Total (B1-9)	Between Groups	0,824
	Within Groups	
Factor 1 - Quality Culture	Between Groups	0,146
	Within Groups	
Factor 2 - Ownership	Between Groups	**0,047**
	Within Groups	
Factor 3 - Non-Conformance	Between Groups	0,217
	Within Groups	
Factor 4 - Increase	Between Groups	0,325
	Within Groups	
Factor 5 - Management	Between Groups	0,346
	Within Groups	
Factor 6 - Assurance	Between Groups	0,158
	Within Groups	
Factor 7 – Training (C)	Between Groups	0,703
	Within Groups	

Source: SPSS

Table 3-26 gives a summary of how employees with different first languages feel about the factors identified (see Annexures M for more detail) and there statistical significance.

The majority of items do not have any statistical significance. The items with statistical significance are highlighted, and can be summarised as follows:

- Based on language a statistical difference exists for:
  - Employees view on their responsibility towards quality (ownership).

Table 3-27: ANOVA - Qualification

A9 - Qualification		Sig.
Total (B1-9)	Between Groups	0,064
	Within Groups	
Factor 1 - Quality Culture	Between Groups	0,265
	Within Groups	
Factor 2 - Ownership	Between Groups	0,146
	Within Groups	
Factor 3 - Non-Conformance	Between Groups	0,208
	Within Groups	
Factor 4 - Increase	Between Groups	0,994
	Within Groups	
Factor 5 - Management	Between Groups	0,734
	Within Groups	
Factor 6 - Assurance	Between Groups	0,053
	Within Groups	
Factor 7 – Training (C)	Between Groups	0,323
	Within Groups	

Source: SPSS

Table 3-27 gives a summary of how employees with different qualifications feel about the factors identified (see Annexures M for more detail).

There are no statistical significance between the items.

A comparison was also done to determine how respondents views regarding the quality terms (QA, QC and TQM) affected their response to the factors identified as summarised in Table 3-28 (see Annexures N for detail).

Table 3-28: Spearman's Ratio - Practical significance (Quality terms vs Factors)

Total (B1-9) grouped (Quality terms: QA, QC & TQM)		Effect Size		
		1 - 2 marks with…	**3 marks with…**	**4 - 5 marks with…**
Factor 1 - Quality Culture	1 - 2 marks			
	3 marks	0,17		
	4 - 5 marks	0,20	**0,37**	
	6 - 9 marks	**0,61**	**0,73**	**0,36**
Factor 2 - Ownership	1 - 2 marks			
	3 marks	**0,34**		
	4 - 5 marks	0,02	**0,35**	

Total (B1-9) grouped (Quality terms: QA, QC & TQM)		Effect Size		
		1 - 2 marks with…	**3 marks with…**	**4 - 5 marks with…**
	6 - 9 marks	**0,27**	**0,67**	**0,33**
Factor 3 - Non-Conformance	1 - 2 marks			
	3 marks	**0,41**		
	4 - 5 marks	0,19	0,20	
	6 - 9 marks	**0,42**	**0,77**	**0,59**
Factor 4 - Increase	1 - 2 marks			
	3 marks	0,08		
	4 - 5 marks	0,19	**0,26**	
	6 - 9 marks	**0,61**	**0,68**	**0,42**
Factor 5 - Management	1 - 2 marks			
	3 marks	**0,44**		
	4 - 5 marks	0,15	**0,28**	
	6 - 9 marks	**0,32**	**0,77**	**0,47**
Factor 6 - Assurance	1 - 2 marks			
	3 marks	**0,28**		
	4 - 5 marks	0,17	0,09	
	6 - 9 marks	0,11	**0,36**	**0,27**
Factor 7 – Training (C)	1 - 2 marks			
	3 marks	0,17		
	4 - 5 marks	0,10	**0,27**	
	6 - 9 marks	**0,73**	**0,95**	**0,62**

Source: SPSS

Table 3-28 can be summarised as follows:

- Employees with 3 (out of 9) responses feel slightly different about the degree of a quality culture in the organisation from employees with 4 to 5 responses (out of 9).
- Employees with 1 to 3 (out of 9) responses feel practically visible difference (medium) different about the degree of a quality culture in the organisation from employees with 6 to 9 responses (out of 9).
- Employees with 4 to 5 (out of 9) responses feel slightly different about the degree of a quality culture in the organisation from employees with 6 to 9 responses (out of 9).
- Employees with 1 to 2 (out of 9) responses feel slightly different about their personal responsibility towards quality (ownership) from employees with 3 responses (out of 9).
- Employees with 3 (out of 9) responses feel slightly different about their personal responsibility towards quality (ownership) from employees with 4 to 5 responses (out of 9).
- Employees with 1 to 2 and 4 to 5 (out of 9) responses feel slightly different about their personal responsibility towards quality (ownership) from employees with 6 to 9 responses (out of 9).

- Employees with 3 (out of 9) responses feel practically visible difference (medium) different about their personal responsibility towards quality (ownership) from employees with 6 to 9 responses (out of 9).
- Employees with 1 to 2 (out of 9) responses feel almost practically visible difference (medium) different about the reason for non-conformance from employees with 3 and 6 to 9 responses (out of 9).
- Employees with 3 to 5 (out of 9) responses feel practically visible difference (medium) different about the reason for non-conformance from employees with 6 to 9 responses (out of 9).
- Employees with 3 (out of 9) responses feel slightly different about the methods to increase quality from employees with 4 to 5 responses (out of 9).
- Employees with 1 to 3 (out of 9) responses feel practically visible difference (medium) different about the methods to increase quality from employees with 6 to 9 responses (out of 9).
- Employees with 4 to 5 (out of 9) responses feel almost practically visible difference (medium) different about the methods to increase quality from employees with 6 to 9 responses (out of 9).
- Employees with 1 to 2 (out of 9) responses feel almost practically visible difference (medium) different about the responsibility of management towards quality from employees with 3 responses (out of 9) and slightly different from employees with 6 to 9 responses (out of 9).
- Employees with 3 (out of 9) responses feel slightly different about the responsibility of management towards quality from employees with 4 to 5 responses (out of 9) and practically visible difference (medium) different from employees with 6 to 9 responses (out of 9).
- Employees with 4 to 5 (out of 9) responses feel almost practically visible difference (medium) different about the responsibility of management towards quality from employees with 6 to 9 responses (out of 9).
- Employees with 1 to 2 (out of 9) responses feel slightly different about the QA measures to be implemented from employees with 3 responses (out of 9).
- Employees with 3 to 5 (out of 9) responses feel slightly different about the QA measures to be implemented from employees with 6 to 9 responses (out of 9).
- Employees with 3 (out of 9) responses feel slightly different about the training required from employees with 4 to 5 responses (out of 9) and practically significant difference (large) different from employees with 6 to 9 responses (out of 9).
- Employees with 1 to 2 and 4 to 5 (out of 9) responses feel practically visible difference (medium) different about the training required from employees with 6 to 9 responses (out of 9).

Furthermore, to determine how statistically significant respondents views regarding the quality terms (QA, QC and TQM) affected their response to the factors identified as summarised in Table 3-29 (see Annexures O for detail).

Table 3-29: Spearman's Ratio - Statistical significance (Quality terms vs Factors)

Description		Sig.
Factor 1 - Quality Culture	Between Groups	**0**
	Within Groups	
Factor 2 - Ownership	Between Groups	**0**
	Within Groups	
Factor 3 - Non-Conformance	Between Groups	**0**
	Within Groups	
Factor 4 - Increase	Between Groups	**0,002**
	Within Groups	
Factor 5 - Management	Between Groups	**0**
	Within Groups	
Factor 6 - Assurance	Between Groups	0,139
	Within Groups	
Factor 7 – Training (C)	Between Groups	**0**
	Within Groups	

Source: SPSS

Table 3-29 highlight the fact that only the degree of QA to be implemented had no statistical significance.

It can therefore be noted that:

- There is a quality culture in the organisation,
- The employees take personal responsibility towards quality (ownership),
- There are reasons for non-conformance,
- There are methods to increase quality,
- Management has a responsibility towards quality, and
- Training required all indicated to have statistical significance.

This is further supported by Spearman's ratio calculations as detailed in Annexures P and Q.

3.3 CHAPTER CONCLUSION

The chapter provided a discussion of the research methodology, the survey approach and the data collection process. A comprehensive discussion of the survey responses, the data collection technique used for this research study and the reasoning for using the selected methods of data

collection (the questionnaire) was highlighted. The North-West Universities Statistical Consultation Services used SPSS to analyse the survey results. Lastly, the Cronbach's alpha values showed the survey questionnaire to be reliable and therefore also to be valid.

The following chapter presents the analysis of research results.

CHAPTER 4. ANALYSIS OF RESULTS

4.1 LITERATURE GUIDELINES

Based on the literature review it is evident that there are four main factors that are important when creating a quality culture. They are:

- Quality needs to be driven from top management downwards.
- The organisation should budget for training of personnel, since it takes a few years to implement quality successfully.
- Personnel should receive proper training in standards such as ISO or methods such as Six Sigma or LEAN, since these standards or methods only helps to give structure to quality implementation.
- Training should also involve non-operations related disciplines to create an organisational culture, therefore creating quality as a way of living rather than merely acting on instructions or prescribed procedures .

4.2 SURVEY ANALYSIS GUIDELINES

Based on the analysis detailed in Chapter 3, the following is a brief summary of the results:

4.2.1 Frequency tables

Majority of respondents represented Western Cape 1 site (43,1%), followed by North-West (29,4%), Gauteng (18,2%) and Western Cape 2 site respectively.

Respondents were almost equally distributed between permanent employees and contract labour.

Only 8,3% of respondents represented the business systems department, where the quality function is seated.

The majority of respondents could not distinguish between QA, QC and TQM. Only 3,6% really knew the difference.

Only 59,8% of respondents believe that they always receive good quality product from their supplier (internal or external). This was further highlighted by only 68,7% that feel that QA at external suppliers is sufficient.

Around half of all respondents feel that they receive training in QC and QA, and only 67,4% feel that QA principles are discussed.

4.2.2 Factor analysis

The following factors were identified by making use of principle axis factoring. Items in the factor are given in brackets (SPSS):

1. Quality culture (B10, 11, 12, 14, 18 – 23, 33 & 38)
2. Ownership (B13, 15, 16, 18, 24 & 25)
3. Non-conformance (B34 – 37)
4. Increase (B29 & 30)
5. Management (B17 & 26)
6. Assurance (B27 & 28)
7. Training (C1 – C4)

Respondents perceive that there is a quality culture at the manufacturer and that quality is their personal responsibility, together with management. This was also confirmed in Table 3-9 (Rotation Method: Oblimin with Kaiser Normalisation)

Respondents feel that non-conformances are caused by poor maintenance, old equipment, chasing production targets and skill level of employees.

Respondents also feel that they would increase both QC and QA in their departments, if they had the power.

4.2.3 Reliability

Cronbach's alpha

Based on the Cronbach's Alpha Coefficient obtained in Table 3-11, the reliability of the research is acceptable and therefore the survey instrument is reliable.

4.2.4 Correlations

There is also a belief amongst respondents that QA is more important than QC and that more quality training is required as indicated in Table 3-13.

4.2.5 T-test

There is no real practically significant differences between the responses of different groups, such as gender, department, status of employment and qualification on all the measured variables.

Comparing all the data presented in Table 3-13, and only focussing on values higher than 0,35, there is a practically visible difference between permanent and contract workers regarding the implementation of QA (d=0,40).

Table 3-15 shows that there is a statistically significant difference between groups (gender, departments, status of employment and qualification) regarding the following items :

- How quality culture is perceived in the organisation.
- Who is responsible for quality (ownership).
- Reasons for non-conformance.
- Implementation of QA.
- Level of training required.

4.2.6 ANOVA

Focussing only on values higher than 0,35 in terms of practical significance, the following can be highlighted from ANOVA:

4.2.6.1 Age:

18-29 and 50-59 year old employees feel visibly different from 60 plus year old employees about quality terms.

30-39 year old employees feel visibly different from 50-59 year old employees about their personal responsibility towards quality (ownership).

18-29 and 40-59 year old employees feel visibly different from 60 plus year old employees about their personal responsibility towards quality (ownership).

18-29 year old employees feel visibly different from 60 plus year old employees about reasons for non-conformance.

40-49 year old employees feel visibly different from 60 plus year old employees about how to increase quality in the organisation.

18-29 year old employees feel visibly different from 60 plus year old employees about management's responsibility towards quality.

18-39 year old employees feel visibly different from 60 plus year old employees about the implementation of QA.

30-39 year old employees feel visibly different from 40 to 49 year old employees about the training required.

4.2.6.2 Years' experience:

Employees with less than 5 years' experience, feel visibly different from employees that have 11 to 20 and 30 plus year of experience regarding reasons for non-conformance.

Employees with 6 to 10 years' experience, feel visibly different from employees that have 21 to 30 year of experience regarding methods to increase quality.

Employees with 6 to 20 years' experience, feel visibly different from employees that have 30 plus year of experience regarding managements responsibility towards quality.

Employees with 6 to 10 years' experience, feel visibly different from employees that have 30 plus year of experience regarding training required.

4.2.6.3 Departments:

Maintenance visibly feels different from business systems regarding their responsibility towards quality (ownership).

Business systems visibly feels different from plant engineering regarding their responsibility towards quality (ownership).

Maintenance visibly feels different from business systems and plant engineering regarding reasons for non-conformance.

Maintenance visibly feels different from business systems and plant engineering regarding QA measures to be implemented.

Operations visibly feels different from maintenance regarding training required.

Maintenance visibly feels different from business systems regarding training required.

Business systems visibly feels different from plant engineering regarding training required.

4.2.6.4 Sites:

Gauteng site visibly feels different from North-West site regarding their responsibility towards quality (ownership).

Gauteng site visibly feels different from North-West and Western Cape 2 site regarding measures to increase quality.

North-West site visibly feels different from Western Cape 1 site regarding training required.

Western Cape 1 site visibly feels different from Western Cape 2 site regarding training required.

4.2.6.5 Language:

Afrikaans speaking employees visibly feel different from Xhosa speaking employees regarding the quality culture the organisation have.

Xhosa speaking employees visibly feel different from Zulu and other language-speaking employees regarding the quality culture the organisation have.

Afrikaans, English and Tswana speaking employees visibly feel different from Zulu speaking employees regarding their personal responsibility towards quality (ownership).

Tswana and Xhosa speaking employees visibly feel different from Zulu speaking employees regarding measures to increase quality.

English, Tswana and Xhosa speaking employees visibly feel different from other language-speaking employees regarding QA measures to be implemented.

4.2.6.6 Qualification:

Employees with an artisan qualification visibly feel different from employees with a diploma regarding the meaning of quality terms.

Employees with less than grade 12 qualification visibly feel different from employees with a graduate/higher diploma regarding their personal responsibility towards quality (ownership).

Employees with grade 12, artisan and diploma qualifications visibly feel different from employees with post-graduate regarding reasons for non-conformance.

Employees with less than grade 12 qualification visibly feel different from employees with a graduate/higher diploma regarding QA measures to be implemented.

Employees with less than grade 12, grade 12 and artisan qualifications visibly feel different from employees with a post-graduate regarding QA measures to be implemented.

Employees with artisan qualifications visibly feel different from employees with a post-graduate regarding training required.

ANOVA furthermore indicates whether there is a statistical significant difference between the means regarding the following biographic criteria:

4.2.6.7 Age:

Employee's perception on their personal responsibility towards quality (ownership).

Training required regarding quality.

4.2.6.8 Years' experience:

No statistical significance between the items.

4.2.6.9 Department:

Departments view on their responsibility towards quality (ownership),

QA measures to be implemented, and

Training required regarding quality.

4.2.6.10 Site:

Views regarding quality terms (QA, QC and TQM)

Sites view on their responsibility towards quality (ownership),

Measures to be taken to increase quality, and

Training required regarding quality.

4.2.6.11 Language:

Employees view on their responsibility towards quality (ownership).

4.2.6.12 Qualification:

No statistical significance between the items.

4.2.7 Spearman's rho

Employees' responses towards quality terms (QA, QC and TQM) had statistical significance (Quality terms vs. Factors) towards all factors except for QA measures to be implemented.

4.3 CHAPTER CONCLUSION

The chapter provided a summary of research results.

The following chapter presents conclusions to help answering the research question: Is there an advantage in focusing on establishing QA rather than increasing QC within a South African manufacturer?

It furthermore presents recommendations to the South African manufacturer.

CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

It is interesting to see that in the modern workplace of a manufacturer, with sites scattered all over South Africa and competing at international standards, the work force's understanding about quality, who is responsible for quality and how to improve quality, varies significantly. This poses a challenge to the manufacturer to get the entire workforce, irrespective of gender, age, department or even qualification aligned to the same quality culture.

5.2 CONCLUSIONS

5.2.1 General

Employees do not understand the difference between quality terms as illustrated in

The distinction between QC, QA and TQM is powerfully illustrated in figure 2.4,

Figure 2-4, as seen by the fact employees rated QA, QC and TQM similar by agreeing with all possible options (Table 3-4), rather than matching the correct term to the correct definition. This was further supported by a frequency table, (Table 3-12) were only **one** of the 615 employees matched the best suited definition with these quality terms.

Employees however still felt that QA is more important than QC (Table 3-4) and that quality should be increased in their departments (Table 3-13). It is however important to note that there is a disconnect between permanent and contract labour (Table 3-14 and Table 3-15) regarding implementation of QA which explains why only 59,3% of employees (Table 3-5) believed that QA is more important than QC.

Many employees do not believe that they receive good quality product from their suppliers, which are further emphasised by a notion that QA at external suppliers is not sufficient (Table 3-5).

Chasing production targets was identified as not having a positive effect on QA and as contributing towards non-conformances (Table 3-5).

Irrespective of all the negatives, employees is of the opinion that the organisation has a quality culture (Table 3-15) and that quality is their personal responsibility (Table 3-5, Table 3-9 and Table 3-13). Employees also believe that management is responsible for quality, which support the literature study's finding that quality should be driven from the top down (Paragraph 2.5).

Employees indicated that they received sufficient training to perform their work well (Table 3-5 and Table 3-6), but only half of the employees agreed that sufficient training was delivered and asked that more training is required (Table 3-15).

Considering how the demographics influence employee response, the following:

- Older employees (Table 3-16 and Table 3-22) and those with longer years' of service (Table 3-17 and Table 3-23) feel more personally responsible for quality, and therefore exhibit ownership towards quality.
- Employees have a mixed feeling regarding management responsibility towards quality, especially employees younger than 39 years of age (Table 3-17).
- The maintenance department differs from other departments regarding their own responsibility towards quality (ownership), reasons for non-conformance, implementation of QA measures and training required (Table 3-18).
- All departments and sites seem to have different views on training required comparing results (Table 3-18 and Table 3-24).
- Gauteng site seem to feel differently than other sites towards their own responsibility for quality (ownership) and measures to be taken to increase quality (Table 3-19).
- In general Xhosa and Zulu speaking employees seem to have different opinions on all factors identified compared to other employees, irrespective of language (Table 3-20).
- There is a visible difference how employees view about the factors identified, compared to their qualification level (Table 3-15 and Table 3-21).

5.3 Meeting of research objectives

5.3.1 Primary objective

Regarding the primary objective of this study, employees believe that product quality and the associated customer satisfaction within the South African manufacturer can be improved by:

- Increasing quality measures, especially QA at sub-contractors.
- Supplying more training in quality and not only informing employees about a specific quality term as part of a discussion or information session.

This objective has therefore been achieved through the study

5.3.2 Secondary objectives

Testing employees' understanding of QA and QC.

- Although employees could not distinguish between QA and QC, they were in support of increasing quality measures to improve quality. Therefore, employees do believe that

there is an advantage in focusing on establishing QA rather than increasing QC within a South African manufacturer.

The literature study indicated the following factors that affect a quality environment:

- Focus on the skill level of employees, having the right person for the job and supplying continuous training to enhance TQM within the South African manufacturer.
- Investigate non-conformance due to old equipment and identify corrective action to upgrade, refurbish or replace such equipment over the short term (two to five years) for critical failures and medium term (next five to ten years) for repetitive breakages.
- Finally, the study has shown the need to become more actively involved in driving a quality culture from top down.

Employee's perception of quality management in the company.

- Employees believe that there is a good quality culture within the organisation and that, although quality measures can be increased, they, together with management, are responsible for quality.

How to improve product quality and associated customer satisfaction.

Employee's felt that:

- QA should be increased at external suppliers.
- Chasing production targets has a negative effect on QA and are causing non-conformance.
- Non-conformance is further enhanced by low skill level of employees, old equipment and poor maintenance.

5.4 RECOMMENDATION

This study was undertaken to advise management on the way forward to foster a productive quality culture in the organisation. Therefore only macro-level recommendations are presented.

- Although there is confusion about the terms quality control, quality assurance and total quality management, the study reveals that there is a quality culture at the organisation. No extreme measures need to be taken to establish such a culture, but the culture needs to be nurtured and strengthened on all levels in the manufacturer's organisation. This could be done through various means, including sensitising, training and specific quality drives.
- However, this quality culture is not necessarily evident at all external suppliers. Management should consider implementing measures or possibly establishing QA measures at external suppliers to ensure that high quality products are received from suppliers as incoming raw material.
- Regarding contract workers, who represents half of the work force, it is vital that they ascribe to the quality culture evident in the organisation. The recommendation is therefore to embark on delivering quality-related training to all staff (permanent or contract).

- Although not the objective of this study, the literature study has highlighted the benefit of a total quality management (TQM) approach. Serious considerations should be given to expand the current culture that embraces QA, to the next level and introduce TQM throughout the organisation.
- Albeit not included in this study, it is recommended that service departments (other than operations, maintenance, engineering, and business systems departments) also be included in the drive for better quality and in the TQM initiative.

5.5 FUTURE RESEARCH PROSPECTS

Although the research question was answered, many other variables came to the fore that impact quality. Training is the most important of these. It is proposed that the impact of training and how it influences a quality culture and subsequent product quality be evaluated in a follow-up study.

Since empirical analysis results are indicative to the period of the study, the statistical validation of the findings of this study can only be tested by a follow-up study. A follow-up study is therefore proposed as a longitudinal study to establish whether the quality culture is indeed developing and being strengthened over time.

A follow-up study will also reveal the success of any preventive or corrective actions that have been identified during the present study and that are implemented by the company after this study. A time lag of two to three years is proposed before the follow-up study. This would then serve as a measure to evaluate the success of the corrective actions implemented.

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ANNEXURES A – WORKPLACE SURVEY

Workplace Survey

Dear Participating Employee,

Thank you for your input. Your opinion is really valued! We have a unique opportunity to receive your input and learn about our company's performance relative to our quality management. The survey was developed by a graduate student of the North West University to form part of his thesis. It addresses total quality management, quality control, quality assurance and factors in the workplace which could lead to unwanted reworks and poor quality of products being manufactured.

The questionnaire is completely **anonymous**. You are **free to remove yourself** from this study at any time without penalty. **You do not need to answer any question** that you do not want to. By completing this questionnaire you give **consent** that your opinion may be used in the study.

These questions are aimed at identifying quality concerns as well as possible causes that influence quality standards in the workplace. Please answer the questions to the best of your knowledge by marking the number that you choose. The majority of the questions ask you to rate how much you **agree or disagree**. **Select only one** answer per question. Once the results are received, we will share the conclusions with the organisation. It should only take ten minutes of your time.

I really appreciate your time and assistance with this study.

Sincerely

Johann du Toit

SECTION A - Demographics

A1	**Age:**										
A2	**Years' service completed** (Permanent and Service provider)										
A3	**Sex:**	Male	1	Female	2						
A4	**Department:**	Operations	1	Maintenance	2	Business Systems	3	Plant Engineering	4		
A5	**Site:**	Gauteng	1	North-West	2	W/Cape 1	3	W/Cape 2	4		
A6	**Status:**	Permanent employee			1	Service provider			2		
A7	**Ethnicity:**	Black	1	Coloured	2	Indian	3	White	4	Other	5
A8	**Language:**	Afrikaans	1	English			2	Tswana	3		
		Xhosa	4	Zulu			5	Other	6		
A9	**Qualification:**	< Grade 12	1	Grade 12			2	Artisan	3		
		Diploma	4	Graduate/Higher diploma			5	Post-Graduate	6		

SECTION B - Your Choice

No	Question	Strongly Disagree	Disagree	Agree	Strongly Agree
B1	Quality Assurance means preventing defects	1	2	3	4
B2	Quality Assurance means minimising defects	1	2	3	4
B3	Quality Assurance means identifying defects	1	2	3	4
B4	Quality Control means preventing defects	1	2	3	4
B5	Quality Control means minimising defects	1	2	3	4
B6	Quality Control means identifying defects	1	2	3	4
B7	Total Quality Management means preventing defects	1	2	3	4
B8	Total Quality Management means minimising defects	1	2	3	4
B9	Total Quality Management means identifying defects	1	2	3	4
B10	Quality control is done well enough in the operations department	1	2	3	4
B11	Quality control is done well enough in the business systems department (quality)	1	2	3	4
B12	We always receive good quality product from our main supplier (internal or external) to my department	1	2	3	4

No	Question	Strongly Disagree	Disagree	Agree	Strongly Agree
B13	I am familiar with the work instruction(s)	1	2	3	4
B14	The Quality department (business systems department) is responsible for quality control	1	2	3	4
B15	I am personally responsible for quality control	1	2	3	4
B16	My department is responsible for quality control	1	2	3	4
B17	My management is responsible for quality control	1	2	3	4
B18	I have received sufficient quality related training to perform my work well	1	2	3	4
B19	Quality assurance is sufficient within the operations department	1	2	3	4
B20	Quality assurance is sufficient within business systems department	1	2	3	4
B21	Quality assurance of our internal suppliers are sufficient	1	2	3	4
B22	Quality assurance of our external suppliers are sufficient	1	2	3	4
B23	Our processes is designed to enhance quality assurance	1	2	3	4
B24	I am personally responsible for quality assurance	1	2	3	4
B25	My department is responsible for quality assurance	1	2	3	4
B26	My management is responsible for quality assurance	1	2	3	4
B27	Quality assurance is the responsibility of the maintenance department	1	2	3	4
B28	Quality assurance is more important than quality control	1	2	3	4
B29	If I had a say, I would increase quality control within my department	1	2	3	4
B30	If I had a say, I would increase quality assurance within my department	1	2	3	4
B31	Chasing production targets has a negative effect on quality assurance	1	2	3	4
B32	Chasing production targets has a positive effect on quality assurance	1	2	3	4
B33	There is good cooperation between the maintenance department and operations department	1	2	3	4
B34	Most quality non-conformance is caused by poor maintenance	1	2	3	4
B35	Most quality non-conformance is caused by old equipment	1	2	3	4
B36	Most quality non-conformance is caused by chasing production targets	1	2	3	4
B37	Most quality non-conformance is caused by the skill level of employees	1	2	3	4
B38	The company can be described as having a quality culture	1	2	3	4

SECTION C - Training

No	Question	Never	Seldom	Sometimes	Often
C1	I receive training in quality control	1	2	3	4
C2	Quality control principles are discussed in my department	1	2	3	4
C3	I receive training in quality assurance	1	2	3	4
C4	Quality assurance principles are discussed in my department	1	2	3	4

SECTION D - Your Opinion

D1 What would be the biggest cause of quality problems in your department?

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D2 What would be the biggest cause of quality problems in your company?

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D3 Would yearly reviews of company policies related to quality be of value? Why?

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D4 Is the company focused on scheduled maintenance or repair maintenance?

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ANNEXURES B - DEMOGRAPHIC A1: AGE

Age	Frequency	Valid Percent
18	1	0,2
19	1	0,2
20	8	1,5
21	14	2,6
22	9	1,7
23	16	3,0
24	19	3,6
25	24	4,5
26	19	3,6
27	25	4,7
28	23	4,3
29	22	4,1
30	34	6,4
31	14	2,6
32	17	3,2
33	21	3,9
34	12	2,2
35	15	2,8
36	5	0,9
37	12	2,2
38	14	2,6
39	15	2,8
40	11	2,1
41	6	1,1
42	9	1,7
43	16	3,0
44	10	1,9
45	5	0,9
46	8	1,5
47	8	1,5
48	10	1,9
49	4	0,7
50	8	1,5
51	10	1,9
52	10	1,9
53	9	1,7
54	11	2,1

Age	Frequency	Valid Percent
55	6	1,1
56	6	1,1
57	10	1,9
58	13	2,4
59	3	0,6
60	8	1,5
61	4	0,7
62	4	0,7
63	3	0,6
64	1	0,2
65	1	0,2
69	1	0,2
Total	**535**	**100,0**

Source: SPSS

ANNEXURES C - DEMOGRAPHIC A2: YEARS OF EMPLOYMENT

A2: Years of Employment	Frequency	Valid Percent
1	42	10,7
2	40	10,2
3	48	12,2
4	41	10,4
5	20	5,1
6	11	2,8
7	17	4,3
8	16	4,1
9	11	2,8
10	14	3,6
11	4	1,0
12	2	0,5
14	2	0,5
15	6	1,5
16	6	1,5
17	11	2,8
18	11	2,8
19	4	1,0
20	8	2,0
22	3	0,8
23	8	2,0
24	3	0,8
25	6	1,5
26	3	0,8
27	3	0,8
28	3	0,8
29	12	3,0
30	10	2,5
31	1	0,3
33	3	0,8
34	3	0,8
35	1	0,3
36	5	1,3
37	6	1,5
38	4	1,0
39	3	0,8
40	1	0,3

A2: Years of Employment	Frequency	Valid Percent
42	2	0,5
Total	**394**	**100,0**

Source: SPSS

ANNEXURES D - DEMOGRAPHIC A3 TO A9

A3: Gender

A3		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	409	66,5	67,9	67,9
	2	193	31,4	32,1	100,0
	Total	602	97,9	100,0	
Missing	System	13	2,1		
Total		615	100,0		

A4: Department

A4		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	420	68,3	75,7	75,7
	2	55	8,9	9,9	85,6
	3	46	7,5	8,3	93,9
	4	34	5,5	6,1	100,0
	Total	555	90,2	100,0	
Missing	System	60	9,8		
Total		615	100,0		

A5: Site

A5		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	109	17,7	18,2	18,2
	2	176	28,6	29,4	47,6
	3	258	42,0	43,1	90,7
	4	56	9,1	9,3	100,0
	Total	599	97,4	100,0	
Missing	System	16	2,6		
Total		615	100,0		

A6: Status of Employment

A6		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	205	33,3	46,1	46,1
	2	240	39,0	53,9	100,0
	Total	445	72,4	100,0	
Missing	System	170	27,6		
Total		615	100,0		

A7: Ethnicity

A7		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	230	37,4	40,1	40,1
	2	287	46,7	50,1	90,2
	3	4	0,7	0,7	90,9
	4	49	8,0	8,6	99,5
	5	3	0,5	0,5	100,0
	Total	573	93,2	100,0	
Missing	System	42	6,8		
Total		615	100,0		

A8: Language

A8		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	208	33,8	47,9	47,9
	2	62	10,1	14,3	62,2
	3	43	7,0	9,9	72,1
	4	52	8,5	12,0	84,1
	5	24	3,9	5,5	89,6
	6	45	7,3	10,4	100,0
	Total	434	70,6	100,0	
Missing	System	181	29,4		
Total		615	100,0		

A9: Qualification

A9		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	167	27,2	30,5	30,5
	2	218	35,4	39,8	70,3
	3	47	7,6	8,6	78,8
	4	55	8,9	10,0	88,9
	5	41	6,7	7,5	96,4
	6	20	3,3	3,6	100,0
	Total	548	89,1	100,0	
Missing	System	67	10,9		
Total		615	100,0		

Source: SPSS

ANNEXURES E - FREQUENCY TABLES

Section B - Own Choice

B1		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	2,0	2,0	2,0
	2	29	4,7	4,8	6,8
	3	370	60,2	61,1	67,8
	4	195	31,7	32,2	100,0
	Total	606	98,5	100,0	
Missing	System	9	1,5		
Total		615	100,0		

B2		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	18	2,9	3,0	3,0
	2	54	8,8	9,0	12,0
	3	374	60,8	62,5	74,6
	4	152	24,7	25,4	100,0
	Total	598	97,2	100,0	
Missing	System	17	2,8		
Total		615	100,0		

B3		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	1,5	1,5	1,5
	2	47	7,6	8,0	9,5
	3	350	56,9	59,2	68,7
	4	185	30,1	31,3	100,0
	Total	591	96,1	100,0	
Missing	System	24	3,9		
Total		615	100,0		

B4		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	1,3	1,4	1,4
	2	53	8,6	9,0	10,3
	3	356	57,9	60,2	70,6
	4	174	28,3	29,4	100,0
	Total	591	96,1	100,0	
Missing	System	24	3,9		
Total		615	100,0		

B5		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	1,8	1,9	1,9
	2	71	11,5	12,0	13,9
	3	351	57,1	59,4	73,3
	4	158	25,7	26,7	100,0
	Total	591	96,1	100,0	
Missing	System	24	3,9		
Total		615	100,0		

B6		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	0,7	0,7	0,7
	2	45	7,3	7,7	8,3
	3	345	56,1	58,7	67,0
	4	194	31,5	33,0	100,0
	Total	588	95,6	100,0	
Missing	System	27	4,4		
Total		615	100,0		

B7		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	1,3	1,4	1,4
	2	46	7,5	7,9	9,3
	3	340	55,3	58,5	67,8
	4	187	30,4	32,2	100,0
	Total	581	94,5	100,0	
Missing	System	34	5,5		
Total		615	100,0		

B8		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	2,3	2,4	2,4
	2	52	8,5	8,8	11,2
	3	353	57,4	60,0	71,3
	4	169	27,5	28,7	100,0
	Total	588	95,6	100,0	
Missing	System	27	4,4		
Total		615	100,0		

B9		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	2,3	2,4	2,4
	2	57	9,3	9,8	12,3
	3	356	57,9	61,5	73,7
	4	152	24,7	26,3	100,0
	Total	579	94,1	100,0	
Missing	System	36	5,9		
Total		615	100,0		

B10		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	2,6	2,7	2,7
	2	128	20,8	21,5	24,2
	3	363	59,0	61,1	85,4
	4	87	14,1	14,6	100,0
	Total	594	96,6	100,0	
Missing	System	21	3,4		
Total		615	100,0		

B11		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	18	2,9	3,1	3,1
	2	137	22,3	23,3	26,3
	3	349	56,7	59,3	85,6
	4	85	13,8	14,4	100,0
	Total	589	95,8	100,0	
Missing	System	26	4,2		
Total		615	100,0		

B12		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	36	5,9	6,1	6,1
	2	201	32,7	34,1	40,2
	3	296	48,1	50,3	90,5
	4	56	9,1	9,5	100,0
	Total	589	95,8	100,0	
Missing	System	26	4,2		
Total		615	100,0		

B13		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	1,3	1,3	1,3
	2	17	2,8	2,8	4,1
	3	346	56,3	57,0	61,1
	4	236	38,4	38,9	100,0
	Total	607	98,7	100,0	
Missing	System	8	1,3		
Total		615	100,0		

B14		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	35	5,7	5,8	5,8
	2	130	21,1	21,7	27,5
	3	307	49,9	51,3	78,8
	4	127	20,7	21,2	100,0
	Total	599	97,4	100,0	
Missing	System	16	2,6		
Total		615	100,0		

B15		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	2,1	2,2	2,2
	2	57	9,3	9,5	11,6
	3	325	52,8	53,9	65,5
	4	208	33,8	34,5	100,0
	Total	603	98,0	100,0	
Missing	System	12	2,0		
Total		615	100,0		

B16		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	2,0	2,0	2,0
	2	78	12,7	13,0	15,0
	3	341	55,4	56,7	71,7
	4	170	27,6	28,3	100,0
	Total	601	97,7	100,0	
Missing	System	14	2,3		
Total		615	100,0		

B17		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	2,6	2,7	2,7
	2	87	14,1	14,7	17,4
	3	342	55,6	57,8	75,2
	4	147	23,9	24,8	100,0
	Total	592	96,3	100,0	
Missing	System	23	3,7		
Total		615	100,0		

B18		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	23	3,7	3,9	3,9
	2	121	19,7	20,3	24,2
	3	337	54,8	56,6	80,8
	4	114	18,5	19,2	100,0
	Total	595	96,7	100,0	
Missing	System	20	3,3		
Total		615	100,0		

B19		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	2,6	2,7	2,7
	2	114	18,5	19,4	22,1
	3	379	61,6	64,3	86,4
	4	80	13,0	13,6	100,0
	Total	589	95,8	100,0	
Missing	System	26	4,2		
Total		615	100,0		

B20		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	2,6	2,8	2,8
	2	95	15,4	16,5	19,3
	3	389	63,3	67,5	86,8
	4	76	12,4	13,2	100,0
	Total	576	93,7	100,0	
Missing	System	39	6,3		
Total		615	100,0		

B21		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	3,4	3,7	3,7
	2	125	20,3	22,0	25,7
	3	365	59,3	64,3	90,0
	4	57	9,3	10,0	100,0
	Total	568	92,4	100,0	
Missing	System	47	7,6		
Total		615	100,0		

B22		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	3,4	3,7	3,7
	2	156	25,4	27,6	31,3
	3	329	53,5	58,1	89,4
	4	60	9,8	10,6	100,0
	Total	566	92,0	100,0	
Missing	System	49	8,0		
Total		615	100,0		

B23		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	1,1	1,2	1,2
	2	78	12,7	13,6	14,8
	3	375	61,0	65,3	80,1
	4	114	18,5	19,9	100,0
	Total	574	93,3	100,0	
Missing	System	41	6,7		
Total		615	100,0		

B24		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	1,3	1,4	1,4
	2	57	9,3	9,8	11,1
	3	344	55,9	59,0	70,2
	4	174	28,3	29,8	100,0
	Total	583	94,8	100,0	
Missing	System	32	5,2		
Total		615	100,0		

B25		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	1,1	1,2	1,2
	2	78	12,7	13,4	14,6
	3	358	58,2	61,4	76,0
	4	140	22,8	24,0	100,0
	Total	583	94,8	100,0	
Missing	System	32	5,2		
Total		615	100,0		

B26		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	2,0	2,1	2,1
	2	94	15,3	16,3	18,4
	3	340	55,3	59,0	77,4
	4	130	21,1	22,6	100,0
	Total	576	93,7	100,0	
Missing	System	39	6,3		
Total		615	100,0		

B27		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	63	10,2	11,0	11,0
	2	205	33,3	35,9	46,9
	3	247	40,2	43,3	90,2
	4	56	9,1	9,8	100,0
	Total	571	92,8	100,0	
Missing	System	44	7,2		
Total		615	100,0		

B28		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	36	5,9	6,4	6,4
	2	193	31,4	34,3	40,7
	3	265	43,1	47,2	87,9
	4	68	11,1	12,1	100,0
	Total	562	91,4	100,0	
Missing	System	53	8,6		
Total		615	100,0		

B29		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	10	1,6	1,7	1,7
	2	62	10,1	10,7	12,5
	3	382	62,1	66,2	78,7
	4	123	20,0	21,3	100,0
	Total	577	93,8	100,0	
Missing	System	38	6,2		
Total		615	100,0		

B30		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	1,1	1,2	1,2
	2	61	9,9	10,7	11,9
	3	370	60,2	64,8	76,7
	4	133	21,6	23,3	100,0
	Total	571	92,8	100,0	
Missing	System	44	7,2		
Total		615	100,0		

B31		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	2,6	2,7	2,7
	2	89	14,5	15,2	18,0
	3	303	49,3	51,9	69,9
	4	176	28,6	30,1	100,0
	Total	584	95,0	100,0	
Missing	System	31	5,0		
Total		615	100,0		

B32		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	74	12,0	12,8	12,8
	2	228	37,1	39,4	52,2
	3	208	33,8	35,9	88,1
	4	69	11,2	11,9	100,0
	Total	579	94,1	100,0	
Missing	System	36	5,9		
Total		615	100,0		

B33		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	2,1	2,3	2,3
	2	105	17,1	18,4	20,6
	3	380	61,8	66,4	87,1
	4	74	12,0	12,9	100,0
	Total	572	93,0	100,0	
Missing	System	43	7,0		
Total		615	100,0		

B34		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	42	6,8	7,2	7,2
	2	230	37,4	39,6	46,8
	3	264	42,9	45,4	92,3
	4	45	7,3	7,7	100,0
	Total	581	94,5	100,0	
Missing	System	34	5,5		
Total		615	100,0		

B35		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	26	4,2	4,5	4,5
	2	132	21,5	22,9	27,4
	3	329	53,5	57,0	84,4
	4	90	14,6	15,6	100,0
	Total	577	93,8	100,0	
Missing	System	38	6,2		
Total		615	100,0		

B36		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	20	3,3	3,5	3,5
	2	119	19,3	20,6	24,0
	3	323	52,5	55,9	79,9
	4	116	18,9	20,1	100,0
	Total	578	94,0	100,0	
Missing	System	37	6,0		
Total		615	100,0		

B37		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	26	4,2	4,5	4,5
	2	137	22,3	23,7	28,2
	3	327	53,2	56,7	84,9
	4	87	14,1	15,1	100,0
	Total	577	93,8	100,0	
Missing	System	38	6,2		
Total		615	100,0		

B38		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	20	3,3	3,5	3,5
	2	89	14,5	15,5	19,0
	3	360	58,5	62,6	81,6
	4	106	17,2	18,4	100,0
	Total	575	93,5	100,0	
Missing	System	40	6,5		
Total		615	100,0		

Source: SPSS

Section C - Training

C1		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	184	29,9	31,2	31,2
	2	96	15,6	16,3	47,5
	3	189	30,7	32,0	79,5
	4	121	19,7	20,5	100,0
	Total	590	95,9	100,0	
Missing	System	25	4,1		
Total		615	100,0		
C2		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	1	77	12,5	13,1	13,1
	2	85	13,8	14,5	27,6
	3	209	34,0	35,7	63,3
	4	215	35,0	36,7	100,0
	Total	586	95,3	100,0	
Missing	System	29	4,7		
Total		615	100,0		
C3		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	1	207	33,7	35,4	35,4
	2	112	18,2	19,2	54,6
	3	163	26,5	27,9	82,5
	4	102	16,6	17,5	100,0
	Total	584	95,0	100,0	
Missing	System	31	5,0		
Total		615	100,0		
C4		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	1	89	14,5	15,1	15,1
	2	103	16,7	17,5	32,6
	3	210	34,1	35,7	68,3
	4	187	30,4	31,7	100,0
	Total	589	95,8	100,0	
Missing	System	26	4,2		
Total		615	100,0		

Source: SPSS

ANNEXURES F - DESCRIPTIVE STATISTICS

Question	N	Minimum	Maximum	Mean	Std. Deviation
A1	535	18	69	37,00	11,823
A2	394	1	42	11,19	11,088

Question	N	Minimum	Maximum	Mean	Std. Deviation
B1	606	1	4	3,23	0,628
B2	598	1	4	3,10	0,674
B3	591	1	4	3,20	0,643
B4	591	1	4	3,18	0,638
B5	591	1	4	3,11	0,671
B6	588	1	4	3,24	0,614
B7	581	1	4	3,22	0,641
B8	588	1	4	3,15	0,670
B9	579	1	4	3,12	0,667
B10	594	1	4	2,88	0,675
B11	589	1	4	2,85	0,691
B12	589	1	4	2,63	0,739
B13	607	1	4	3,33	0,599
B14	599	1	4	2,88	0,806
B15	603	1	4	3,21	0,695
B16	601	1	4	3,11	0,693
B17	592	1	4	3,05	0,709
B18	595	1	4	2,91	0,737
B19	589	1	4	2,89	0,653
B20	576	1	4	2,91	0,633
B21	568	1	4	2,81	0,657
B22	566	1	4	2,76	0,687
B23	574	1	4	3,04	0,618
B24	583	1	4	3,17	0,649
B25	583	1	4	3,08	0,645
B26	576	1	4	3,02	0,687

Question	N	Minimum	Maximum	Mean	Std. Deviation
B27	571	1	4	2,52	0,817
B28	562	1	4	2,65	0,774
B29	577	1	4	3,07	0,621
B30	571	1	4	3,10	0,616
B31	584	1	4	3,09	0,745
B32	579	1	4	2,47	0,863
B33	572	1	4	2,90	0,628
B34	581	1	4	2,54	0,741
B35	577	1	4	2,84	0,734
B36	578	1	4	2,93	0,735
B37	577	1	4	2,82	0,734
B38	575	1	4	2,96	0,691

Question	N	Minimum	Maximum	Mean	Std. Deviation
C1	590	1	4	2,42	1,131
C2	586	1	4	2,96	1,019
C3	584	1	4	2,27	1,122
C4	589	1	4	2,84	1,036

Source: SPSS

ANNEXURES G - COMMUNALITIES

Survey Question	Initial	Extraction
B10	0,445	0,394
B11	0,423	0,357
B12	0,334	0,312
B13	0,222	**0,209**
B14	0,228	**0,210**
B15	0,449	0,486
B16	0,573	0,542
B17	0,541	0,632
B18	0,302	0,306
B19	0,607	0,559
B20	0,616	0,549
B21	0,582	0,598
B22	0,506	0,502
B23	0,406	0,411
B24	0,519	0,585
B25	0,626	0,643
B26	0,574	0,597
B27	0,348	0,509
B28	0,272	0,432
B29	0,522	0,679
B30	0,537	0,687
B31	0,268	0,382
B32	0,179	**0,221**
B33	0,257	**0,213**
B34	0,308	0,460
B35	0,339	0,410
B36	0,404	0,657
B37	0,236	**0,247**
B38	0,289	**0,280**
Extraction Method: Principal Axis Factoring.		

Source: SPSS

ANNEXURES H - TOTAL VARIANCE EXPLAINED (SECTION B)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1 - Quality culture	6,567	22,643	22,643	6,051	20,867	20,867	4,992
2 - Ownership	2,777	9,577	32,220	2,294	7,909	28,775	3,076
3 - Non-conformance	2,081	7,176	39,396	1,564	5,392	34,168	1,812
4 - Increase	1,512	5,214	44,610	1,098	3,787	37,955	2,517
5 - Management	1,404	4,840	49,450	0,889	3,067	41,022	2,505
6 - Assurance	1,199	4,135	53,585	0,615	2,121	43,144	1,817
7 - Targets	1,136	3,916	57,502	0,557	1,922	45,065	1,213
8	0,990	3,414	60,916				
9	0,939	3,237	64,153				
10	0,918	3,166	67,319				
11	0,837	2,887	70,206				
12	0,790	2,723	72,928				
13	0,729	2,515	75,443				
14	0,711	2,453	77,897				
15	0,653	2,253	80,150				
16	0,631	2,174	82,324				
17	0,596	2,055	84,379				

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
18	0,542	1,868	86,247				
19	0,530	1,828	88,075				
20	0,480	1,655	89,730				
21	0,471	1,626	91,356				
22	0,436	1,502	92,858				
23	0,396	1,365	94,223				
24	0,354	1,220	95,443				
25	0,324	1,118	96,561				
26	0,291	1,002	97,563				
27	0,254	0,874	98,438				
28	0,237	0,819	99,256				
29	0,216	0,744	100,000				
Extraction Method: Principal Axis Factoring.							
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.							

Source: SPSS

ANNEXURES I - TOTAL VARIANCE EXPLAINED (SECTION C)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1 - Training	2,895	72,386	72,386	2,530	63,261	63,261	2,895
2	0,632	15,792	88,178				0,632
3	0,281	7,018	95,197				0,281
4	0,192	4,803	100,000				0,192
Extraction Method: Principal Axis Factoring.							

Source: SPSS

ANNEXURES J - COHEN'S D-VALUE (PRACTICAL SIGNIFICANCE)

Indicated by effect size in tables below.

Gender (A3)						
Description		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Effect size**
B1_marked	**1 - Male**	409	0,92	0,265	0,013	0,04
	2 - Female	193	0,91	0,284	0,020	
B2_marked	1	409	0,10	0,304	0,015	0,11
	2	193	0,14	0,348	0,025	
B3_marked	1	409	0,08	0,265	0,013	0,13
	2	193	0,12	0,325	0,023	
B4_marked	1	409	0,09	0,284	0,014	0,11
	2	193	0,12	0,331	0,024	
B5_marked	1	409	0,12	0,325	0,016	0,10
	2	193	0,16	0,363	0,026	
B6_marked	1	409	0,90	0,294	0,015	**0,22**
	2	193	0,82	0,386	0,028	
B7_marked	1	409	0,08	0,273	0,013	0,06
	2	193	0,10	0,299	0,022	
B8_marked	1	409	0,86	0,352	0,017	0,06
	2	193	0,83	0,373	0,027	
B9_marked	1	409	0,11	0,319	0,016	0,00
	2	193	0,11	0,319	0,023	
Total (B1-9)	1	409	3,2665	0,93927	0,04644	0,05

Gender (A3)						
Description		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Effect size**
	2	193	3,3161	1,01479	0,07305	
Factor 1 - Quality Culture	1	409	2,8375	0,43982	0,02175	**0,23**
	2	192	2,9391	0,40577	0,02928	
Factor 2 - Ownership	1	409	3,2075	0,48066	0,02377	0,15
	2	192	3,1365	0,47660	0,03440	
Factor 3 - Non-Conformance	1	395	2,7871	0,52784	0,02656	0,01
	2	185	2,7811	0,49313	0,03626	
Factor 4 - Increase	1	391	3,0844	0,55865	0,02825	0,01
	2	185	3,0811	0,58877	0,04329	
Factor 5 - Management	1	400	3,0225	0,64849	0,03242	0,04
	2	191	3,0497	0,55145	0,03990	
Factor 6 - Assurance	1	392	2,5523	0,69558	0,03513	0,15
	2	185	2,6595	0,66163	0,04864	
Factor 7 – Training (C)	1	394	2,5609	0,92077	0,04639	**0,26**
	2	188	2,7979	0,90900	0,06630	

Source: SPSS

Department (A4)						
Description		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Effect size**
B1_marked	**Business Systems**	46	0,93	0,250	0,037	0,06
	Others	509	0,92	0,275	0,012	
B2_marked	Business Systems	46	0,11	0,315	0,046	0,04
	Other	509	0,12	0,327	0,015	
B3_marked	Business Systems	46	0,11	0,315	0,046	0,05
	Other	509	0,09	0,290	0,013	
B4_marked	Business Systems	46	0,11	0,315	0,046	0,02
	Other	509	0,10	0,303	0,013	
B5_marked	Business Systems	46	0,22	0,417	0,061	**0,21**
	Other	509	0,13	0,336	0,015	
B6_marked	Business Systems	46	0,85	0,363	0,054	0,09
	Other	509	0,88	0,323	0,014	
B7_marked	Business Systems	46	0,02	0,147	0,022	**0,25**
	Other	509	0,10	0,295	0,013	
B8_marked	Business Systems	46	0,87	0,341	0,050	0,05
	Other	509	0,85	0,357	0,016	
B9_marked	Business Systems	46	0,09	0,285	0,042	0,11
	Other	509	0,12	0,327	0,015	

Department (A4)						
Description		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Effect size**
Total (B1-9)	Business Systems	46	3,3043	0,93973	0,13856	0,01
	Other	509	3,3143	1,01728	0,04509	
Factor 1 - Quality Culture	Business Systems	46	2,8277	0,47900	0,07063	0,06
	Other	508	2,8546	0,43150	0,01914	
Factor 2 - Ownership	Business Systems	46	3,3457	0,51455	0,07587	**0,33**
	Other	508	3,1762	0,46919	0,02082	
Factor 3 - Non-Conformance	Business Systems	46	2,8243	0,46555	0,06864	0,09
	Other	491	2,7753	0,52505	0,02370	
Factor 4 - Increase	Business Systems	43	3,0581	0,50249	0,07663	0,05
	Other	490	3,0878	0,58040	0,02622	
Factor 5 - Management	Business Systems	46	3,1304	0,67028	0,09883	0,19
	Other	499	3,0030	0,62695	0,02807	
Factor 6 - Assurance	Business Systems	46	2,3587	0,72005	0,10617	**0,33**
	Other	487	2,5955	0,69212	0,03136	
Factor 7 – Training (C)	Business Systems	46	2,8859	0,85749	0,12643	**0,33**
	Other	491	2,5849	0,92500	0,04174	

Source: SPSS

Status of Employment (A6)						
Description		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Effect size**
B1_marked	**1 - Permanent**	205	0,93	0,253	0,018	0,08
	2 - Contract	240	0,91	0,289	0,019	
B2_marked	1	205	0,10	0,304	0,021	0,02
	2	240	0,11	0,311	0,020	
B3_marked	1	205	0,09	0,291	0,020	0,03
	2	240	0,08	0,277	0,018	
B4_marked	1	205	0,11	0,310	0,022	0,04
	2	240	0,10	0,295	0,019	
B5_marked	1	205	0,14	0,349	0,024	0,00
	2	240	0,14	0,349	0,023	
B6_marked	1	205	0,89	0,316	0,022	0,03
	2	240	0,88	0,327	0,021	
B7_marked	1	205	0,08	0,276	0,019	0,03
	2	240	0,08	0,264	0,017	
B8_marked	1	205	0,85	0,359	0,025	0,03
	2	240	0,86	0,349	0,023	
B9_marked	1	205	0,10	0,304	0,021	0,08
	2	240	0,13	0,336	0,022	
Total (B1-9)	1	205	3,2976	1,09555	0,07652	0,02
	2	240	3,2792	0,92907	0,05997	
Factor 1 - Quality Culture	1	205	2,8080	0,44942	0,03139	**0,23**
	2	239	2,9106	0,41227	0,02667	

Status of Employment (A6)						
Description		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Effect size**
Factor 2 - Ownership	1	205	3,2222	0,48823	0,03410	0,13
	2	239	3,1600	0,46658	0,03018	
Factor 3 - Non-Conformance	1	199	2,7224	0,48599	0,03445	**0,24**
	2	231	2,8474	0,51886	0,03414	
Factor 4 - Increase	1	195	3,0821	0,55699	0,03989	0,01
	2	231	3,0887	0,61831	0,04068	
Factor 5 - Management	1	203	3,0049	0,63906	0,04485	0,08
	2	234	3,0577	0,59494	0,03889	
Factor 6 - Assurance	1	200	2,4075	0,68192	0,04822	**0,40**
	2	229	2,6790	0,65447	0,04325	
Factor 7 – Training (C)	1	200	2,6263	0,86784	0,06137	0,01
	2	235	2,6156	0,93519	0,06100	

Source: SPSS

Qualification (A9)						
Description		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Effect size**
B1_marked	**1 – Potentially operators**	432	0,93	0,262	0,013	0,02
	2 – Potentially Management	116	0,93	0,254	0,024	
B2_marked	1 (1-3)	432	0,12	0,326	0,016	0,05
	2 (3-6)	116	0,10	0,306	0,028	
B3_marked	1 (1-3)	432	0,08	0,273	0,013	0,12
	2 (3-6)	116	0,12	0,327	0,030	
B4_marked	1 (1-3)	432	0,08	0,273	0,013	**0,24**
	2 (3-6)	116	0,17	0,379	0,035	
B5_marked	1 (1-3)	432	0,13	0,336	0,016	0,09
	2 (3-6)	116	0,16	0,372	0,035	
B6_marked	1 (1-3)	432	0,87	0,339	0,016	0,08
	2 (3-6)	116	0,90	0,306	0,028	
B7_marked	1 (1-3)	432	0,09	0,290	0,014	0,05
	2 (3-6)	116	0,08	0,269	0,025	
B8_marked	1 (1-3)	432	0,84	0,362	0,017	0,09
	2 (3-6)	116	0,88	0,327	0,030	
B9_marked	1 (1-3)	432	0,12	0,320	0,015	0,04
	2 (3-6)	116	0,13	0,337	0,031	
Total (B1-9)	1 (1-3)	432	3,2593	0,95728	0,04606	0,20
	2 (3-6)	116	3,4741	1,09116	0,10131	
Factor 1 - Quality Culture	1 (1-3)	431	2,8720	0,42265	0,02036	0,12
	2 (3-6)	116	2,8125	0,48803	0,04531	

Qualification (A9)						
Description		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Effect size**
Factor 2 - Ownership	1 (1-3)	431	3,1677	0,47571	0,02291	**0,27**
	2 (3-6)	116	3,2991	0,49541	0,04600	
Factor 3 - Non-Conformance	1 (1-3)	416	2,7831	0,52694	0,02584	0,06
	2 (3-6)	113	2,7522	0,53108	0,04996	
Factor 4 - Increase	1 (1-3)	415	3,0880	0,58882	0,02890	0,02
	2 (3-6)	111	3,0991	0,53009	0,05031	
Factor 5 - Management	1 (1-3)	422	3,0296	0,61625	0,03000	0,08
	2 (3-6)	114	3,0833	0,70056	0,06561	
Factor 6 - Assurance	1 (1-3)	412	2,6299	0,68314	0,03366	**0,34**
	2 (3-6)	114	2,3991	0,67568	0,06328	
Factor 7 – Training (C)	1 (1-3)	418	2,6236	0,94606	0,04627	0,03
	2 (3-6)	113	2,6504	0,89551	0,08424	

Source: SPSS

ANNEXURES K - T-TEST (STATISTICAL SIGNIFICANCE)

Gender (A3)										
Description		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
B1 marked	Equal variances assumed	1,067	0,302	0,519	600	0,604	0,012	0,024	-0,034	0,059
	Equal variances not assumed			0,506	353,881	0,613	0,012	0,024	-0,035	0,060
B2 marked	Equal variances assumed	6,973	0,008	-1,337	600	0,182	-0,037	0,028	-0,092	0,017
	Equal variances not assumed			-1,274	334,854	0,203	-0,037	0,029	-0,095	0,020
B3 marked	Equal variances assumed	11,853	0,001	-1,740	600	0,082	-0,043	0,025	-0,092	0,006
	Equal variances not assumed			-1,618	316,823	0,107	-0,043	0,027	-0,096	0,009

Gender (A3)										
Description		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
B4 marked	Equal variances assumed	7,546	0,006	-1,389	600	0,165	-0,036	0,026	-0,088	0,015
	Equal variances not assumed			-1,315	329,652	0,190	-0,036	0,028	-0,091	0,018
B5 marked	Equal variances assumed	5,678	0,017	-1,208	600	0,228	-0,036	0,029	-0,094	0,022
	Equal variances not assumed			-1,161	341,618	0,246	-0,036	0,031	-0,096	0,025
B6 marked	Equal variances assumed	35,040	0,000	3,017	600	**0,003**	0,086	0,029	0,030	0,142
	Equal variances not assumed			2,740	300,771	**0,007**	0,086	0,031	0,024	0,148
B7 marked	Equal variances assumed	2,066	0,151	-0,723	600	0,470	-0,018	0,025	-0,066	0,030
	Equal variances			-0,700	347,430	0,484	-0,018	0,025	-0,068	0,032

Gender (A3)										
Description		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
	not assumed									
B8 marked	Equal variances assumed	1,856	0,174	0,688	600	0,492	0,022	0,031	-0,040	0,083
	Equal variances not assumed			0,674	357,476	0,501	0,022	0,032	-0,041	0,084
B9 marked	Equal variances assumed	0,004	0,947	0,033	600	0,974	0,001	0,028	-0,054	0,056
	Equal variances not assumed			0,033	377,234	0,974	0,001	0,028	-0,054	0,056
Total (B1-9)	Equal variances assumed	2,421	0,120	-0,589	600	0,556	-0,04956	0,08419	-0,21491	0,11579
	Equal variances not assumed			-0,573	351,578	0,567	-0,04956	0,08656	-0,21980	0,12068
Factor 1 - Quality Culture	Equal variances assumed	2,464	0,117	-2,705	599	**0,007**	-0,10158	0,03755	-0,17534	-0,02783

Gender (A3)										
Description		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
	Equal variances not assumed			-2,785	402,471	**0,006**	-0,10158	0,03648	-0,17329	-0,02988
Factor 2 - Ownership	Equal variances assumed	0,050	0,823	1,693	599	0,091	0,07100	0,04194	-0,01136	0,15336
	Equal variances not assumed			1,698	376,730	0,090	0,07100	0,04181	-0,01121	0,15321
Factor 3 - Non-Conformance	Equal variances assumed	1,317	0,252	0,131	578	0,896	0,00605	0,04606	-0,08442	0,09652
	Equal variances not assumed			0,135	382,956	0,893	0,00605	0,04494	-0,08232	0,09441
Factor 4 - Increase	Equal variances assumed	0,838	0,360	0,065	574	0,948	0,00332	0,05073	-0,09632	0,10295
	Equal variances not assumed			0,064	344,641	0,949	0,00332	0,05169	-0,09835	0,10499

Gender (A3)										
Description		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
Factor 5 - Management	Equal variances assumed	1,362	0,244	-0,500	589	0,617	-0,02724	0,05443	-0,13414	0,07966
	Equal variances not assumed			-0,530	433,726	0,597	-0,02724	0,05141	-0,12829	0,07381
Factor 6 - Assurance	Equal variances assumed	0,450	0,503	-1,754	575	0,080	-0,10716	0,06109	-0,22715	0,01283
	Equal variances not assumed			-1,786	377,663	0,075	-0,10716	0,06000	-0,22515	0,01082
Factor 7 – Training (C)	Equal variances assumed	0,566	0,452	-2,915	580	**0,004**	-0,23696	0,08128	-0,39660	-0,07731
	Equal variances not assumed			-2,929	372,452	**0,004**	-0,23696	0,08091	-0,39606	-0,07786

Source: SPSS

Departments (A4)										
Description		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
B1 marked	Equal variances assumed	0,700	0,403	0,411	553	0,681	0,017	0,042	-0,065	0,100
	Equal variances not assumed			0,446	55,385	0,657	0,017	0,039	-0,060	0,095
B2 marked	Equal variances assumed	0,280	0,597	-0,261	553	0,794	-0,013	0,050	-0,112	0,086
	Equal variances not assumed			-0,270	54,187	0,788	-0,013	0,049	-0,111	0,084
B3 marked	Equal variances assumed	0,513	0,474	0,364	553	0,716	0,016	0,045	-0,072	0,105
	Equal variances not assumed			0,340	52,134	0,735	0,016	0,048	-0,080	0,113
B4 marked	Equal variances assumed	0,077	0,782	0,140	553	0,889	0,007	0,047	-0,085	0,099

Departments (A4)										
Description		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
	Equal variances not assumed			0,135	52,832	0,893	0,007	0,048	-0,090	0,103
B5 marked	Equal variances assumed	9,002	0,003	1,659	553	0,098	0,088	0,053	-0,016	0,192
	Equal variances not assumed			1,387	50,428	0,172	0,088	0,063	-0,039	0,215
B6 marked	Equal variances assumed	1,731	0,189	-0,683	553	0,495	-0,034	0,050	-0,133	0,064
	Equal variances not assumed			-0,619	51,632	0,539	-0,034	0,055	-0,146	0,077
B7 marked	Equal variances assumed	13,546	0,000	-1,692	553	0,091	-0,075	0,044	-0,161	0,012
	Equal variances not assumed			-2,937	82,564	**0,004**	-0,075	0,025	-0,125	-0,024

Departments (A4)										
Description		**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**
B8 marked	Equal variances assumed	0,498	0,481	0,345	553	0,730	0,019	0,055	-0,089	0,126
	Equal variances not assumed			0,359	54,324	0,721	0,019	0,053	-0,087	0,124
B9 marked	Equal variances assumed	2,109	0,147	-0,698	553	**0,485**	-0,035	0,050	-0,133	0,063
	Equal variances not assumed			-0,784	56,311	**0,436**	-0,035	0,044	-0,124	0,054
Total (B1- 9)	Equal variances assumed	0,006	0,937	-0,064	553	0,949	-0,00999	0,15568	-0,31580	0,29581
	Equal variances not assumed			-0,069	54,981	0,946	-0,00999	0,14571	-0,30200	0,28201
Factor 1 - Quality Culture	Equal variances assumed	1,116	0,291	-0,400	552	0,689	-0,02684	0,06707	-0,15857	0,10490

Departments (A4)										
Description		**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**
	Equal variances not assumed			-0,367	51,832	0,715	-0,02684	0,07317	-0,17368	0,12001
Factor 2 - Ownership	Equal variances assumed	1,785	0,182	2,327	552	**0,020**	0,16947	0,07284	0,02640	0,31254
	Equal variances not assumed			2,154	52,005	**0,036**	0,16947	0,07867	0,01161	0,32733
Factor 3 - Non-Conformance	Equal variances assumed	0,131	0,718	0,611	535	0,542	0,04899	0,08023	-0,10861	0,20659
	Equal variances not assumed			0,675	56,290	0,503	0,04899	0,07262	-0,09646	0,19444
Factor 4 - Increase	Equal variances assumed	0,613	0,434	-0,324	531	0,746	-0,02962	0,09139	-0,20915	0,14992
	Equal variances not assumed			-0,366	52,349	0,716	-0,02962	0,08099	-0,19211	0,13288

Departments (A4)										
Description		**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**
Factor 5 - Management	Equal variances assumed	1,510	0,220	1,311	543	0,190	0,12743	0,09718	-0,06346	0,31832
	Equal variances not assumed			1,240	52,520	0,220	0,12743	0,10274	-0,07868	0,33353
Factor 6 - Assurance	Equal variances assumed	0,098	0,755	-2,210	531	**0,028**	-0,23679	0,10713	-0,44724	-0,02634
	Equal variances not assumed			-2,139	53,160	**0,037**	-0,23679	0,11070	-0,45881	-0,01476
Factor 7 – Training (C)	Equal variances assumed	1,676	0,196	2,123	535	**0,034**	0,30101	0,14178	0,02249	0,57953
	Equal variances not assumed			2,261	55,286	**0,028**	0,30101	0,13314	0,03421	0,56780

Source: SPSS

Status of Employment (A6)										
Description		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
B1 marked	Equal variances assumed	3,277	0,071	0,900	443	0,369	0,023	0,026	-0,028	0,074
	Equal variances not assumed			0,910	442,748	0,364	0,023	0,026	-0,027	0,074
B2 marked	Equal variances assumed	0,162	0,687	-0,201	443	0,841	-0,006	0,029	-0,063	0,052
	Equal variances not assumed			-0,202	435,201	0,840	-0,006	0,029	-0,063	0,052
B3 marked	Equal variances assumed	0,481	0,488	0,347	443	0,729	0,009	0,027	-0,044	0,062
	Equal variances not assumed			0,346	424,935	0,730	0,009	0,027	-0,044	0,063
B4 marked	Equal variances assumed	0,638	0,425	0,400	443	0,690	0,011	0,029	-0,045	0,068

Status of Employment (A6)										
Description		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
	Equal variances not assumed			0,398	424,576	0,691	0,011	0,029	-0,045	0,068
B5 marked	Equal variances assumed	0,000	0,990	-0,006	443	0,995	0,000	0,033	-0,066	0,065
	Equal variances not assumed			-0,006	432,222	0,995	0,000	0,033	-0,066	0,065
B6 marked	Equal variances assumed	0,319	0,572	0,282	443	0,778	0,009	0,031	-0,052	0,069
	Equal variances not assumed			0,283	436,040	0,777	0,009	0,031	-0,051	0,069
B7 marked	Equal variances assumed	0,382	0,537	0,309	443	0,757	0,008	0,026	-0,042	0,058
	Equal variances not assumed			0,308	425,284	0,758	0,008	0,026	-0,043	0,059

Status of Employment (A6)										
Description		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
B8 marked	Equal variances assumed	0,322	0,571	-0,284	443	0,777	-0,010	0,034	-0,076	0,057
	Equal variances not assumed			-0,283	428,280	0,777	-0,010	0,034	-0,076	0,057
B9 marked	Equal variances assumed	3,087	0,080	-0,874	443	0,383	-0,027	0,031	-0,087	0,033
	Equal variances not assumed			-0,881	441,537	0,379	-0,027	0,030	-0,086	0,033
Total (B1-9)	Equal variances assumed	2,406	0,122	0,192	443	0,848	0,01839	0,09597	-0,17023	0,20702
	Equal variances not assumed			0,189	402,096	0,850	0,01839	0,09722	-0,17272	0,20951
Factor 1 - Quality Culture	Equal variances assumed	2,064	0,152	-2,507	442	**0,013**	-0,10260	0,04092	-0,18301	-0,02218

Status of Employment (A6)										
Description		**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**
	Equal variances not assumed			-2,491	418,079	**0,013**	-0,10260	0,04119	-0,18356	-0,02164
Factor 2 - Ownership	Equal variances assumed	1,002	0,317	1,370	442	0,171	0,06215	0,04538	-0,02703	0,15134
	Equal variances not assumed			1,365	425,164	0,173	0,06215	0,04554	-0,02735	0,15166
Factor 3 - Non-Conformance	Equal variances assumed	0,002	0,966	-2,566	428	**0,011**	-0,12504	0,04874	-0,22084	-0,02925
	Equal variances not assumed			-2,578	424,993	**0,010**	-0,12504	0,04850	-0,22037	-0,02971
Factor 4 - Increase	Equal variances assumed	1,547	0,214	-0,116	424	0,907	-0,00669	0,05748	-0,11967	0,10628
	Equal variances not assumed			-0,117	422,193	0,907	-0,00669	0,05697	-0,11868	0,10529

Status of Employment (A6)										
Description		**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**
Factor 5 - Management	Equal variances assumed	0,173	0,678	-0,893	435	0,372	-0,05277	0,05907	-0,16886	0,06332
	Equal variances not assumed			-0,889	416,047	0,375	-0,05277	0,05937	-0,16946	0,06393
Factor 6 - Assurance	Equal variances assumed	0,294	0,588	-4,204	427	**0,000**	-0,27154	0,06459	-0,39850	-0,14458
	Equal variances not assumed			-4,192	414,073	**0,000**	-0,27154	0,06477	-0,39886	-0,14421
Factor 7 – Training (C)	Equal variances assumed	1,467	0,226	0,122	433	0,903	0,01065	0,08705	-0,16045	0,18174
	Equal variances not assumed			0,123	429,747	0,902	0,01065	0,08653	-0,15943	0,18072

Source: SPSS

Qualification (A9)										
Description		**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**
B1 marked	Equal variances assumed	0,142	0,707	-0,187	546	0,851	-0,005	0,027	-0,059	0,048
	Equal variances not assumed			-0,191	185,866	0,849	-0,005	0,027	-0,058	0,048
B2 marked	Equal variances assumed	1,040	0,308	0,503	546	0,615	0,017	0,034	-0,049	0,083
	Equal variances not assumed			0,522	191,002	0,602	0,017	0,032	-0,047	0,081
B3 marked	Equal variances assumed	6,751	0,010	-1,329	546	0,184	-0,040	0,030	-0,098	0,019
	Equal variances not assumed			-1,199	160,584	0,232	-0,040	0,033	-0,105	0,026
B4 marked	Equal variances assumed	31,318	0,000	-2,926	546	**0,004**	-0,091	0,031	-0,153	-0,030

Qualification (A9)										
Description		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
	Equal variances not assumed			-2,431	148,484	**0,016**	-0,091	0,038	-0,166	-0,017
B5 marked	Equal variances assumed	3,430	0,065	-0,950	546	0,343	-0,034	0,036	-0,105	0,037
	Equal variances not assumed			-0,896	168,931	0,371	-0,034	0,038	-0,109	0,041
B6 marked	Equal variances assumed	2,824	0,093	-0,820	546	0,412	-0,028	0,035	-0,097	0,040
	Equal variances not assumed			-0,870	197,549	0,385	-0,028	0,033	-0,093	0,036
B7 marked	Equal variances assumed	1,032	0,310	0,502	546	0,616	0,015	0,030	-0,044	0,074
	Equal variances not assumed			0,525	193,271	0,600	0,015	0,029	-0,041	0,071

Qualification (A9)										
Description		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
B8 marked	Equal variances assumed	3,644	0,057	-0,926	546	0,355	-0,034	0,037	-0,107	0,039
	Equal variances not assumed			-0,982	197,538	0,327	-0,034	0,035	-0,103	0,035
B9 marked	Equal variances assumed	0,630	0,428	-0,401	546	0,689	-0,014	0,034	-0,080	0,053
	Equal variances not assumed			-0,389	174,806	0,698	-0,014	0,035	-0,082	0,055
Total (B1-9)	Equal variances assumed	5,438	0,020	-2,082	546	**0,038**	-0,21488	0,10321	-0,41762	-0,01214
	Equal variances not assumed			-1,931	165,559	0,055	-0,21488	0,11129	-0,43461	0,00485
Factor 1 - Quality Culture	Equal variances assumed	5,195	0,023	1,301	545	0,194	0,05949	0,04574	-0,03036	0,14933

Qualification (A9)										
Description		**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**
	Equal variances not assumed			1,197	164,323	0,233	0,05949	0,04968	-0,03860	0,15757
Factor 2 - Ownership	Equal variances assumed	2,896	0,089	-2,617	545	**0,009**	-0,13139	0,05020	-0,23000	-0,03278
	Equal variances not assumed			-2,557	176,255	**0,011**	-0,13139	0,05139	-0,23281	-0,02997
Factor 3 - Non-Conformance	Equal variances assumed	0,488	0,485	0,551	527	0,582	0,03084	0,05599	-0,07916	0,14084
	Equal variances not assumed			0,548	176,504	0,584	0,03084	0,05625	-0,08016	0,14184
Factor 4 - Increase	Equal variances assumed	0,311	0,577	-0,181	524	0,857	-0,01115	0,06166	-0,13227	0,10998
	Equal variances not assumed			-0,192	189,113	0,848	-0,01115	0,05803	-0,12561	0,10331

Qualification (A9)										
Description		**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**
Factor 5 - Management	Equal variances assumed	4,479	0,035	-0,801	534	0,423	-0,05371	0,06703	-0,18539	0,07796
	Equal variances not assumed			-0,744	163,264	0,458	-0,05371	0,07215	-0,19617	0,08875
Factor 6 - Assurance	Equal variances assumed	0,020	0,888	3,199	524	**0,001**	0,23073	0,07212	0,08904	0,37242
	Equal variances not assumed			3,219	181,958	**0,002**	0,23073	0,07168	0,08931	0,37216
Factor 7 – Training (C)	Equal variances assumed	1,355	0,245	-0,271	529	0,787	-0,02684	0,09920	-0,22171	0,16803
	Equal variances not assumed			-0,279	185,250	0,780	-0,02684	0,09611	-0,21646	0,16278

Source: SPSS

ANNEXURES L - DESCRIPTIVES (PRACTICAL SIGNIFICANCE)

A1_recode - **Age**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 29 with…**	**<= 39 with…**	**<= 49 with…**	**<= 59 with…**
B1 marked	<= 29	181	0,92	0,268	0,020	0,88	0,96	0	1				
	<= 39	159	0,90	0,302	0,024	0,85	0,95	0	1	0,08			
	<= 49	87	0,97	0,184	0,020	0,93	1,00	0	1	0,16	**0,22**		
	<= 59	86	0,87	0,336	0,036	0,80	0,94	0	1	0,15	0,08	**0,28**	
	60+	22	0,95	0,213	0,045	0,86	1,05	0	1	0,12	0,18	0,05	**0,25**
	Total	535	0,92	0,278	0,012	0,89	0,94	0	1				
B2 marked	<= 29	181	0,09	0,285	0,021	0,05	0,13	0	1				
	<= 39	159	0,15	0,359	0,028	0,09	0,21	0	1	0,17			
	<= 49	87	0,13	0,334	0,036	0,06	0,20	0	1	0,11	0,07		
	<= 59	86	0,13	0,336	0,036	0,06	0,20	0	1	0,12	0,06	0,00	
	60+	22	0,09	0,294	0,063	-0,04	0,22	0	1	0,01	0,17	0,11	0,11
	Total	535	0,12	0,325	0,014	0,09	0,15	0	1				
B3 marked	<= 29	181	0,08	0,268	0,020	0,04	0,12	0	1				
	<= 39	159	0,11	0,310	0,025	0,06	0,16	0	1	0,10			
	<= 49	87	0,09	0,291	0,031	0,03	0,15	0	1	0,05	0,05		
	<= 59	86	0,09	0,292	0,032	0,03	0,16	0	1	0,05	0,04	0,00	
	60+	22	0,14	0,351	0,075	-0,02	0,29	0	1	0,17	0,08	0,13	0,12
	Total	535	0,09	0,291	0,013	0,07	0,12	0	1				

A1_recode - **Age**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 29 with…**	**<= 39 with…**	**<= 49 with…**	**<= 59 with…**
B4 marked	<= 29	181	0,09	0,293	0,022	0,05	0,14	0	1				
	<= 39	159	0,14	0,353	0,028	0,09	0,20	0	1	0,14			
	<= 49	87	0,08	0,274	0,029	0,02	0,14	0	1	0,05	0,18		
	<= 59	86	0,08	0,275	0,030	0,02	0,14	0	1	0,04	0,18	0,00	
	60+	22	0,14	0,351	0,075	-0,02	0,29	0	1	0,12	0,02	0,16	0,16
	Total	535	0,11	0,309	0,013	0,08	0,13	0	1				
B5 marked	<= 29	181	0,11	0,314	0,023	0,06	0,16	0	1				
	<= 39	159	0,21	0,407	0,032	0,14	0,27	0	1	**0,24**			
	<= 49	87	0,11	0,321	0,034	0,05	0,18	0	1	0,01	**0,23**		
	<= 59	86	0,09	0,292	0,032	0,03	0,16	0	1	0,06	**0,28**	0,07	
	60+	22	0,18	0,395	0,084	0,01	0,36	0	1	0,18	0,06	0,17	**0,22**
	Total	535	0,14	0,348	0,015	0,11	0,17	0	1				
B6 marked	<= 29	181	0,89	0,314	0,023	0,84	0,94	0	1				
	<= 39	159	0,83	0,377	0,030	0,77	0,89	0	1	0,16			
	<= 49	87	0,91	0,291	0,031	0,85	0,97	0	1	0,06	**0,21**		
	<= 59	86	0,88	0,322	0,035	0,81	0,95	0	1	0,02	0,14	0,08	
	60+	22	0,91	0,294	0,063	0,78	1,04	0	1	0,06	**0,21**	0,00	0,08
	Total	535	0,87	0,331	0,014	0,85	0,90	0	1				
B7 marked	<= 29	181	0,06	0,240	0,018	0,03	0,10	0	1				
	<= 39	159	0,13	0,340	0,027	0,08	0,19	0	1	**0,21**			
	<= 49	87	0,11	0,321	0,034	0,05	0,18	0	1	0,17	0,05		
	<= 59	86	0,06	0,235	0,025	0,01	0,11	0	1	0,01	**0,22**	0,18	

A1_recode - **Age**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 29 with…**	**<= 39 with…**	**<= 49 with…**	**<= 59 with…**
	60+	22	0,14	0,351	0,075	-0,02	0,29	0	1	**0,22**	0,01	0,06	**0,22**
	Total	535	0,09	0,291	0,013	0,07	0,12	0	1				
B8 marked	<= 29	181	0,91	0,293	0,022	0,86	0,95	0	1				
	<= 39	159	0,80	0,402	0,032	0,74	0,86	0	1	**0,27**			
	<= 49	87	0,79	0,407	0,044	0,71	0,88	0	1	**0,28**	0,01		
	<= 59	86	0,84	0,371	0,040	0,76	0,92	0	1	0,19	0,10	0,11	
	60+	22	0,95	0,213	0,045	0,86	1,05	0	1	0,17	**0,39**	**0,40**	**0,32**
	Total	535	0,85	0,361	0,016	0,82	0,88	0	1				
B9 marked	<= 29	181	0,11	0,314	0,023	0,06	0,16	0	1				
	<= 39	159	0,17	0,377	0,030	0,11	0,23	0	1	0,16			
	<= 49	87	0,08	0,274	0,029	0,02	0,14	0	1	0,10	**0,24**		
	<= 59	86	0,07	0,256	0,028	0,01	0,12	0	1	0,13	**0,27**	0,04	
	60+	22	0,09	0,294	0,063	-0,04	0,22	0	1	0,06	**0,21**	0,04	0,07
	Total	535	0,12	0,320	0,014	0,09	0,14	0	1				
Total (B1-9)	<= 29	181	3,2597	0,85243	0,06336	3,1346	3,3847	0,00	7,00				
	<= 39	159	3,4403	1,07085	0,08492	3,2725	3,6080	0,00	7,00	0,17			
	<= 49	87	3,2759	0,92371	0,09903	3,0790	3,4727	1,00	7,00	0,02	0,15		
	<= 59	86	3,1163	1,04508	0,11269	2,8922	3,3403	0,00	7,00	0,14	**0,30**	0,15	
	60+	22	3,5909	0,95912	0,20449	3,1657	4,0162	2,00	5,00	**0,35**	0,14	**0,33**	**0,45**
	Total	535	3,3065	0,97317	0,04207	3,2239	3,3892	0,00	7,00				

A1_recode - **Age**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 29 with…**	**<= 39 with…**	**<= 49 with…**	**<= 59 with…**
Factor 1 - Quality Culture	<= 29	180	2,9062	0,37912	0,02826	2,8505	2,9620	2,00	4,00				
	<= 39	159	2,7948	0,44731	0,03547	2,7248	2,8649	1,25	4,00	**0,25**			
	<= 49	87	2,8627	0,43636	0,04678	2,7697	2,9557	1,67	4,00	0,10	0,15		
	<= 59	86	2,9044	0,48273	0,05205	2,8009	3,0079	1,58	4,00	0,00	**0,23**	0,09	
	60+	22	2,9072	0,40334	0,08599	2,7284	3,0860	1,92	3,75	0,00	**0,25**	0,10	0,01
	Total	534	2,8657	0,42924	0,01857	2,8292	2,9022	1,25	4,00				
Factor 2 - Ownership	<= 29	180	3,2038	0,48105	0,03586	3,1330	3,2746	1,80	4,00				
	<= 39	159	3,0933	0,46894	0,03719	3,0198	3,1667	1,80	4,00	**0,23**			
	<= 49	87	3,2511	0,49339	0,05290	3,1460	3,3563	2,20	4,00	0,10	**0,32**		
	<= 59	86	3,2831	0,47171	0,05087	3,1820	3,3843	2,00	4,00	0,16	**0,40**	0,06	
	60+	22	3,0159	0,44598	0,09508	2,8182	3,2136	2,00	4,00	**0,39**	0,17	**0,48**	**0,57**
	Total	534	3,1836	0,48122	0,02082	3,1427	3,2246	1,80	4,00				
Factor 3 - Non-Conformance	<= 29	177	2,8517	0,48973	0,03681	2,7790	2,9243	1,00	4,00				
	<= 39	151	2,7671	0,50308	0,04094	2,6862	2,8480	1,00	4,00	0,17			
	<= 49	82	2,7541	0,56153	0,06201	2,6307	2,8774	1,00	4,00	0,17	0,02		
	<= 59	85	2,7382	0,54466	0,05908	2,6208	2,8557	1,25	4,00	**0,21**	0,05	0,03	
	60+	22	2,6477	0,48587	0,10359	2,4323	2,8631	1,25	3,25	**0,42**	**0,24**	0,19	0,17
	Total	517	2,7842	0,51547	0,02267	2,7396	2,8287	1,00	4,00				
Factor 4 - Increase	<= 29	175	3,0800	0,58171	0,04397	2,9932	3,1668	1,00	4,00				
	<= 39	152	3,0132	0,59786	0,04849	2,9173	3,1090	1,00	4,00	0,11			
	<= 49	82	3,1646	0,53895	0,05952	3,0462	3,2831	2,00	4,00	0,15	**0,25**		
	<= 59	83	3,1265	0,50512	0,05544	3,0162	3,2368	2,00	4,00	0,08	0,19	0,07	

A1_recode - **Age**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 29 with…**	**<= 39 with…**	**<= 49 with…**	**<= 59 with…**
	60+	21	2,9762	0,53563	0,11689	2,7324	3,2200	2,00	4,00	0,18	0,06	**0,35**	**0,28**
	Total	513	3,0770	0,56718	0,02504	3,0278	3,1262	1,00	4,00				
Factor 5 - Management	<= 29	176	3,1080	0,61620	0,04645	3,0163	3,1996	1,00	4,00				
	<= 39	157	2,9395	0,58930	0,04703	2,8466	3,0324	1,00	4,00	**0,27**			
	<= 49	85	3,0941	0,64316	0,06976	2,9554	3,2328	1,50	4,00	0,02	**0,24**		
	<= 59	84	3,0417	0,65495	0,07146	2,8995	3,1838	1,00	4,00	0,10	0,16	0,08	
	60+	22	2,8864	0,55489	0,11830	2,6403	3,1324	1,50	4,00	**0,36**	0,09	**0,32**	**0,24**
	Total	524	3,0353	0,61931	0,02705	2,9822	3,0885	1,00	4,00				
Factor 6 - Assurance	<= 29	175	2,5657	0,66087	0,04996	2,4671	2,6643	1,00	4,00				
	<= 39	151	2,5497	0,66019	0,05373	2,4435	2,6558	1,00	4,00	0,02			
	<= 49	84	2,5774	0,69635	0,07598	2,4263	2,7285	1,00	4,00	0,02	0,04		
	<= 59	84	2,6310	0,73681	0,08039	2,4711	2,7908	1,00	4,00	0,09	0,11	0,07	
	60+	22	2,7955	0,64842	0,13824	2,5080	3,0829	2,00	4,00	**0,35**	**0,37**	**0,31**	**0,22**
	Total	516	2,5833	0,67826	0,02986	2,5247	2,6420	1,00	4,00				
Factor 7 – Training (C)	<= 29	177	2,7020	0,86960	0,06536	2,5730	2,8310	1,00	4,00				
	<= 39	155	2,4398	0,95877	0,07701	2,2877	2,5919	1,00	4,00	**0,27**			
	<= 49	83	2,7851	0,93452	0,10258	2,5811	2,9892	1,00	4,00	0,09	**0,36**		
	<= 59	84	2,7411	0,81290	0,08870	2,5647	2,9175	1,00	4,00	0,04	**0,31**	0,05	
	60+	21	2,4762	0,99970	0,21815	2,0211	2,9312	1,00	4,00	**0,23**	0,04	**0,31**	**0,26**
	Total	520	2,6343	0,91144	0,03997	2,5558	2,7128	1,00	4,00				

Source: SPSS

A2_recode **Years experience**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 5 with…**	**<= 10 with…**	**<= 20 with…**	**<= 30 with…**
B1_marked	<= 5	191	0,94	0,243	0,018	0,90	0,97	0	1				
	<= 10	69	0,86	0,355	0,043	0,77	0,94	0	1	**0,23**			
	<= 20	54	0,94	0,231	0,031	0,88	1,01	0	1	0,03	**0,25**		
	<= 30	51	0,90	0,300	0,042	0,82	0,99	0	1	0,12	0,13	0,14	
	31+	29	0,90	0,310	0,058	0,78	1,01	0	1	0,13	0,12	0,15	0,02
	Total	394	0,92	0,277	0,014	0,89	0,94	0	1				
B2_marked	<= 5	191	0,09	0,293	0,021	0,05	0,14	0	1				
	<= 10	69	0,19	0,394	0,047	0,09	0,28	0	1	**0,24**			
	<= 20	54	0,09	0,293	0,040	0,01	0,17	0	1	0,01	**0,24**		
	<= 30	51	0,18	0,385	0,054	0,07	0,28	0	1	**0,21**	0,03	**0,22**	
	31+	29	0,14	0,351	0,065	0,00	0,27	0	1	0,12	0,13	0,13	0,10
	Total	394	0,12	0,330	0,017	0,09	0,16	0	1				
B3_marked	<= 5	191	0,07	0,253	0,018	0,03	0,10	0	1				
	<= 10	69	0,12	0,323	0,039	0,04	0,19	0	1	0,15			
	<= 20	54	0,06	0,231	0,031	-0,01	0,12	0	1	0,05	0,19		
	<= 30	51	0,16	0,367	0,051	0,05	0,26	0	1	**0,24**	0,11	**0,28**	
	31+	29	0,17	0,384	0,071	0,03	0,32	0	1	**0,27**	0,15	**0,30**	0,04
	Total	394	0,09	0,292	0,015	0,06	0,12	0	1				

A2_recode **Years experience**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 5 with…**	**<= 10 with…**	**<= 20 with…**	**<= 30 with…**
B4_marked	<= 5	191	0,09	0,293	0,021	0,05	0,14	0	1				
	<= 10	69	0,22	0,415	0,050	0,12	0,32	0	1	**0,30**			
	<= 20	54	0,04	0,191	0,026	-0,01	0,09	0	1	0,20	**0,43**		
	<= 30	51	0,10	0,300	0,042	0,01	0,18	0	1	0,01	**0,29**	0,20	
	31+	29	0,10	0,310	0,058	-0,01	0,22	0	1	0,03	**0,27**	**0,21**	0,02
	Total	394	0,11	0,312	0,016	0,08	0,14	0	1				
B5_marked	<= 5	191	0,11	0,314	0,023	0,07	0,15	0	1				
	<= 10	69	0,20	0,405	0,049	0,11	0,30	0	1	**0,23**			
	<= 20	54	0,11	0,317	0,043	0,02	0,20	0	1	0,00	**0,23**		
	<= 30	51	0,12	0,325	0,046	0,03	0,21	0	1	0,02	**0,21**	0,02	
	31+	29	0,17	0,384	0,071	0,03	0,32	0	1	0,16	0,08	0,16	0,14
	Total	394	0,13	0,339	0,017	0,10	0,17	0	1				
B6_marked	<= 5	191	0,88	0,320	0,023	0,84	0,93	0	1				
	<= 10	69	0,83	0,382	0,046	0,73	0,92	0	1	0,15			
	<= 20	54	0,87	0,339	0,046	0,78	0,96	0	1	0,04	0,12		
	<= 30	51	0,90	0,300	0,042	0,82	0,99	0	1	0,05	0,20	0,09	
	31+	29	0,86	0,351	0,065	0,73	1,00	0	1	0,06	0,09	0,02	0,11
	Total	394	0,87	0,333	0,017	0,84	0,91	0	1				

A2_recode **Years experience**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 5 with…**	**<= 10 with…**	**<= 20 with…**	**<= 30 with…**
B7_marked	<= 5	191	0,06	0,243	0,018	0,03	0,10	0	1				
	<= 10	69	0,12	0,323	0,039	0,04	0,19	0	1	0,16			
	<= 20	54	0,09	0,293	0,040	0,01	0,17	0	1	0,10	0,07		
	<= 30	51	0,12	0,325	0,046	0,03	0,21	0	1	0,17	0,01	0,08	
	31+	29	0,07	0,258	0,048	-0,03	0,17	0	1	0,02	0,15	0,08	0,15
	Total	394	0,08	0,277	0,014	0,06	0,11	0	1				
B8_marked	<= 5	191	0,85	0,355	0,026	0,80	0,90	0	1				
	<= 10	69	0,74	0,442	0,053	0,63	0,85	0	1	**0,26**			
	<= 20	54	0,83	0,376	0,051	0,73	0,94	0	1	0,05	**0,21**		
	<= 30	51	0,88	0,325	0,046	0,79	0,97	0	1	0,08	**0,32**	0,13	
	31+	29	0,83	0,384	0,071	0,68	0,97	0	1	0,07	0,20	0,01	0,14
	Total	394	0,83	0,374	0,019	0,80	0,87	0	1				
B9_marked	<= 5	191	0,14	0,349	0,025	0,09	0,19	0	1				
	<= 10	69	0,12	0,323	0,039	0,04	0,19	0	1	0,07			
	<= 20	54	0,06	0,231	0,031	-0,01	0,12	0	1	**0,25**	0,19		
	<= 30	51	0,08	0,272	0,038	0,00	0,15	0	1	0,18	0,12	0,08	
	31+	29	0,17	0,384	0,071	0,03	0,32	0	1	0,08	0,15	**0,30**	**0,24**
	Total	394	0,12	0,325	0,016	0,09	0,15	0	1				

A2_recode **Years experience**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 5 with…**	**<= 10 with…**	**<= 20 with…**	**<= 30 with…**
Total (B1-9)	<= 5	191	3,2461	0,91028	0,06587	3,1162	3,3760	0,00	6,00				
	<= 10	69	3,3768	1,07240	0,12910	3,1192	3,6344	1,00	6,00	0,12			
	<= 20	54	3,0926	0,85271	0,11604	2,8598	3,3253	1,00	7,00	0,17	**0,27**		
	<= 30	51	3,4314	1,28460	0,17988	3,0701	3,7927	1,00	9,00	0,14	0,04	**0,26**	
	31+	29	3,4138	1,32334	0,24574	2,9104	3,9172	1,00	6,00	0,13	0,03	**0,24**	0,01
	Total	394	3,2843	1,02160	0,05147	3,1831	3,3855	0,00	9,00				
Factor 1 - Quality Culture	<= 5	190	2,8519	0,40298	0,02923	2,7942	2,9096	1,67	4,00				
	<= 10	69	2,7205	0,51626	0,06215	2,5964	2,8445	1,25	3,91	**0,25**			
	<= 20	54	2,8760	0,44732	0,06087	2,7539	2,9981	1,67	3,75	0,05	**0,30**		
	<= 30	51	2,8270	0,46541	0,06517	2,6961	2,9579	1,92	4,00	0,05	**0,21**	0,11	
	31+	29	2,8117	0,35181	0,06533	2,6778	2,9455	1,58	3,42	0,10	0,18	0,14	0,03
	Total	393	2,8259	0,43669	0,02203	2,7826	2,8692	1,25	4,00				
Factor 2 - Ownership	<= 5	190	3,1852	0,49896	0,03620	3,1138	3,2566	1,80	4,00				
	<= 10	69	3,1341	0,55938	0,06734	2,9997	3,2684	2,00	4,00	0,09			
	<= 20	54	3,2611	0,50223	0,06834	3,1240	3,3982	2,00	4,00	0,15	**0,23**		
	<= 30	51	3,1755	0,45026	0,06305	3,0489	3,3021	2,20	4,00	0,02	0,07	0,17	
	31+	29	3,1379	0,41440	0,07695	2,9803	3,2956	2,40	4,00	0,09	0,01	**0,25**	0,08
	Total	393	3,1819	0,49796	0,02512	3,1325	3,2313	1,80	4,00				

A2_recode **Years experience**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 5 with…**	**<= 10 with…**	**<= 20 with…**	**<= 30 with…**
Factor 3 - Non-Conformance	<= 5	182	2,8219	0,46705	0,03462	2,7536	2,8902	1,00	4,00				
	<= 10	68	2,7047	0,60324	0,07315	2,5586	2,8507	1,00	3,75	0,19			
	<= 20	53	2,6415	0,40284	0,05533	2,5305	2,7525	1,50	3,50	**0,39**	0,10		
	<= 30	51	2,8023	0,56000	0,07842	2,6448	2,9598	1,25	4,00	0,03	0,16	**0,29**	
	31+	29	2,6408	0,40157	0,07457	2,4881	2,7936	2,00	3,25	**0,39**	0,11	0,00	**0,29**
	Total	383	2,7598	0,49777	0,02543	2,7098	2,8098	1,00	4,00				
Factor 4 - Increase	<= 5	183	3,1120	0,56429	0,04171	3,0297	3,1943	1,00	4,00				
	<= 10	69	2,9203	0,67858	0,08169	2,7573	3,0833	1,00	4,00	**0,28**			
	<= 20	53	3,1321	0,48189	0,06619	2,9992	3,2649	2,00	4,00	0,04	**0,31**		
	<= 30	49	3,1735	0,49530	0,07076	3,0312	3,3157	2,00	4,00	0,11	**0,37**	0,08	
	31+	27	3,0926	0,46071	0,08866	2,9103	3,2748	2,00	4,00	0,03	**0,25**	0,08	0,16
	Total	381	3,0866	0,56462	0,02893	3,0297	3,1435	1,00	4,00				
Factor 5 - Management	<= 5	184	2,9592	0,67930	0,05008	2,8604	3,0580	1,00	4,00				
	<= 10	69	3,0652	0,65256	0,07856	2,9085	3,2220	1,00	4,00	0,16			
	<= 20	54	3,0370	0,57340	0,07803	2,8805	3,1935	2,00	4,00	0,11	0,04		
	<= 30	51	2,9510	0,75667	0,10595	2,7382	3,1638	1,00	4,00	0,01	0,15	0,11	
	31+	29	2,7931	0,54309	0,10085	2,5865	2,9997	2,00	4,00	**0,24**	**0,42**	**0,43**	**0,21**
	Total	387	2,9755	0,66269	0,03369	2,9092	3,0417	1,00	4,00				

A2_recode **Years experience**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**			
						Lower Bound	Upper Bound			**<= 5 with…**	**<= 10 with…**	**<= 20 with…**	**<= 30 with…**
Factor 6 - Assurance	<= 5	181	2,5387	0,67177	0,04993	2,4401	2,6372	1,00	4,00				
	<= 10	68	2,4338	0,77221	0,09364	2,2469	2,6207	1,00	4,00	0,14			
	<= 20	53	2,5094	0,63162	0,08676	2,3353	2,6835	1,00	4,00	0,04	0,10		
	<= 30	51	2,5686	0,76824	0,10758	2,3526	2,7847	1,00	4,00	0,04	0,17	0,08	
	31+	29	2,5862	0,61338	0,11390	2,3529	2,8195	2,00	4,00	0,07	0,20	0,12	0,02
	Total	382	2,5236	0,69265	0,03544	2,4539	2,5932	1,00	4,00				
Factor 7 – Training (C)	<= 5	185	2,6342	0,92987	0,06837	2,4994	2,7691	1,00	4,00				
	<= 10	68	2,4669	0,86484	0,10488	2,2576	2,6762	1,00	4,00	0,18			
	<= 20	53	2,5770	0,95685	0,13143	2,3133	2,8408	1,00	4,00	0,06	0,12		
	<= 30	49	2,6446	0,84107	0,12015	2,4030	2,8861	1,00	4,00	0,01	**0,21**	0,07	
	31+	29	2,8276	0,80207	0,14894	2,5225	3,1327	1,00	4,00	**0,21**	**0,42**	**0,26**	**0,22**
	Total	384	2,6126	0,90224	0,04604	2,5221	2,7032	1,00	4,00				

Source: SPSS

A4 - **Department**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**		
						Lower Bound	Upper Bound			**1 with…**	**2 with…**	**3 with…**
B1_marked	1	420	0,92	0,273	0,013	0,89	0,95	0	1			
	2	55	0,96	0,189	0,025	0,91	1,01	0	1	0,16		
	3	46	0,93	0,250	0,037	0,86	1,01	0	1	0,06	0,12	
	4	34	0,82	0,387	0,066	0,69	0,96	0	1	**0,25**	**0,36**	**0,29**
	Total	555	0,92	0,273	0,012	0,90	0,94	0	1			
B2_marked	1	420	0,12	0,321	0,016	0,09	0,15	0	1			
	2	55	0,15	0,356	0,048	0,05	0,24	0	1	0,08		
	3	46	0,11	0,315	0,046	0,02	0,20	0	1	0,02	0,10	
	4	34	0,15	0,359	0,062	0,02	0,27	0	1	0,08	0,00	0,11
	Total	555	0,12	0,326	0,014	0,09	0,15	0	1			
B3_marked	1	420	0,09	0,291	0,014	0,06	0,12	0	1			
	2	55	0,05	0,229	0,031	-0,01	0,12	0	1	0,13		
	3	46	0,11	0,315	0,046	0,02	0,20	0	1	0,05	0,17	
	4	34	0,15	0,359	0,062	0,02	0,27	0	1	0,15	**0,26**	0,11
	Total	555	0,09	0,292	0,012	0,07	0,12	0	1			
B4_marked	1	420	0,10	0,297	0,014	0,07	0,13	0	1			
	2	55	0,13	0,336	0,045	0,04	0,22	0	1	0,09		
	3	46	0,11	0,315	0,046	0,02	0,20	0	1	0,04	0,06	
	4	34	0,12	0,327	0,056	0,00	0,23	0	1	0,06	0,03	0,03
	Total	555	0,10	0,304	0,013	0,08	0,13	0	1			
B5_marked	1	420	0,13	0,338	0,016	0,10	0,16	0	1			
	2	55	0,11	0,315	0,042	0,02	0,19	0	1	0,06		
	3	46	0,22	0,417	0,061	0,09	0,34	0	1	**0,21**	**0,26**	

A4 - **Department**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**		
						Lower Bound	Upper Bound			**1 with…**	**2 with…**	**3 with…**
	4	34	0,15	0,359	0,062	0,02	0,27	0	1	0,04	0,11	0,17
	Total	555	0,14	0,344	0,015	0,11	0,17	0	1			
B6_marked	1	420	0,88	0,330	0,016	0,84	0,91	0	1			
	2	55	0,95	0,229	0,031	0,88	1,01	0	1	**0,21**		
	3	46	0,85	0,363	0,054	0,74	0,96	0	1	0,08	**0,27**	
	4	34	0,85	0,359	0,062	0,73	0,98	0	1	0,06	**0,26**	0,01
	Total	555	0,88	0,326	0,014	0,85	0,91	0	1			
B7_marked	1	420	0,10	0,300	0,015	0,07	0,13	0	1			
	2	55	0,09	0,290	0,039	0,01	0,17	0	1	0,03		
	3	46	0,02	0,147	0,022	-0,02	0,07	0	1	**0,26**	**0,24**	
	4	34	0,06	0,239	0,041	-0,02	0,14	0	1	0,14	0,11	0,16
	Total	555	0,09	0,287	0,012	0,07	0,11	0	1			
B8_marked	1	420	0,86	0,350	0,017	0,82	0,89	0	1			
	2	55	0,91	0,290	0,039	0,83	0,99	0	1	0,15		
	3	46	0,87	0,341	0,050	0,77	0,97	0	1	0,04	0,12	
	4	34	0,68	0,475	0,081	0,51	0,84	0	1	**0,38**	**0,49**	**0,41**
	Total	555	0,85	0,355	0,015	0,82	0,88	0	1			
B9_marked	1	420	0,13	0,338	0,016	0,10	0,16	0	1			
	2	55	0,09	0,290	0,039	0,01	0,17	0	1	0,12		
	3	46	0,09	0,285	0,042	0,00	0,17	0	1	0,13	0,01	
	4	34	0,06	0,239	0,041	-0,02	0,14	0	1	**0,21**	0,11	0,10
	Total	555	0,12	0,324	0,014	0,09	0,15	0	1			
Total (B1-9)	1	420	3,3214	0,98873	0,04824	3,2266	3,4163	0,00	7,00			

A4 - **Department**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**		
						Lower Bound	Upper Bound			**1 with…**	**2 with…**	**3 with…**
	2	55	3,4364	1,10158	0,14854	3,1386	3,7342	2,00	9,00	0,10		
	3	46	3,3043	0,93973	0,13856	3,0253	3,5834	1,00	5,00	0,02	0,12	
	4	34	3,0294	1,19304	0,20461	2,6131	3,4457	1,00	6,00	**0,24**	**0,34**	**0,23**
	Total	555	3,3135	1,01028	0,04288	3,2293	3,3977	0,00	9,00			
Factor 1 - Quality Culture	1	419	2,8682	0,43727	0,02136	2,8262	2,9102	1,25	4,00			
	2	55	2,7933	0,44060	0,05941	2,6742	2,9124	1,78	3,67	0,17		
	3	46	2,8277	0,47900	0,07063	2,6855	2,9700	1,67	3,75	0,08	0,07	
	4	34	2,7854	0,32791	0,05624	2,6710	2,8998	1,88	3,33	0,19	0,02	0,09
	Total	554	2,8523	0,43524	0,01849	2,8160	2,8887	1,25	4,00			
Factor 2 - Ownership	1	419	3,1922	0,45952	0,02245	3,1481	3,2364	1,80	4,00			
	2	55	3,0891	0,52305	0,07053	2,9477	3,2305	1,80	4,00	0,20		
	3	46	3,3457	0,51455	0,07587	3,1929	3,4985	2,00	4,00	**0,30**	**0,49**	
	4	34	3,1191	0,49052	0,08412	2,9480	3,2903	2,40	4,00	0,15	0,06	**0,44**
	Total	554	3,1903	0,47494	0,02018	3,1506	3,2299	1,80	4,00			
Factor 3 - Non-Conformance	1	404	2,7787	0,53970	0,02685	2,7259	2,8315	1,00	4,00			
	2	54	2,6512	0,40634	0,05530	2,5403	2,7621	2,00	3,75	**0,24**		
	3	46	2,8243	0,46555	0,06864	2,6860	2,9625	2,00	4,00	0,08	**0,37**	
	4	33	2,9369	0,47600	0,08286	2,7681	3,1057	2,00	3,75	**0,29**	**0,60**	**0,24**
	Total	537	2,7795	0,52000	0,02244	2,7354	2,8236	1,00	4,00			
Factor 4 - Increase	1	404	3,0941	0,59553	0,02963	3,0358	3,1523	1,00	4,00			
	2	53	3,0377	0,56201	0,07720	2,8828	3,1926	1,00	4,00	0,09		
	3	43	3,0581	0,50249	0,07663	2,9035	3,2128	2,00	4,00	0,06	0,04	
	4	33	3,0909	0,40417	0,07036	2,9476	3,2342	2,00	4,00	0,01	0,09	0,07

A4 - **Department**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**		
						Lower Bound	Upper Bound			**1 with…**	**2 with…**	**3 with…**
	Total	533	3,0854	0,57414	0,02487	3,0365	3,1342	1,00	4,00			
Factor 5 - Management	1	410	2,9902	0,62733	0,03098	2,9293	3,0511	1,00	4,00			
	2	55	3,0545	0,62858	0,08476	2,8846	3,2245	2,00	4,00	0,10		
	3	46	3,1304	0,67028	0,09883	2,9314	3,3295	1,50	4,00	**0,21**	0,11	
	4	34	3,0735	0,62924	0,10791	2,8540	3,2931	2,00	4,00	0,13	0,03	0,08
	Total	545	3,0138	0,63107	0,02703	2,9607	3,0669	1,00	4,00			
Factor 6 - Assurance	1	401	2,5848	0,70731	0,03532	2,5153	2,6542	1,00	4,00			
	2	53	2,7453	0,59341	0,08151	2,5817	2,9088	1,00	4,00	**0,23**		
	3	46	2,3587	0,72005	0,10617	2,1449	2,5725	1,00	4,00	**0,31**	**0,54**	
	4	33	2,4848	0,63103	0,10985	2,2611	2,7086	1,00	3,50	0,14	**0,41**	0,18
	Total	533	2,5750	0,69706	0,03019	2,5157	2,6344	1,00	4,00			
Factor 7 – Training (C)	1	405	2,6486	0,91847	0,04564	2,5588	2,7383	1,00	4,00			
	2	53	2,1541	0,91731	0,12600	1,9012	2,4069	1,00	4,00	**0,54**		
	3	46	2,8859	0,85749	0,12643	2,6312	3,1405	1,00	4,00	**0,26**	**0,80**	
	4	33	2,4949	0,84675	0,14740	2,1947	2,7952	1,00	4,00	0,17	**0,37**	**0,46**
	Total	537	2,6106	0,92252	0,03981	2,5324	2,6888	1,00	4,00			

Source: SPSS

A5 - **Site**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**		
						Lower Bound	Upper Bound			**1 with…**	**2 with…**	**3 with…**
B1_marked	1	109	0,93	0,262	0,025	0,88	0,98	0	1			
	2	176	0,87	0,338	0,025	0,82	0,92	0	1	0,17		
	3	258	0,94	0,234	0,015	0,91	0,97	0	1	0,06	**0,21**	
	4	56	0,96	0,187	0,025	0,91	1,01	0	1	0,14	**0,28**	0,10
	Total	599	0,92	0,272	0,011	0,90	0,94	0	1			
B2_marked	1	109	0,10	0,303	0,029	0,04	0,16	0	1			
	2	176	0,15	0,356	0,027	0,09	0,20	0	1	0,13		
	3	258	0,10	0,296	0,018	0,06	0,13	0	1	0,01	0,14	
	4	56	0,13	0,334	0,045	0,04	0,21	0	1	0,07	0,06	0,08
	Total	599	0,12	0,320	0,013	0,09	0,14	0	1			
B3_marked	1	109	0,06	0,229	0,022	0,01	0,10	0	1			
	2	176	0,16	0,372	0,028	0,11	0,22	0	1	**0,29**		
	3	258	0,06	0,242	0,015	0,03	0,09	0	1	0,03	**0,28**	
	4	56	0,07	0,260	0,035	0,00	0,14	0	1	0,06	**0,25**	0,04
	Total	599	0,09	0,289	0,012	0,07	0,12	0	1			
B4_marked	1	109	0,11	0,314	0,030	0,05	0,17	0	1			
	2	176	0,17	0,377	0,028	0,11	0,23	0	1	0,16		
	3	258	0,05	0,227	0,014	0,03	0,08	0	1	0,18	**0,31**	
	4	56	0,09	0,288	0,038	0,01	0,17	0	1	0,07	**0,22**	0,12
	Total	599	0,10	0,303	0,012	0,08	0,13	0	1			
B5_marked	1	109	0,10	0,303	0,029	0,04	0,16	0	1			
	2	176	0,23	0,424	0,032	0,17	0,30	0	1	**0,31**		
	3	258	0,07	0,262	0,016	0,04	0,11	0	1	0,09	**0,38**	

A5 - **Site**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**		
						Lower Bound	Upper Bound			**1 with…**	**2 with…**	**3 with…**
	4	56	0,14	0,353	0,047	0,05	0,24	0	1	0,12	**0,21**	0,20
	Total	599	0,13	0,339	0,014	0,10	0,16	0	1			
B6_marked	1	109	0,93	0,262	0,025	0,88	0,98	0	1			
	2	176	0,79	0,409	0,031	0,73	0,85	0	1	**0,33**		
	3	258	0,91	0,280	0,017	0,88	0,95	0	1	0,04	**0,31**	
	4	56	0,88	0,334	0,045	0,79	0,96	0	1	0,15	**0,21**	0,12
	Total	599	0,88	0,329	0,013	0,85	0,90	0	1			
B7_marked	1	109	0,12	0,326	0,031	0,06	0,18	0	1			
	2	176	0,14	0,344	0,026	0,09	0,19	0	1	0,05		
	3	258	0,05	0,211	0,013	0,02	0,07	0	1	**0,22**	**0,26**	
	4	56	0,09	0,288	0,038	0,01	0,17	0	1	0,09	0,14	0,15
	Total	599	0,09	0,287	0,012	0,07	0,11	0	1			
B8_marked	1	109	0,84	0,364	0,035	0,77	0,91	0	1			
	2	176	0,76	0,427	0,032	0,70	0,82	0	1	0,19		
	3	258	0,91	0,291	0,018	0,87	0,94	0	1	0,17	**0,34**	
	4	56	0,82	0,386	0,052	0,72	0,92	0	1	0,06	0,14	**0,22**
	Total	599	0,84	0,362	0,015	0,82	0,87	0	1			
B9_marked	1	109	0,11	0,314	0,030	0,05	0,17	0	1			
	2	176	0,17	0,377	0,028	0,11	0,23	0	1	0,16		
	3	258	0,07	0,249	0,015	0,04	0,10	0	1	0,14	**0,28**	
	4	56	0,18	0,386	0,052	0,08	0,28	0	1	0,18	0,02	**0,29**
	Total	599	0,12	0,320	0,013	0,09	0,14	0	1			
Total (B1-9)	1	109	3,2936	0,93594	0,08965	3,1159	3,4713	0,00	7,00			

A5 - **Site**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**		
						Lower Bound	Upper Bound			**1 with…**	**2 with…**	**3 with…**
	2	176	3,4432	1,25910	0,09491	3,2559	3,6305	0,00	9,00	0,12		
	3	258	3,1628	0,79189	0,04930	3,0657	3,2599	0,00	7,00	0,14	**0,22**	
	4	56	3,3571	1,03447	0,13824	3,0801	3,6342	1,00	7,00	0,06	0,07	0,19
	Total	599	3,2871	1,00218	0,04095	3,2067	3,3676	0,00	9,00			
Factor 1 - Quality Culture	1	109	2,8343	0,47117	0,04513	2,7449	2,9238	1,67	4,00			
	2	175	2,8478	0,42153	0,03186	2,7849	2,9107	1,25	4,00	0,03		
	3	258	2,8862	0,42474	0,02644	2,8341	2,9382	1,30	4,00	0,11	0,09	
	4	56	2,9262	0,40919	0,05468	2,8166	3,0357	1,91	4,00	0,19	0,19	0,09
	Total	598	2,8692	0,43107	0,01763	2,8346	2,9038	1,25	4,00			
Factor 2 - Ownership	1	109	3,3266	0,55456	0,05312	3,2213	3,4319	1,80	4,00			
	2	175	3,1040	0,46301	0,03500	3,0349	3,1731	2,00	4,00	**0,40**		
	3	258	3,1919	0,44332	0,02760	3,1375	3,2462	2,00	4,00	**0,24**	0,19	
	4	56	3,1643	0,48258	0,06449	3,0351	3,2935	1,80	4,00	**0,29**	0,12	0,06
	Total	598	3,1881	0,47939	0,01960	3,1496	3,2266	1,80	4,00			
Factor 3 - Non-Conformance	1	103	2,7168	0,60660	0,05977	2,5983	2,8354	1,00	4,00			
	2	169	2,7352	0,52817	0,04063	2,6550	2,8154	1,00	4,00	0,03		
	3	250	2,8470	0,48592	0,03073	2,7865	2,9075	1,00	4,00	**0,21**	**0,21**	
	4	55	2,7273	0,46962	0,06332	2,6003	2,8542	2,00	4,00	0,02	0,02	**0,25**
	Total	577	2,7796	0,52229	0,02174	2,7369	2,8223	1,00	4,00			
Factor 4 - Increase	1	102	3,2451	0,53002	0,05248	3,1410	3,3492	2,00	4,00			
	2	170	2,9529	0,57370	0,04400	2,8661	3,0398	1,00	4,00	**0,51**		
	3	246	3,1321	0,56589	0,03608	3,0610	3,2032	1,00	4,00	0,20	**0,31**	
	4	55	3,0091	0,55687	0,07509	2,8585	3,1596	1,00	4,00	**0,42**	0,10	**0,22**

A5 - **Site**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**		
						Lower Bound	Upper Bound			**1 with…**	**2 with…**	**3 with…**
	Total	573	3,0873	0,56968	0,02380	3,0405	3,1340	1,00	4,00			
Factor 5 - Management	1	103	3,0971	0,79846	0,07867	2,9410	3,2531	1,00	4,00			
	2	173	3,0520	0,57583	0,04378	2,9656	3,1384	1,00	4,00	0,06		
	3	255	2,9804	0,58155	0,03642	2,9087	3,0521	1,00	4,00	0,15	0,12	
	4	56	3,0357	0,64566	0,08628	2,8628	3,2086	1,00	4,00	0,08	0,03	0,09
	Total	587	3,0273	0,62930	0,02597	2,9762	3,0783	1,00	4,00			
Factor 6 - Assurance	1	101	2,4604	0,79901	0,07950	2,3027	2,6181	1,00	4,00			
	2	169	2,5917	0,67845	0,05219	2,4887	2,6947	1,00	4,00	0,16		
	3	248	2,6048	0,66969	0,04253	2,5211	2,6886	1,00	4,00	0,18	0,02	
	4	56	2,6250	0,58192	0,07776	2,4692	2,7808	1,50	4,00	**0,21**	0,05	0,03
	Total	574	2,5775	0,68936	0,02877	2,5210	2,6340	1,00	4,00			
Factor 7 – Training (C)	1	102	2,5114	1,00275	0,09929	2,3145	2,7084	1,00	4,00			
	2	173	2,4586	0,94515	0,07186	2,3167	2,6004	1,00	4,00	0,05		
	3	249	2,8417	0,83122	0,05268	2,7379	2,9455	1,00	4,00	**0,33**	**0,41**	
	4	55	2,4833	0,93327	0,12584	2,2310	2,7356	1,00	4,00	0,03	0,03	**0,38**
	Total	579	2,6350	0,92302	0,03836	2,5597	2,7103	1,00	4,00			

Source: SPSS

A8 - **Language**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
B1_marked	1	208	0,90	0,296	0,020	0,86	0,94	0	1					
	2	62	0,94	0,248	0,031	0,87	1,00	0	1	0,11				
	3	43	0,93	0,258	0,039	0,85	1,01	0	1	0,09	0,02			
	4	52	0,92	0,269	0,037	0,85	1,00	0	1	0,07	0,05	0,03		
	5	24	0,92	0,282	0,058	0,80	1,04	0	1	0,04	0,07	0,05	0,02	
	6	45	1,00	0,000	0,000	1,00	1,00	1	1	**0,33**	**0,26**	**0,27**	**0,29**	**0,30**
	Total	434	0,92	0,265	0,013	0,90	0,95	0	1					
B2_marked	1	208	0,14	0,347	0,024	0,09	0,19	0	1					
	2	62	0,13	0,338	0,043	0,04	0,21	0	1	0,03				
	3	43	0,14	0,351	0,053	0,03	0,25	0	1	0,00	0,03			
	4	52	0,13	0,345	0,048	0,04	0,23	0	1	0,01	0,02	0,01		
	5	24	0,08	0,282	0,058	-0,04	0,20	0	1	0,16	0,14	0,16	0,15	
	6	45	0,07	0,252	0,038	-0,01	0,14	0	1	**0,21**	0,18	**0,21**	0,20	0,06
	Total	434	0,13	0,333	0,016	0,10	0,16	0	1					
B3_marked	1	208	0,08	0,275	0,019	0,04	0,12	0	1					
	2	62	0,08	0,275	0,035	0,01	0,15	0	1	0,00				
	3	43	0,12	0,324	0,049	0,02	0,22	0	1	0,11	0,11			
	4	52	0,12	0,323	0,045	0,03	0,21	0	1	0,10	0,11	0,00		
	5	24	0,04	0,204	0,042	-0,04	0,13	0	1	0,15	0,14	**0,23**	**0,23**	
	6	45	0,11	0,318	0,047	0,02	0,21	0	1	0,09	0,10	0,02	0,01	**0,22**
	Total	434	0,09	0,286	0,014	0,06	0,12	0	1					
B4_marked	1	208	0,09	0,289	0,020	0,05	0,13	0	1					

A8 - **Language**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
	2	62	0,06	0,248	0,031	0,00	0,13	0	1	0,09				
	3	43	0,14	0,351	0,053	0,03	0,25	0	1	0,14	**0,21**			
	4	52	0,17	0,382	0,053	0,07	0,28	0	1	**0,21**	**0,28**	0,09		
	5	24	0,04	0,204	0,042	-0,04	0,13	0	1	0,17	0,09	**0,28**	**0,34**	
	6	45	0,11	0,318	0,047	0,02	0,21	0	1	0,06	0,15	0,08	0,16	**0,22**
	Total	434	0,10	0,302	0,015	0,07	0,13	0	1					
B5_marked	1	208	0,10	0,296	0,020	0,06	0,14	0	1					
	2	62	0,10	0,298	0,038	0,02	0,17	0	1	0,00				
	3	43	0,23	0,427	0,065	0,10	0,36	0	1	**0,32**	**0,32**			
	4	52	0,17	0,382	0,053	0,07	0,28	0	1	0,20	0,20	0,14		
	5	24	0,08	0,282	0,058	-0,04	0,20	0	1	0,04	0,05	**0,35**	**0,23**	
	6	45	0,18	0,387	0,058	0,06	0,29	0	1	**0,21**	**0,21**	0,13	0,01	**0,24**
	Total	434	0,13	0,333	0,016	0,10	0,16	0	1					
B6_marked	1	208	0,91	0,289	0,020	0,87	0,95	0	1					
	2	62	0,90	0,298	0,038	0,83	0,98	0	1	0,02				
	3	43	0,79	0,412	0,063	0,66	0,92	0	1	**0,29**	**0,27**			
	4	52	0,77	0,425	0,059	0,65	0,89	0	1	**0,33**	**0,31**	0,05		
	5	24	0,88	0,338	0,069	0,73	1,02	0	1	0,10	0,08	0,20	**0,25**	
	6	45	0,93	0,252	0,038	0,86	1,01	0	1	0,09	0,10	**0,35**	**0,39**	0,17
	Total	434	0,88	0,325	0,016	0,85	0,91	0	1					
B7_marked	1	208	0,07	0,251	0,017	0,03	0,10	0	1					
	2	62	0,05	0,216	0,027	-0,01	0,10	0	1	0,08				

A8 - **Language**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
	3	43	0,14	0,351	0,053	0,03	0,25	0	1	**0,21**	**0,26**			
	4	52	0,15	0,364	0,051	0,05	0,26	0	1	**0,24**	**0,29**	0,04		
	5	24	0,21	0,415	0,085	0,03	0,38	0	1	**0,34**	**0,39**	0,17	0,13	
	6	45	0,07	0,252	0,038	-0,01	0,14	0	1	0,00	0,07	**0,21**	**0,24**	**0,34**
	Total	434	0,09	0,286	0,014	0,06	0,12	0	1					
B8_marked	1	208	0,87	0,337	0,023	0,82	0,92	0	1					
	2	62	0,89	0,319	0,041	0,81	0,97	0	1	0,05				
	3	43	0,77	0,427	0,065	0,64	0,90	0	1	**0,24**	**0,28**			
	4	52	0,85	0,364	0,051	0,74	0,95	0	1	0,07	0,11	0,18		
	5	24	0,79	0,415	0,085	0,62	0,97	0	1	0,19	**0,23**	0,06	0,13	
	6	45	0,91	0,288	0,043	0,82	1,00	0	1	0,12	0,08	**0,34**	0,18	**0,29**
	Total	434	0,86	0,348	0,017	0,83	0,89	0	1					
B9_marked	1	208	0,10	0,302	0,021	0,06	0,14	0	1					
	2	62	0,18	0,385	0,049	0,08	0,28	0	1	0,20				
	3	43	0,09	0,294	0,045	0,00	0,18	0	1	0,03	**0,22**			
	4	52	0,13	0,345	0,048	0,04	0,23	0	1	0,10	0,11	0,12		
	5	24	0,13	0,338	0,069	-0,02	0,27	0	1	0,07	0,14	0,09	0,03	
	6	45	0,04	0,208	0,031	-0,02	0,11	0	1	0,19	**0,35**	0,17	**0,26**	**0,24**
	Total	434	0,11	0,314	0,015	0,08	0,14	0	1					
Total (B1-9)	1	208	3,2596	1,07672	0,07466	3,1124	3,4068	0,00	9,00					
	2	62	3,3226	0,90126	0,11446	3,0937	3,5515	1,00	6,00	0,06				
	3	43	3,3488	1,13145	0,17254	3,0006	3,6970	0,00	6,00	0,08	0,02			

A8 - **Language**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
	4	52	3,4231	1,05433	0,14621	3,1295	3,7166	2,00	6,00	0,15	0,10	0,07		
	5	24	3,1667	0,91683	0,18715	2,7795	3,5538	1,00	6,00	0,09	0,17	0,16	**0,24**	
	6	45	3,4222	0,94120	0,14031	3,1395	3,7050	3,00	7,00	0,15	0,11	0,06	0,00	**0,27**
	Total	434	3,3088	1,03141	0,04951	3,2114	3,4061	0,00	9,00					
Factor 1 - Quality Culture	1	208	2,8106	0,41166	0,02854	2,7543	2,8669	1,67	4,00					
	2	62	2,8771	0,52202	0,06630	2,7446	3,0097	1,30	4,00	0,13				
	3	43	2,8912	0,43706	0,06665	2,7567	3,0257	1,25	4,00	0,18	0,03			
	4	52	2,9882	0,38565	0,05348	2,8809	3,0956	1,91	4,00	**0,43**	**0,21**	**0,22**		
	5	23	2,7901	0,49950	0,10415	2,5741	3,0061	1,67	4,00	0,04	0,17	0,20	**0,40**	
	6	45	2,8257	0,40483	0,06035	2,7040	2,9473	2,00	3,83	0,04	0,10	0,15	**0,40**	0,07
	Total	433	2,8499	0,43449	0,02088	2,8089	2,8910	1,25	4,00					
Factor 2 - Ownership	1	208	3,1516	0,41261	0,02861	3,0952	3,2080	2,20	4,00					
	2	62	3,1847	0,53474	0,06791	3,0489	3,3205	2,00	4,00	0,06				
	3	43	3,1403	0,47783	0,07287	2,9933	3,2874	2,20	4,00	0,02	0,08			
	4	52	3,2974	0,47163	0,06540	3,1661	3,4287	2,00	4,00	**0,31**	**0,21**	**0,33**		
	5	23	3,3804	0,53401	0,11135	3,1495	3,6114	2,40	4,00	**0,43**	**0,37**	**0,45**	0,16	
	6	45	3,3011	0,45308	0,06754	3,1650	3,4372	2,60	4,00	**0,33**	**0,22**	**0,34**	0,01	0,15
	Total	433	3,2004	0,45967	0,02209	3,1570	3,2438	2,00	4,00					
Factor 3 - Non-Conformance	1	203	2,8378	0,44755	0,03141	2,7759	2,8998	1,00	4,00					
	2	61	2,6626	0,57099	0,07311	2,5163	2,8088	1,00	4,00	**0,31**				
	3	42	2,7798	0,55272	0,08529	2,6075	2,9520	1,00	3,75	0,11	**0,21**			
	4	51	2,7484	0,54835	0,07678	2,5941	2,9026	1,50	4,00	0,16	0,15	0,06		

A8 - **Language**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
	5	22	2,7311	0,63928	0,13630	2,4476	3,0145	1,50	4,00	0,17	0,11	0,08	0,03	
	6	42	2,7123	0,49667	0,07664	2,5575	2,8671	1,75	3,67	**0,25**	0,09	0,12	0,07	0,03
	Total	421	2,7777	0,50731	0,02472	2,7291	2,8263	1,00	4,00					
Factor 4 - Increase	1	201	3,0771	0,53877	0,03800	3,0022	3,1521	1,00	4,00					
	2	61	3,1148	0,60134	0,07699	2,9607	3,2688	1,00	4,00	0,06				
	3	41	2,9878	0,63726	0,09952	2,7867	3,1889	1,00	4,00	0,14	0,20			
	4	50	2,9500	0,64878	0,09175	2,7656	3,1344	2,00	4,00	0,20	**0,25**	0,06		
	5	22	3,2273	0,42893	0,09145	3,0371	3,4175	2,50	4,00	0,28	0,19	**0,38**	**0,43**	
	6	41	3,1463	0,58357	0,09114	2,9621	3,3305	2,00	4,00	0,12	0,05	**0,25**	**0,30**	0,14
	Total	416	3,0733	0,57249	0,02807	3,0181	3,1285	1,00	4,00					
Factor 5 - Management	1	206	2,9757	0,58384	0,04068	2,8955	3,0559	1,00	4,00					
	2	61	3,0492	0,67518	0,08645	2,8763	3,2221	1,00	4,00	0,11				
	3	43	3,1279	0,47676	0,07270	2,9812	3,2746	2,00	4,00	**0,26**	0,12			
	4	52	3,1250	0,55902	0,07752	2,9694	3,2806	2,00	4,00	**0,26**	0,11	0,01		
	5	22	3,0000	0,97590	0,20806	2,5673	3,4327	1,00	4,00	0,02	0,05	0,13	0,13	
	6	42	3,1548	0,65786	0,10151	2,9498	3,3598	2,00	4,00	**0,27**	0,16	0,04	0,05	0,16
	Total	426	3,0387	0,61856	0,02997	2,9798	3,0976	1,00	4,00					
Factor 6 - Assurance	1	200	2,6175	0,66871	0,04729	2,5243	2,7107	1,00	4,00					
	2	61	2,6311	0,64486	0,08257	2,4660	2,7963	1,00	4,00	0,02				
	3	40	2,7000	0,72324	0,11435	2,4687	2,9313	1,00	4,00	0,11	0,10			
	4	51	2,7255	0,65813	0,09216	2,5404	2,9106	1,50	4,00	0,16	0,14	0,04		
	5	21	2,5476	0,82013	0,17897	2,1743	2,9209	1,00	4,00	0,09	0,10	0,19	**0,22**	

A8 - **Language**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
	6	43	2,3605	0,77402	0,11804	2,1223	2,5987	1,00	4,00	**0,33**	**0,35**	**0,44**	**0,47**	**0,23**
	Total	416	2,6106	0,69145	0,03390	2,5439	2,6772	1,00	4,00					
Factor 7 – Training (C)	1	204	2,6573	0,88014	0,06162	2,5358	2,7788	1,00	4,00					
	2	60	2,6500	1,01121	0,13055	2,3888	2,9112	1,00	4,00	0,01				
	3	43	2,5078	0,87718	0,13377	2,2378	2,7777	1,00	4,00	0,17	0,14			
	4	49	2,7840	0,93880	0,13411	2,5144	3,0537	1,00	4,00	0,14	0,13	**0,29**		
	5	22	2,6364	0,94089	0,20060	2,2192	3,0535	1,00	4,00	0,02	0,01	0,14	0,16	
	6	41	2,5122	0,95517	0,14917	2,2107	2,8137	1,00	4,00	0,15	0,14	0,00	**0,28**	0,13
	Total	419	2,6404	0,91478	0,04469	2,5526	2,7283	1,00	4,00					

Source: SPSS

A9 - **Qualification**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
B1_marked	1	167	0,95	0,226	0,018	0,91	0,98	0	1					
	2	218	0,92	0,276	0,019	0,88	0,95	0	1	0,10				
	3	47	0,89	0,312	0,045	0,80	0,99	0	1	0,17	0,08			
	4	55	0,91	0,290	0,039	0,83	0,99	0	1	0,13	0,03	0,05		
	5	41	0,95	0,218	0,034	0,88	1,02	0	1	0,02	0,12	0,18	0,15	
	6	20	0,95	0,224	0,050	0,85	1,05	0	1	0,02	0,12	0,18	0,14	0,01
	Total	548	0,93	0,260	0,011	0,91	0,95	0	1					
B2_marked	1	167	0,11	0,311	0,024	0,06	0,16	0	1					
	2	218	0,13	0,340	0,023	0,09	0,18	0	1	0,07				
	3	47	0,11	0,312	0,045	0,01	0,20	0	1	0,00	0,08			
	4	55	0,16	0,373	0,050	0,06	0,26	0	1	0,15	0,08	0,15		
	5	41	0,05	0,218	0,034	-0,02	0,12	0	1	0,19	**0,25**	0,18	**0,31**	
	6	20	0,05	0,224	0,050	-0,05	0,15	0	1	0,19	**0,24**	0,18	**0,30**	0,01
	Total	548	0,12	0,321	0,014	0,09	0,14	0	1					
B3_marked	1	167	0,05	0,226	0,018	0,02	0,09	0	1					
	2	218	0,11	0,314	0,021	0,07	0,15	0	1	0,18				
	3	47	0,04	0,204	0,030	-0,02	0,10	0	1	0,05	**0,22**			
	4	55	0,16	0,373	0,050	0,06	0,26	0	1	**0,29**	0,14	**0,32**		
	5	41	0,05	0,218	0,034	-0,02	0,12	0	1	0,02	0,20	0,03	**0,31**	
	6	20	0,15	0,366	0,082	-0,02	0,32	0	1	**0,26**	0,11	**0,29**	0,04	**0,28**
	Total	548	0,09	0,286	0,012	0,07	0,11	0	1					
B4_marked	1	167	0,05	0,226	0,018	0,02	0,09	0	1					

A9 - **Qualification**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
	2	218	0,11	0,314	0,021	0,07	0,15	0	1	0,18				
	3	47	0,04	0,204	0,030	-0,02	0,10	0	1	0,05	**0,22**			
	4	55	0,20	0,404	0,054	0,09	0,31	0	1	**0,36**	**0,22**	**0,39**		
	5	41	0,17	0,381	0,059	0,05	0,29	0	1	**0,31**	0,16	**0,34**	0,07	
	6	20	0,10	0,308	0,069	-0,04	0,24	0	1	0,15	0,03	0,19	**0,25**	0,19
	Total	548	0,10	0,301	0,013	0,08	0,13	0	1					
B5_marked	1	167	0,13	0,333	0,026	0,07	0,18	0	1					
	2	218	0,16	0,364	0,025	0,11	0,20	0	1	0,08				
	3	47	0,02	0,146	0,021	-0,02	0,06	0	1	**0,31**	**0,37**			
	4	55	0,16	0,373	0,050	0,06	0,26	0	1	0,10	0,02	**0,38**		
	5	41	0,20	0,401	0,063	0,07	0,32	0	1	0,17	0,10	**0,43**	0,08	
	6	20	0,10	0,308	0,069	-0,04	0,24	0	1	0,08	0,15	**0,26**	0,17	**0,24**
	Total	548	0,14	0,344	0,015	0,11	0,17	0	1					
B6_marked	1	167	0,86	0,346	0,027	0,81	0,92	0	1					
	2	218	0,85	0,355	0,024	0,81	0,90	0	1	0,03				
	3	47	0,96	0,204	0,030	0,90	1,02	0	1	**0,28**	**0,29**			
	4	55	0,89	0,315	0,042	0,81	0,98	0	1	0,08	0,11	**0,21**		
	5	41	0,88	0,331	0,052	0,77	0,98	0	1	0,05	0,07	**0,24**	0,04	
	6	20	0,95	0,224	0,050	0,85	1,05	0	1	**0,25**	**0,27**	0,03	0,19	**0,22**
	Total	548	0,87	0,332	0,014	0,85	0,90	0	1					
B7_marked	1	167	0,09	0,287	0,022	0,05	0,13	0	1					
	2	218	0,11	0,308	0,021	0,06	0,15	0	1	0,05				

A9 - **Qualification**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
	3	47	0,04	0,204	0,030	-0,02	0,10	0	1	0,16	0,20			
	4	55	0,13	0,336	0,045	0,04	0,22	0	1	0,11	0,06	**0,25**		
	5	41	0,02	0,156	0,024	-0,02	0,07	0	1	**0,23**	**0,26**	0,09	**0,31**	
	6	20	0,05	0,224	0,050	-0,05	0,15	0	1	0,14	0,18	0,03	**0,23**	0,11
	Total	548	0,09	0,286	0,012	0,07	0,11	0	1					
B8_marked	1	167	0,82	0,385	0,030	0,76	0,88	0	1					
	2	218	0,84	0,364	0,025	0,80	0,89	0	1	0,06				
	3	47	0,94	0,247	0,036	0,86	1,01	0	1	**0,30**	**0,25**			
	4	55	0,85	0,356	0,048	0,76	0,95	0	1	0,09	0,03	**0,23**		
	5	41	0,90	0,300	0,047	0,81	1,00	0	1	**0,21**	0,16	0,11	0,13	
	6	20	0,90	0,308	0,069	0,76	1,04	0	1	**0,21**	0,15	0,12	0,13	0,01
	Total	548	0,85	0,355	0,015	0,82	0,88	0	1					
B9_marked	1	167	0,10	0,303	0,023	0,06	0,15	0	1					
	2	218	0,13	0,340	0,023	0,09	0,18	0	1	0,09				
	3	47	0,09	0,282	0,041	0,00	0,17	0	1	0,06	0,14			
	4	55	0,11	0,315	0,042	0,02	0,19	0	1	0,02	0,07	0,08		
	5	41	0,17	0,381	0,059	0,05	0,29	0	1	0,18	0,10	**0,22**	0,16	
	6	20	0,10	0,308	0,069	-0,04	0,24	0	1	0,01	0,10	0,05	0,03	0,19
	Total	548	0,12	0,324	0,014	0,09	0,15	0	1					
Total (B1-9)	1	167	3,1617	0,95260	0,07371	3,0161	3,3072	0,00	7,00					
	2	218	3,3624	1,01230	0,06856	3,2273	3,4975	0,00	7,00	0,20				
	3	47	3,1277	0,61209	0,08928	2,9479	3,3074	2,00	5,00	0,04	**0,23**			

A9 - **Qualification**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
	4	55	3,5818	1,27208	0,17153	3,2379	3,9257	2,00	9,00	**0,33**	0,17	**0,36**		
	5	41	3,3902	0,97155	0,15173	3,0836	3,6969	1,00	6,00	**0,24**	0,03	**0,27**	0,15	
	6	20	3,3500	0,74516	0,16662	3,0013	3,6987	2,00	5,00	0,20	0,01	**0,30**	0,18	0,04
	Total	548	3,3047	0,98999	0,04229	3,2217	3,3878	0,00	9,00					
Factor 1 - Quality Culture	1	167	2,9175	0,42461	0,03286	2,8526	2,9824	1,75	4,00					
	2	217	2,8553	0,41810	0,02838	2,7994	2,9113	1,25	4,00	0,15				
	3	47	2,7870	0,42687	0,06226	2,6617	2,9124	1,78	4,00	**0,31**	0,16			
	4	55	2,8363	0,48465	0,06535	2,7053	2,9673	1,67	4,00	0,17	0,04	0,10		
	5	41	2,7616	0,50762	0,07928	2,6014	2,9219	1,58	3,73	**0,31**	0,18	0,05	0,15	
	6	20	2,8513	0,47197	0,10554	2,6304	3,0722	1,67	3,50	0,14	0,01	0,14	0,03	0,18
	Total	547	2,8594	0,43754	0,01871	2,8226	2,8961	1,25	4,00					
Factor 2 - Ownership	1	167	3,1414	0,47742	0,03694	3,0685	3,2144	1,80	4,00					
	2	217	3,1808	0,46856	0,03181	3,1181	3,2435	1,80	4,00	0,08				
	3	47	3,2011	0,50739	0,07401	3,0521	3,3500	2,20	4,00	0,12	0,04			
	4	55	3,3155	0,50679	0,06834	3,1784	3,4525	2,20	4,00	**0,34**	**0,27**	**0,23**		
	5	41	3,3122	0,48384	0,07556	3,1595	3,4649	2,20	4,00	**0,35**	**0,27**	**0,22**	0,01	
	6	20	3,2275	0,50614	0,11318	2,9906	3,4644	2,20	4,00	0,17	0,09	0,05	0,17	0,17
	Total	547	3,1956	0,48250	0,02063	3,1551	3,2361	1,80	4,00					
Factor 3 - Non-Conformance	1	163	2,8129	0,52600	0,04120	2,7315	2,8942	1,00	4,00					
	2	206	2,7662	0,52389	0,03650	2,6942	2,8381	1,00	4,00	0,09				
	3	47	2,7535	0,54975	0,08019	2,5921	2,9150	1,25	4,00	0,11	0,02			
	4	52	2,6362	0,56400	0,07821	2,4792	2,7932	1,00	4,00	**0,31**	**0,23**	**0,21**		

A9 - **Qualification**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
	5	41	2,7967	0,45531	0,07111	2,6530	2,9405	2,00	4,00	0,03	0,06	0,08	**0,28**	
	6	20	2,9625	0,53358	0,11931	2,7128	3,2122	2,00	4,00	**0,28**	**0,37**	**0,38**	**0,58**	**0,31**
	Total	529	2,7765	0,52748	0,02293	2,7314	2,8215	1,00	4,00					
Factor 4 - Increase	1	163	3,0920	0,58065	0,04548	3,0022	3,1818	1,00	4,00					
	2	205	3,0805	0,61406	0,04289	2,9959	3,1650	1,00	4,00	0,02				
	3	47	3,1064	0,51007	0,07440	2,9566	3,2561	2,00	4,00	0,02	0,04			
	4	52	3,0769	0,57210	0,07934	2,9176	3,2362	2,00	4,00	0,03	0,01	0,05		
	5	39	3,1410	0,52502	0,08407	2,9708	3,3112	2,00	4,00	0,08	0,10	0,07	0,11	
	6	20	3,0750	0,43755	0,09784	2,8702	3,2798	2,00	4,00	0,03	0,01	0,06	0,00	0,13
	Total	526	3,0903	0,57646	0,02513	3,0409	3,1397	1,00	4,00					
Factor 5 - Management	1	164	2,9909	0,62776	0,04902	2,8941	3,0877	1,00	4,00					
	2	211	3,0521	0,61693	0,04247	2,9684	3,1359	1,00	4,00	0,10				
	3	47	3,0638	0,57688	0,08415	2,8945	3,2332	1,50	4,00	0,12	0,02			
	4	53	3,0189	0,75932	0,10430	2,8096	3,2282	1,00	4,00	0,04	0,04	0,06		
	5	41	3,1585	0,65612	0,10247	2,9514	3,3656	1,50	4,00	**0,26**	0,16	0,14	0,18	
	6	20	3,1000	0,64072	0,14327	2,8001	3,3999	2,00	4,00	0,17	0,07	0,06	0,11	0,09
	Total	536	3,0410	0,63481	0,02742	2,9872	3,0949	1,00	4,00					
Factor 6 - Assurance	1	160	2,6500	0,70666	0,05587	2,5397	2,7603	1,00	4,00					
	2	206	2,6214	0,68062	0,04742	2,5279	2,7149	1,00	4,00	0,04				
	3	46	2,5978	0,62021	0,09145	2,4136	2,7820	1,50	4,00	0,07	0,03			
	4	53	2,4340	0,75979	0,10437	2,2245	2,6434	1,00	4,00	**0,28**	**0,25**	**0,22**		
	5	41	2,4024	0,55022	0,08593	2,2288	2,5761	1,00	3,50	**0,35**	**0,32**	**0,32**	0,04	

A9 - **Qualification**		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**				
						Lower Bound	Upper Bound			**1 with ..**	**2 with ..**	**3 with ..**	**4 with ..**	**5 with ..**
	6	20	2,3000	0,69585	0,15560	1,9743	2,6257	1,00	3,50	**0,50**	**0,46**	**0,43**	0,18	0,15
	Total	526	2,5798	0,68750	0,02998	2,5210	2,6387	1,00	4,00					
Factor 7 – Training (C)	1	163	2,7188	0,93775	0,07345	2,5738	2,8639	1,00	4,00					
	2	208	2,5998	0,95355	0,06612	2,4694	2,7301	1,00	4,00	0,12				
	3	47	2,3989	0,91583	0,13359	2,1300	2,6678	1,00	4,00	**0,34**	**0,21**			
	4	52	2,5673	0,95501	0,13244	2,3014	2,8332	1,00	4,00	0,16	0,03	0,18		
	5	41	2,6646	0,87430	0,13654	2,3887	2,9406	1,00	4,00	0,06	0,07	**0,29**	0,10	
	6	20	2,8375	0,78336	0,17516	2,4709	3,2041	1,00	4,00	0,13	**0,25**	**0,48**	**0,28**	0,20
	Total	531	2,6293	0,93477	0,04057	2,5496	2,7090	1,00	4,00					

Source: SPSS

Annexures M - ANOVA (All)

A1_recode - Age		Sum of Squares	df	Mean Square	F	Sig.
B1 - marked	Between Groups	0,464	4	0,116	1,508	0,198
	Within Groups	40,751	530	0,077		
	Total	41,215	534			
B2 - marked	Between Groups	0,361	4	0,090	0,853	0,492
	Within Groups	55,983	530	0,106		
	Total	56,344	534			
B3 - marked	Between Groups	0,116	4	0,029	0,341	0,850
	Within Groups	45,211	530	0,085		
	Total	45,327	534			
B4 - marked	Between Groups	0,393	4	0,098	1,030	0,391
	Within Groups	50,534	530	0,095		
	Total	50,927	534			
B5 - marked	Between Groups	1,166	4	0,291	2,440	0,046
	Within Groups	63,320	530	0,119		
	Total	64,486	534			
B6 - marked	Between Groups	0,484	4	0,121	1,104	0,354
	Within Groups	58,125	530	0,110		
	Total	58,609	534			
B7 - marked	Between Groups	0,618	4	0,155	1,833	0,121
	Within Groups	44,709	530	0,084		
	Total	45,327	534			
B8 - marked	Between Groups	1,517	4	0,379	2,960	**0,019**

A1_recode - Age		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	67,914	530	0,128		
	Total	69,432	534			
B9 - marked	Between Groups	0,773	4	0,193	1,896	0,110
	Within Groups	54,042	530	0,102		
	Total	54,815	534			
Total (B1-9)	Between Groups	8,214	4	2,054	2,188	0,069
	Within Groups	497,513	530	0,939		
	Total	505,727	534			
Factor 1 - Quality Culture	Between Groups	1,262	4	0,316	1,722	0,144
	Within Groups	96,940	529	0,183		
	Total	98,202	533			
Factor 2 - Ownership	Between Groups	3,238	4	0,809	3,563	**0,007**
	Within Groups	120,193	529	0,227		
	Total	123,431	533			
Factor 3 - Non-Conformance	Between Groups	1,514	4	0,379	1,429	0,223
	Within Groups	135,590	512	0,265		
	Total	137,105	516			
Factor 4 - Increase	Between Groups	1,668	4	0,417	1,299	0,269
	Within Groups	163,041	508	0,321		
	Total	164,709	512			
Factor 5 - Management	Between Groups	3,156	4	0,789	2,074	0,083
	Within Groups	197,441	519	0,380		
	Total	200,597	523			
Factor 6 - Assurance	Between Groups	1,409	4	0,352	0,764	0,549

A1_recode - Age		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	235,508	511	0,461		
	Total	236,917	515			
Factor 7 – Training (C)	Between Groups	10,046	4	2,512	3,072	**0,016**
	Within Groups	421,103	515	0,818		
	Total	431,150	519			

Source: SPSS

A2_recode - Years experience		Sum of Squares	df	Mean Square	F	Sig.
B1_marked	Between Groups	0,406	4	0,102	1,325	0,260
	Within Groups	29,830	389	0,077		
	Total	30,236	393			
B2_marked	Between Groups	0,655	4	0,164	1,507	0,199
	Within Groups	42,251	389	0,109		
	Total	42,906	393			
B3_marked	Between Groups	0,621	4	0,155	1,837	0,121
	Within Groups	32,904	389	0,085		
	Total	33,525	393			
B4_marked	Between Groups	1,139	4	0,285	2,980	**0,019**
	Within Groups	37,168	389	0,096		
	Total	38,307	393			
B5_marked	Between Groups	0,521	4	0,130	1,136	0,339
	Within Groups	44,616	389	0,115		
	Total	45,137	393			
B6_marked	Between Groups	0,225	4	0,056	0,504	0,733
	Within Groups	43,430	389	0,112		
	Total	43,655	393			
B7_marked	Between Groups	0,224	4	0,056	0,727	0,574
	Within Groups	30,012	389	0,077		
	Total	30,236	393			
B8_marked	Between Groups	0,812	4	0,203	1,460	0,214
	Within Groups	54,132	389	0,139		
	Total	54,944	393			

A2_recode - Years experience		Sum of Squares	df	Mean Square	F	Sig.
B9_marked	Between Groups	0,480	4	0,120	1,141	0,337
	Within Groups	40,913	389	0,105		
	Total	41,393	393			
Total (B1-9)	Between Groups	4,444	4	1,111	1,065	0,373
	Within Groups	405,719	389	1,043		
	Total	410,162	393			
Factor 1 - Quality Culture	Between Groups	1,037	4	0,259	1,365	0,246
	Within Groups	73,716	388	0,190		
	Total	74,753	392			
Factor 2 - Ownership	Between Groups	0,557	4	0,139	0,559	0,693
	Within Groups	96,645	388	0,249		
	Total	97,202	392			
Factor 3 - Non-Conformance	Between Groups	2,153	4	0,538	2,199	0,069
	Within Groups	92,498	378	0,245		
	Total	94,651	382			
Factor 4 - Increase	Between Groups	2,507	4	0,627	1,986	0,096
	Within Groups	118,635	376	0,316		
	Total	121,142	380			
Factor 5 - Management	Between Groups	1,804	4	0,451	1,027	0,393
	Within Groups	167,713	382	0,439		
	Total	169,517	386			
Factor 6 - Assurance	Between Groups	0,817	4	0,204	0,423	0,792
	Within Groups	181,971	377	0,483		
	Total	182,788	381			

A2_recode - Years experience		Sum of Squares	df	Mean Square	F	Sig.
Factor 7 – Training (C)	Between Groups	2,987	4	0,747	0,917	0,454
	Within Groups	308,787	379	0,815		
	Total	311,775	383			

Source: SPSS

A4 - Department		Sum of Squares	df	Mean Square	F	Sig.
B1_marked	Between Groups	0,431	3	0,144	1,934	0,123
	Within Groups	40,920	551	0,074		
	Total	41,351	554			
B2_marked	Between Groups	0,071	3	0,024	0,221	0,882
	Within Groups	58,841	551	0,107		
	Total	58,912	554			
B3_marked	Between Groups	0,192	3	0,064	0,750	0,522
	Within Groups	46,936	551	0,085		
	Total	47,128	554			
B4_marked	Between Groups	0,053	3	0,018	0,192	0,902
	Within Groups	51,093	551	0,093		
	Total	51,146	554			
B5_marked	Between Groups	0,359	3	0,120	1,011	0,388
	Within Groups	65,234	551	0,118		
	Total	65,593	554			
B6_marked	Between Groups	0,314	3	0,105	0,984	0,400
	Within Groups	58,598	551	0,106		
	Total	58,912	554			
B7_marked	Between Groups	0,289	3	0,096	1,176	0,318
	Within Groups	45,206	551	0,082		
	Total	45,495	554			
B8_marked	Between Groups	1,252	3	0,417	3,351	**0,019**
	Within Groups	68,633	551	0,125		
	Total	69,885	554			

A4 - Department		Sum of Squares	df	Mean Square	F	Sig.
B9_marked	Between Groups	0,274	3	0,091	0,869	0,457
	Within Groups	57,878	551	0,105		
	Total	58,151	554			
Total (B1-9)	Between Groups	3,605	3	1,202	1,178	0,317
	Within Groups	561,844	551	1,020		
	Total	565,449	554			
Factor 1 - Quality Culture	Between Groups	0,478	3	0,159	0,840	0,472
	Within Groups	104,279	550	0,190		
	Total	104,757	553			
Factor 2 - Ownership	Between Groups	1,847	3	0,616	2,756	0,042
	Within Groups	122,891	550	0,223		
	Total	124,738	553			
Factor 3 - Non-Conformance	Between Groups	1,798	3	0,599	2,232	0,084
	Within Groups	143,138	533	0,269		
	Total	144,936	536			
Factor 4 - Increase	Between Groups	0,184	3	0,061	0,185	0,907
	Within Groups	175,182	529	0,331		
	Total	175,366	532			
Factor 5 - Management	Between Groups	1,066	3	0,355	0,892	0,445
	Within Groups	215,581	541	0,398		
	Total	216,647	544			
Factor 6 - Assurance	Between Groups	3,996	3	1,332	2,768	**0,041**
	Within Groups	254,502	529	0,481		
	Total	258,498	532			

A4 - Department		Sum of Squares	df	Mean Square	F	Sig.
Factor 7 – Training (C)	Between Groups	15,556	3	5,185	6,273	**0,000**
	Within Groups	440,599	533	0,827		
	Total	456,155	536			

Source: SPSS

A5 - Sites		Sum of Squares	df	Mean Square	F	Sig.
B1_marked	Between Groups	0,690	3	0,230	3,148	**0,025**
	Within Groups	43,464	595	0,073		
	Total	44,154	598			
B2_marked	Between Groups	0,300	3	0,100	0,980	0,402
	Within Groups	60,752	595	0,102		
	Total	61,052	598			
B3_marked	Between Groups	1,337	3	0,446	5,453	**0,001**
	Within Groups	48,613	595	0,082		
	Total	49,950	598			
B4_marked	Between Groups	1,429	3	0,476	5,311	**0,001**
	Within Groups	53,359	595	0,090		
	Total	54,788	598			
B5_marked	Between Groups	2,784	3	0,928	8,393	**0,000**
	Within Groups	65,797	595	0,111		
	Total	68,581	598			
B6_marked	Between Groups	1,975	3	0,658	6,228	**0,000**
	Within Groups	62,883	595	0,106		
	Total	64,858	598			
B7_marked	Between Groups	0,960	3	0,320	3,951	**0,008**
	Within Groups	48,172	595	0,081		
	Total	49,132	598			
B8_marked	Between Groups	2,253	3	0,751	5,857	**0,001**
	Within Groups	76,308	595	0,128		
	Total	78,561	598			

A5 - Sites		Sum of Squares	df	Mean Square	F	Sig.
B9_marked	Between Groups	1,392	3	0,464	4,629	**0,003**
	Within Groups	59,659	595	0,100		
	Total	61,052	598			
Total (B1-9)	Between Groups	8,554	3	2,851	2,865	**0,036**
	Within Groups	592,057	595	0,995		
	Total	600,611	598			
Factor 1 - Quality Culture	Between Groups	0,469	3	0,156	0,840	0,472
	Within Groups	110,467	594	0,186		
	Total	110,936	597			
Factor 2 - Ownership	Between Groups	3,364	3	1,121	4,977	**0,002**
	Within Groups	133,833	594	0,225		
	Total	137,197	597			
Factor 3 - Non-Conformance	Between Groups	2,025	3	0,675	2,494	0,059
	Within Groups	155,101	573	0,271		
	Total	157,126	576			
Factor 4 - Increase	Between Groups	6,439	3	2,146	6,815	**0,000**
	Within Groups	179,198	569	0,315		
	Total	185,637	572			
Factor 5 - Management	Between Groups	1,172	3	0,391	0,987	0,399
	Within Groups	230,891	583	0,396		
	Total	232,064	586			
Factor 6 - Assurance	Between Groups	1,731	3	0,577	1,215	0,303
	Within Groups	270,569	570	0,475		
	Total	272,300	573			

A5 - Sites		Sum of Squares	df	Mean Square	F	Sig.
Factor 7 – Training (C)	Between Groups	18,846	3	6,282	7,627	**0,000**
	Within Groups	473,588	575	0,824		
	Total	492,433	578			

Source: SPSS

A8 - Language		Sum of Squares	df	Mean Square	F	Sig.
B1_marked	Between Groups	0,356	5	0,071	1,010	0,411
	Within Groups	30,135	428	0,070		
	Total	30,491	433			
B2_marked	Between Groups	0,252	5	0,050	0,451	0,813
	Within Groups	47,778	428	0,112		
	Total	48,030	433			
B3_marked	Between Groups	0,159	5	0,032	0,385	0,859
	Within Groups	35,336	428	0,083		
	Total	35,495	433			
B4_marked	Between Groups	0,525	5	0,105	1,152	0,332
	Within Groups	39,014	428	0,091		
	Total	39,539	433			
B5_marked	Between Groups	1,006	5	0,201	1,831	0,106
	Within Groups	47,024	428	0,110		
	Total	48,030	433			
B6_marked	Between Groups	1,314	5	0,263	2,530	**0,028**
	Within Groups	44,456	428	0,104		
	Total	45,770	433			
B7_marked	Between Groups	0,893	5	0,179	2,208	0,053
	Within Groups	34,603	428	0,081		
	Total	35,495	433			
B8_marked	Between Groups	0,675	5	0,135	1,116	0,351
	Within Groups	51,751	428	0,121		
	Total	52,426	433			

A8 - Language		Sum of Squares	df	Mean Square	F	Sig.
B9_marked	Between Groups	0,541	5	0,108	1,099	0,360
	Within Groups	42,150	428	0,098		
	Total	42,691	433			
Total (B1-9)	Between Groups	2,327	5	0,465	0,435	0,824
	Within Groups	458,300	428	1,071		
	Total	460,627	433			
Factor 1 - Quality Culture	Between Groups	1,545	5	0,309	1,649	0,146
	Within Groups	80,010	427	0,187		
	Total	81,555	432			
Factor 2 - Ownership	Between Groups	2,357	5	0,471	2,264	**0,047**
	Within Groups	88,923	427	0,208		
	Total	91,281	432			
Factor 3 - Non-Conformance	Between Groups	1,815	5	0,363	1,417	0,217
	Within Groups	106,279	415	0,256		
	Total	108,093	420			
Factor 4 - Increase	Between Groups	1,908	5	0,382	1,167	0,325
	Within Groups	134,106	410	0,327		
	Total	136,014	415			
Factor 5 - Management	Between Groups	2,152	5	0,430	1,126	0,346
	Within Groups	160,459	420	0,382		
	Total	162,611	425			
Factor 6 - Assurance	Between Groups	3,802	5	0,760	1,602	0,158
	Within Groups	194,612	410	0,475		
	Total	198,413	415			

A8 - Language		Sum of Squares	df	Mean Square	F	Sig.
Factor 7 – Training (C)	Between Groups	2,505	5	0,501	0,596	0,703
	Within Groups	347,289	413	0,841		
	Total	349,795	418			

Source: SPSS

A9 - Qualification		Sum of Squares	df	Mean Square	F	Sig.
B1_marked	Between Groups	0,186	5	0,037	0,545	0,742
	Within Groups	36,895	542	0,068		
	Total	37,080	547			
B2_marked	Between Groups	0,476	5	0,095	0,920	0,468
	Within Groups	56,050	542	0,103		
	Total	56,526	547			
B3_marked	Between Groups	0,851	5	0,170	2,108	0,063
	Within Groups	43,767	542	0,081		
	Total	44,619	547			
B4_marked	Between Groups	1,287	5	0,257	2,896	**0,014**
	Within Groups	48,193	542	0,089		
	Total	49,480	547			
B5_marked	Between Groups	0,934	5	0,187	1,587	0,162
	Within Groups	63,802	542	0,118		
	Total	64,735	547			
B6_marked	Between Groups	0,576	5	0,115	1,046	0,390
	Within Groups	59,736	542	0,110		
	Total	60,312	547			
B7_marked	Between Groups	0,443	5	0,089	1,087	0,367
	Within Groups	44,176	542	0,082		
	Total	44,619	547			
B8_marked	Between Groups	0,665	5	0,133	1,054	0,385
	Within Groups	68,363	542	0,126		
	Total	69,027	547			

A9 - Qualification		Sum of Squares	df	Mean Square	F	Sig.
B9_marked	Between Groups	0,269	5	0,054	0,511	0,768
	Within Groups	57,022	542	0,105		
	Total	57,290	547			
Total (B1-9)	Between Groups	10,179	5	2,036	2,098	0,064
	Within Groups	525,928	542	0,970		
	Total	536,108	547			
Factor 1 - Quality Culture	Between Groups	1,236	5	0,247	1,295	0,265
	Within Groups	103,291	541	0,191		
	Total	104,527	546			
Factor 2 - Ownership	Between Groups	1,907	5	0,381	1,648	0,146
	Within Groups	125,204	541	0,231		
	Total	127,111	546			
Factor 3 - Non-Conformance	Between Groups	1,995	5	0,399	1,440	0,208
	Within Groups	144,913	523	0,277		
	Total	146,907	528			
Factor 4 - Increase	Between Groups	0,147	5	0,029	0,088	0,994
	Within Groups	174,314	520	0,335		
	Total	174,461	525			
Factor 5 - Management	Between Groups	1,125	5	0,225	0,556	0,734
	Within Groups	214,472	530	0,405		
	Total	215,597	535			
Factor 6 - Assurance	Between Groups	5,142	5	1,028	2,201	0,053
	Within Groups	243,004	520	0,467		
	Total	248,146	525			

A9 - Qualification		Sum of Squares	df	Mean Square	F	Sig.
Factor 7 – Training (C)	Between Groups	5,100	5	1,020	1,169	0,323
	Within Groups	458,007	525	0,872		
	Total	463,106	530			

Source: SPSS

ANNEXURES N - PRACTICAL SIGNIFICANCE (QUALITY TERMS VS FACTORS)

Total (B1-9) grouped (Quality terms: QA, QC & TQM)		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Effect Size		
						Lower Bound	Upper Bound			**<= 2 marks with…**	**= 3 marks with…**	**<= 5 marks with…**
Factor 1 - Quality Culture	<= 2 marks	43	2,8409	0,39109	0,05964	2,7205	2,9613	2,09	4,00			
	= 3 marks	433	2,9151	0,43009	0,02067	2,8745	2,9558	1,30	4,00	0,17		
	<= 5 marks	116	2,7566	0,43069	0,03999	2,6774	2,8358	1,25	4,00	0,20	**0,37**	
	<= 9 marks	22	2,6007	0,27283	0,05817	2,4798	2,7217	2,17	3,25	**0,61**	**0,73**	**0,36**
	Total	614	2,8687	0,42979	0,01734	2,8347	2,9028	1,25	4,00			
Factor 2 - Ownership	<= 2 marks	43	3,0624	0,53120	0,08101	2,8989	3,2259	1,80	4,00			
	= 3 marks	433	3,2405	0,47942	0,02304	3,1952	3,2858	1,80	4,00	**0,34**		
	<= 5 marks	116	3,0708	0,42076	0,03907	2,9934	3,1482	2,00	4,00	0,02	**0,35**	
	<= 9 marks	22	2,9205	0,46102	0,09829	2,7161	3,1249	2,20	4,00	**0,27**	**0,67**	**0,33**
	Total	614	3,1845	0,47960	0,01936	3,1465	3,2225	1,80	4,00			
Factor 3 - Non-Conformance	<= 2 marks	42	2,6171	0,53282	0,08222	2,4510	2,7831	1,00	3,50			
	= 3 marks	417	2,8335	0,49875	0,02442	2,7855	2,8815	1,00	4,00	**0,41**		
	<= 5 marks	114	2,7222	0,54365	0,05092	2,6213	2,8231	1,00	4,00	0,19	0,20	
	<= 9 marks	20	2,3542	0,61942	0,13851	2,0643	2,6441	1,00	3,00	**0,42**	**0,77**	**0,59**
	Total	593	2,7806	0,52331	0,02149	2,7384	2,8228	1,00	4,00			

Total (B1-9) grouped (Quality terms: QA, QC & TQM)		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Effect Size		
						Lower Bound	Upper Bound			**<= 2 marks with…**	**= 3 marks with…**	**<= 5 marks with…**
Factor 4 - Increase	<= 2	41	3,0854	0,45965	0,07179	2,9403	3,2305	2,00	4,00			
	= 3 marks	415	3,1301	0,56460	0,02772	3,0756	3,1846	1,00	4,00	0,08		
	<= 5 marks	113	2,9779	0,57628	0,05421	2,8705	3,0853	1,00	4,00	0,19	**0,26**	
	<= 9 marks	20	2,7250	0,59549	0,13316	2,4463	3,0037	2,00	4,00	**0,61**	**0,68**	**0,42**
	Total	589	3,0840	0,56708	0,02337	3,0381	3,1299	1,00	4,00			
Factor 5 - Management	<= 2 marks	42	2,8214	0,62295	0,09612	2,6273	3,0156	1,00	4,00			
	= 3 marks	427	3,0937	0,61525	0,02977	3,0352	3,1522	1,00	4,00	**0,44**		
	<= 5 marks	113	2,9159	0,63704	0,05993	2,7972	3,0347	1,00	4,00	0,15	**0,28**	
	<= 9 marks	21	2,6190	0,56800	0,12395	2,3605	2,8776	1,50	4,00	**0,32**	**0,77**	**0,47**
	Total	603	3,0249	0,62827	0,02559	2,9746	3,0751	1,00	4,00			
Factor 6 - Assurance	<= 2 marks	41	2,4268	0,64770	0,10115	2,2224	2,6313	1,00	4,00			
	= 3 marks	416	2,6142	0,67899	0,03329	2,5487	2,6796	1,00	4,00	**0,28**		
	<= 5 marks	112	2,5491	0,72894	0,06888	2,4126	2,6856	1,00	4,00	0,17	0,09	
	<= 9 marks	20	2,3500	0,72729	0,16263	2,0096	2,6904	1,00	3,00	0,11	**0,36**	**0,27**
	Total	589	2,5798	0,68976	0,02842	2,5240	2,6356	1,00	4,00			

Total (B1-9) grouped (Quality terms: QA, QC & TQM)		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	**Effect Size**		
						Lower Bound	Upper Bound			**<= 2 marks with…**	**= 3 marks with…**	**<= 5 marks with…**
Factor 7 – Training (C)	<= 2 marks	43	2,5581	0,94465	0,14406	2,2674	2,8489	1,00	4,00			
	= 3 marks	418	2,7157	0,89401	0,04373	2,6298	2,8017	1,00	4,00	0,17		
	<= 5 marks	113	2,4609	0,95198	0,08955	2,2835	2,6384	1,00	4,00	0,10	**0,27**	
	<= 9 marks	21	1,8690	0,83524	0,18226	1,4889	2,2492	1,00	3,75	**0,73**	**0,95**	**0,62**
	Total	595	2,6261	0,92195	0,03780	2,5518	2,7003	1,00	4,00			

Source: SPSS

ANNEXURES O - ANOVA – TABLE OF STATISTICAL SIGNIFICANCE

Description		Sum of Squares	df	Mean Square	F	Sig.
Factor 1 - Quality Culture	Between Groups	4,004	3	1,335	7,453	**0,000**
	Within Groups	109,230	610	0,179		
	Total	113,234	613			
Factor 2 - Ownership	Between Groups	5,033	3	1,678	7,527	**0,000**
	Within Groups	135,966	610	0,223		
	Total	140,999	613			
Factor 3 - Non-Conformance	Between Groups	6,317	3	2,106	7,960	**0,000**
	Within Groups	155,807	589	0,265		
	Total	162,124	592			
Factor 4 - Increase	Between Groups	4,733	3	1,578	5,006	**0,002**
	Within Groups	184,357	585	0,315		
	Total	189,090	588			
Factor 5 - Management	Between Groups	8,560	3	2,853	7,461	**0,000**
	Within Groups	229,067	599	0,382		
	Total	237,627	602			
Factor 6 - Assurance	Between Groups	2,613	3	0,871	1,838	0,139
	Within Groups	277,137	585	0,474		
	Total	279,750	588			
Factor 7 – Training (C)	Between Groups	18,674	3	6,225	7,566	**0,000**
	Within Groups	486,219	591	0,823		
	Total	504,893	594			

Source: SPSS

ANNEXURES P - SPEARMAN'S RATIO (AGE)

Correlations				
Description			A1	A2
Spearman's ratio	A1 - Age	Correlation Coefficient	1,000	0,785
		Sig. (2-tailed)		**0,000**
		N	535	369
	A2 - Years experience	Correlation Coefficient	0,785	1,000
		Sig. (2-tailed)	0,000	
		N	369	394

Source: SPSS

ANNEXURES Q - SPEARMAN'S RATIO

Description			Total (B1-9)	Factor 1 - Quality Culture	Factor 2 - Ownership	Factor 3 - Non-Conformance	Factor 4 - Increase	Factor 5 - Management	Factor 6 - Assurance	Factor 7 – Training (C)
Spearman's rho	Total (B1-9)	Correlation Coefficient	1,000	-0,166	-0,128	-0,089	-0,117	-0,093	-0,012	-0,113
		Sig. (2-tailed)		**0,000**	**0,002**	**0,031**	**0,005**	**0,023**	0,763	**0,006**
		N	615	614	614	593	589	603	589	595
	Factor 1 - Quality Culture	Correlation Coefficient	-0,166	1,000	0,384	0,151	0,190	0,364	0,328	0,389
		Sig. (2-tailed)	**0,000**		**0,000**	**0,000**	**0,000**	**0,000**	**0,000**	**0,000**
		N	614	614	614	593	589	603	589	595
	Factor 2 - Ownership	Correlation Coefficient	-0,128	0,384	1,000	0,083	0,343	0,584	0,149	0,324
		Sig. (2-tailed)	**0,002**	**0,000**		**0,044**	**0,000**	**0,000**	**0,000**	**0,000**
		N	614	614	614	593	589	603	589	595
	Factor 3 - Non-Conformance	Correlation Coefficient	-0,089	0,151	0,083	1,000	0,123	0,150	0,185	0,087
		Sig. (2-tailed)	**0,031**	**0,000**	**0,044**		**0,003**	**0,000**	**0,000**	**0,037**
		N	593	593	593	593	582	590	582	583
	Factor 4 - Increase	Correlation Coefficient	-0,117	0,190	0,343	0,123	1,000	0,244	0,102	0,141
		Sig. (2-tailed)	**0,005**	**0,000**	**0,000**	**0,003**		**0,000**	**0,014**	**0,001**
		N	589	589	589	582	589	586	579	581
	Factor 5 - Management	Correlation Coefficient	-0,093	0,364	0,584	0,150	0,244	1,000	0,249	0,166
		Sig. (2-tailed)	**0,023**	**0,000**	**0,000**	**0,000**	**0,000**		**0,000**	**0,000**
		N	603	603	603	590	586	603	586	591

Description			Total (B1-9)	Factor 1 - Quality Culture	Factor 2 - Ownership	Factor 3 - Non-Conformance	Factor 4 - Increase	Factor 5 - Management	Factor 6 - Assurance	Factor 7 – Training (C)
	Factor 6 - Assurance	Correlation Coefficient	-0,012	0,328	0,149	0,185	0,102	0,249	1,000	0,122
		Sig. (2-tailed)	0,763	**0,000**	**0,000**	**0,000**	**0,014**	**0,000**		**0,003**
		N	589	589	589	582	579	586	589	580
	Factor 7 – Training (C)	Correlation Coefficient	-0,113	0,389	0,324	0,087	0,141	0,166	0,122	1,000
		Sig. (2-tailed)	**0,006**	**0,000**	**0,000**	**0,037**	**0,001**	**0,000**	**0,003**	
		N	595	595	595	583	581	591	580	595

Source: SPSS

ANNEXURES R - ETHICAL CLEARANCE

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ETHICAL CLEARANCE

This letter serves to confirm that the research project of **DU TOIT, JS** has undergone ethical review. The proposal was presented at a Faculty Research Meeting and accepted. The Faculty Research Meeting assigned the project number **EMSPBS16/11/25-01/52**. This acceptance deems the proposed research as being of minimal risk, granted that all requirements of anonymity, confidentiality and informed consent are met. This letter should form part or your dissertation manuscript submitted for examination purposes.

Yours sincerely

Prof CJ Botha

Manager: Research - NWU Potchefstroom Business School

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