QUALITY ASSURANCE FRAMEWORK FOR SMALL MANUFACTURING COMPANIES IN THE CLOTHING INDUSTRY IN THE CAPE METROPOLITAN AREA

by

INGRID NORTON

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FACULTY OF BUSINESS
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BELLVILLE

I, Ingrid Norton, hereby declare that the contents of this thesis represent my own unaided work, and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinion and not necessarily those of the Cape Peninsula University of Technology.

Signature: 

Date: 18/04/2007

SYNOPSIS

An assessment undertaken by the Clothing and Textile Centre in the Western Cape (Clotex) during 2002 revealed that there was a great need for quality in the clothing sector. Furthermore, the research undertaken by the Department of Science and Technology (2004) supports and recommends the development of simple, paper-based systems for implementation and measurement for quality and production systems.

An analysis of the macro- and micro-environmental factors confronting the clothing industry revealed that substantial pressure was placed on the clothing industry due to unfavourable exchange rates, increased pricing and illegal imports. The result has been a decline in sales, profits and exports, which has lead to the closure of many clothing companies in the Western Cape during the period 2003 to present. Furthermore, this has resulted in the increase of SMME companies that have been established due to the increase in unemployment.

A combination of qualitative and quantitative research techniques was applied during this study, namely focus-group sessions and survey questionnaires. Six focus-group sessions were held with participants from the retail sector, large manufacturers and small manufacturers with the purpose to establish the quality needs in the clothing industry and the type of quality systems utilised. The outcome of the focus group was the development of a questionnaire, using both a combination of scale response questions as well as dichotomous questions. As

a result a research survey was conducted amongst the small manufacturing companies in the Western Cape who conform to the provisions contained in the *National Business Act*, 1996 (Act 102 of 1996).

The research revealed that all the respondents had implemented quality control systems. Quality control systems are viewed as preventative systems in ensuring that goods not conforming to customer specifications are prevented from reaching the customer. The research analysis further revealed that communication between buyer and seller was an integral part of the success of the business.

The research provides small-business with a framework, which will facilitate the evaluation of the current quality practices with the view to improving or implementing an effective quality assurance system.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

Quality has become one of the fundamental principles on which manufacturing processes are based worldwide. Management are responsible for all decisions with regards to quality, quantity and budget. The responsibility of quality and quantity will be delegated to the lower levels within the organisation providing time and opportunity for the manager to concentrate on managing the business. The responsibility for quality is vested with the operators who would be held responsible for poor quality. To create a culture of quality, it is deemed necessary that everyone in the company be included in the quality improvement process in order to achieve the best results possible.

The management approach employed in large manufacturing companies has been transferred to the small manufacturers, as the owners of these companies have been exposed to these methods of management. A quality culture in small manufacturing allow management to utilise the strengths and expertise of the people employed within the company. Consequently, management ensures that operators receive the correct information in order to make informed decisions.

Due to various constraints, the small manufacturer experiences many problems with regard to quality as the quality systems utilised by large manufacturers are

not transferred to small manufacturing companies. The following aspects contribute to quality standards not being met:

- old machinery used;
- bad planning;
- lack of people and skills and/or
- non-existent quality system.

1.2 Normative explanation of quality

To contextualise the research project, a normative explanation of quality is provided, as well as its relation to the clothing industry. According to Flood (1993:12-37) there are various models for quality assurance including:

- Total Quality Management (TQM); continuous improvement which formed the underlying philosophy of the Japanese success;
- Deming's 14 point plan to improve quality;
- Juran's management breakthrough which included a procedure designed to gain and maintain quality improvement;
- Philip B. Crosby's philosophy of zero defect; and
- Armand V. Feigenbaum's basic concepts of total quality control.

All the above quality models of techniques will be discussed in Chapter 2, and a summary will be drawn of the key points, that would assist the development of a quality system for small manufacturing companies in the clothing industry.

1.2.1 Identifying quality

Creech (1994:6) states that the product is the "focal point" of achievement in any organisation and that it is impossible to produce a quality garment without having quality employed in the process. Quality is impossible, if there is no pre-planning and the proper leadership. The support of operators committed to quality is imperative, for without this commitment, it would be impossible to achieve quality in the company. On the one hand, Summers (2000:9) states that quality focuses on being effective, thereby achieving customer requirements by not "... only doing things right, but by doing right things right." On the other hand, Dilworth (1993:463) defines quality as an evaluation made on products produced by the small manufacturer. This is carried out by a person not employed by the small manufacturing company and is commonly referred to as a quality audit. To achieve the quality goals set by the customer, everyone in the company has to work together as a team. Quality means different things to different customers and therefore, a small manufacturing company who serves more than one client must establish the needs of each customer. This leads to the concepts of quality-assurance and quality-control and how these concepts fit into the small business environment.

1.2.2 Quality-control vs. quality-assurance

Summers (1997:9) refer to Quality Control (QC) as a mechanism that has been introduced to ensure that the customer specifications conform to customer needs, thereby improving the quality of the product. According to Summers

(1997:9) the organisation has to proceed beyond inspection and establish customer needs; conform to the standards that have been set by the customer and find an efficient way of dealing with defective work which would contribute to preventing non-conformance to standards. Similarly, Bell, McBride and Wilson (1998:2–3) refer to QC as being concerned with "... the techniques and activities which sustain quality to specified requirements..." This would refer to a check system that ensures that reject garments are prevented from reaching the customer.

Besterfield (1998:12) states that Quality Assurance (QA) "...determines the effectiveness of the system, appraises the current quality, determines quality problem areas and assists in the correction or minimisation of these problems..." Summers (1997:9) states that QA focuses on the various procedures that enable the product conform to customer specifications. QA focuses more on the system in the entire company to ensure that the product produced, is produced right first time. QA proactively involves the detection of faults before they occur. QA without the involvement of management will not be successful and therefore the principles of Total Quality Management (TQM) must be taken into consideration.

1.2.3 Total Quality Management (TQM) and beyond

Besterfield (1998:3) defines TQM "... as both a philosophy and a set of guiding principles..." which form the fundamental process of continuous improvement in any organisation. A business uses the expertise of human resources and data

collection to improve the processes in the organisation so that customer requirements and deadlines are met. To reach the objectives of the organisation in a disciplined way, procedures relating to the fundamental management principles, equipment and existing improvement efforts are utilised. TQM relates to the product being delivered on time, at the right cost and according to the customer requirements. Processes and support processes involved in the production of the product must be effective and efficient to ensure that this requirement of quality and price is adhered to.

According to Muhlemann, Oakland and Lockner (1982:97) the company's success and the future of employees are dependent on the quality of products produced. Customers that are satisfied place more orders that in turn ensures stability and a sustainable income for the company. Good relationships forged with customers, presents the company the opportunity to reposition themselves and develop in other areas of business. Quality could be referred to the customer returning to order more and not orders being rejected due to unacceptable quality.

A strong move towards quality within small manufacturing companies must be investigated for them to survive and grow. To achieve the above, there has to be a change of attitude towards employees, training of employees, commitment from owners and a commitment towards the implementation of quality systems.

According to Creech (1994:5) a successful change programme needs to meet the following four criteria to implement a quality-assurance system:

- it must be based on a 'quality mindset and orientation', which has to be included in all processes and products that are produced;
- it must use a human approach which includes quality in the way that employees are treated, included in decision-making and motivated;
- it must include decision-making with regards to quality in conjunction with employees on all levels should be in order to reach a common goal or purpose; and
- it must be applied "... holistically so its principles, policies and practices reach every nook and cranny of the organisation..."

1.3 Explanation of the problem

Appolis (interview, 26 November 2003) stated that an assessment of small manufacturers undertaken by the Clothing and Textiles Service Centre for the Western Cape (Clotex) revealed that a great need for quality assurance in this sector was required. Further studies undertaken by Dunn (2000:17) confirmed that quality was the second most important factor considered by retailers in South Africa, when acquiring clothing from clothing manufacturers and that the expected level of quality was not always achieved.

Research undertaken by Manning (1993:12) in KwaZulu Natal, confirmed that great concern exists with regard to the quality of garments produced by small

manufacturers. The decentralised nature of production made it difficult for large manufacturers to control the quality of the work, resulting in a high reject rate. Manning (2000:693) further reports that according to a large clothing manufacturer only "... gave out low quality, cheap garments..." to small manufacturers because they chose not to manufacture these products in their factories. This confirms the existence of the problem that small manufacturers need to develop in the area of quality assurance in order to conform to the standards as propagated by the South African Bureau of Standards (SABS).

In small manufacturing companies, quality control techniques consist largely of 100% inspection with the result that a large number of employees are used to undertake inspection. More examiners employed will not necessarily reduce the number of rejects or repairs manufactured on the production floor. Quality assurance could be used as an important intervention to ensure that garments are manufactured in accordance to standards and specifications supplied by customers.

1.4 Problem statement

The quality system used is inadequate in small manufacturing companies in the Cape Metropolitan Area (CMA).

1.5 Research purpose

In view of the foregoing, the following research purpose has been formulated:

To assess the extent of the impact of inadequate quality systems used and to develop a QA framework for small manufacturing companies within the clothing industry in the CMA.

1.6 Research approach and design

A participative action research approach was adopted for this research study. The first activity in the research approach was to conduct an in-depth literature review to ascertain:

- The proposed developed normative models;
- the types of QA systems in operation in small manufacturing companies;
- the types of quality systems used in the clothing industry in the Cape Metropolitan area; and
- identify the nature and characteristics of effective quality systems for small manufacturers.

The second activity was to determine the existence and/or type of developed quality systems in existence in the research population. The participants included 200 small, medium and large manufacturers administrated by the Textile Technology station at the Cape Peninsula University of Technology, Bellville campus. The statistics and information relating to these companies were gathered by means of questionnaires, telephone enquiries and factory visits.

Action participatory research is distinguished according to Bless and Higson-Smith (1995:55) as including all:

- the people involved in the research; and
- the use of research as a tool for action to increase knowledge.

Furthermore, Bless and Higson-Smith (1995:56) state that action participatory research allows the "...social scientist and the community..." to work as partners in the planning and implementation of a project.

Against this paradigm of exploratory research, an action research approach was adopted which according to Welman and Kruger (2001:21-22) is distinguished by a problem that exists in an organisation or industry which in this case relates to the quality practices of small manufacturing companies. The underpinning assumption of this research is that a quality assurance framework be developed in accordance with the unique characteristics of the small manufacturer in the clothing industry to achieve customer requirements, provided that it includes all the principles of QA.

1.7 Research process

Focus group sessions were held with the quality managers of large manufacturers (customers), retailers and owners of small manufacturers. The information collected from these sessions was used to develop an instrument for

distribution to the small manufacturing companies. The objective of this survey was twofold, namely:

- to establish the requirements of a suitable QA system; and
- to gauge the effectiveness of the existing quality systems.

According to Neuman (2000:34) survey techniques would involve asking people questions, in a written questionnaire or during an interview and a picture would be formed of what people are thinking. The responses were summarised in the form of tables, graphs or percentages and the data collected was analysed according to the Statistical Package for the Social Sciences (SPSS).

Based on the information collected, the strengths and weaknesses of the quality practices were identified and these areas were further examined. A gap analysis between the existing quality assurance practices and desired practices was undertaken, which assisted in the development of a quality assurance framework.

1.8 Delimitation of research

The sample was drawn from small manufacturers employing 50 or less than 50 workers with an annual turnover of R10,000,000. The delimitation of the research population is in accordance with the Standard Industrial Classification (SIC), Republic of South Africa, as prescribed by the *National Business Act*, 1996 (Act 102 of 1996).

According to Naumann (2002:4) the biggest concentration of clothing manufacturers are in the Western Cape (324), KwaZulu Natal (153) and Gauteng (171). Neumann's (2002:4) report indicated that research undertaken by Marketing and Planning Consulting services (MPCS Consulting) identified that there were approximately 630 Cut, Make and Trim (CMT) companies in the Western Cape. As the main manufacturing centres are located in the CMA, Paarl, Atlantis, Worcester and Wellington areas, the locum of the research will be in the CMA. The CMT categories include garments, furnishing, industrial (tents and tarpaulins) and embroidery.

According to Allie (personal communication, 16 January 2006) there are about 200 small manufacturing companies in the Western Cape. The owners of these businesses are people who have been employed in the clothing industry and presently apply their skills and sell their services to larger companies. This is verified by Rogerson (2000:293) who states that owners of small manufacturing companies are traditionally people who were employed in larger companies and have set up their own businesses.

The research will be confined to small manufacturers within the Metropolitan area of Cape Town, in the Western Cape. The small manufacturers included in the research project possess the following characteristics:

- conformance to the *National Business Act 1996* definition;
- possession of a production floor and despatch only;

- possession of a cutting room, production floor and despatch; and
- production of goods for retailers and large manufacturers.

The research will exclude:

- The investigation of production systems employed in these businesses even though they may affect the quality and productivity of the organisation.

1.9 Anticipated benefits

The benefits of a quality assurance system would assist small manufacturers to reduce quality costs by implementing the principle of 'right first time', increase production levels resulting in business growth, investment in new technology leading to better lead times thus increasing capacity and reducing labour turnover which in turn leads to job satisfaction.

1.10 Structure of the thesis

Chapter 2 Provides an overview of the historical development of quality and the pioneers who were instrumental the various quality principles;

Chapter 3 A normative explanation of quality systems employed in the clothing industry.

Chapter 4 An analysis of the macro and micro environment and its influence on the clothing industry.

Chapter 5 An overview of small manufacturers in the clothing industry in the Cape Metropolitan Area.

Chapter 6 Describes a full explanation of the research design and methodology adopted.

Chapter 7 The findings of the focus group sessions are detailed.

Chapter 8 The findings of the survey are presented.

Chapter 9 Provides an analysis of the findings.

Chapter 10 This chapter provides a framework for a quality assurance system for adoption by small manufacturing companies.

Chapter 11 This chapter concludes this research and formulated recommendations for future study are presented.

1.11 Definition of concepts

Customer – Someone outside of the company who received and is affected by the work that the manufacturer produces (Anon, 2000).

Inspection - An activity in the company that is designed to detect faults or rejects in completed or partly completed garments against an acceptable standard (Glock and Kunz, 2000: 211).

Internal customer – Someone inside the factory that is affected by the work produced (Anon, 2000).

Operators – People who have been trained to perform a specific function related to the production of products.

Quality audit – A sample of the total order would be inspected to ensure that it conforms to the customer's requirements/standards. The garment is measured using the style specifications. The results are recorded and a decision to accept or reject the order would be based on this audit. (Glock and Kunz, 2000:216)

Reject – A garment that does not conform to the requirements of the customer and cannot be repaired (Anon, 2000).

Sample / Sealed sample – A garment that is made up by the manufacturer, which receives a seal of approval, by the customer whereby the rest of production will be judged.

Specifications – A detailed description of what is required, which is given to the manufacturer to ensure conformance to the design. (Chase & Aquilano, 1995:173)

Sub-standards – A product that does not meet the requirements set by the customer.

Non-conformance – "... state that exists when a product, service or material does not conform to the customer requirements or specifications". (Summers, 2000:628).

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CHAPTER TWO

HISTORICAL DEVELOPMENT AND REVIEW OF THE QUALITY PIONEERS AND THEIR MODELS

2.1 Introduction

This chapter focuses on the quality pioneers who have influenced the quality movement. The philosophies developed by these pioneers will serve as a premise to support the quality framework that will be proposed for small manufacturers in the clothing industry. The framework will include the various principles relating to quality control (QC) and quality assurance (QA). The following pioneers will be discussed in this chapter namely Shewhart, Deming, Juran, Feigenbaum, Ishikawa, Taguchi and lastly Crosby.

2.1.1 Walter Shewhart

According to Wadsworth, Stevens and Godfrey (2002:3), the earliest referencing to quality control in the United States was reported by Alexander Hamilton, the Secretary of the House of Representatives in 1709. The report referred to research on quality in the telephone system undertaken at the American Bell Telephone Company (AT&T) and documented in 1892. According to Wadsworth *et al* (2002:3) the telephone network was being developed to make long distance conversation possible, which meant that every section of the network had to function correctly.

The top priority of the company was to ensure that all the parts adhered to the exact standards required. The inspection department established in 1925 at the Bell Telephone Laboratories included persons such as Donald A. Quarles, Walter A. Shewhart, Harold F. Dodge and George D. Edwards. These persons were involved in the development of inspection, quality methods and quality performance, which was referred to as quality assurance at the time. Most of the concepts utilised by the subsequent quality pioneers discussed were based on the work of the above-mentioned persons.

The foregoing development lead to the implementation of statistical techniques which made information about process averages, defective percentages, customer risks and sampling errors available. By 1922 the company realised the need to further develop this function and the inspection of the telephones was extended to the Automatic Electric Company and the Stromberg-Carlson Company. Inspectors were sent out to the various companies to do inspection on materials repair and other "non-Western Electric" manufacturers. In 1925 the Bell Telephone Laboratories was created and Shewhart and his colleagues became the inventers of quality control and quality assurance. Shewhart was responsible for introducing the control chart as a basic manufacturing tool.

Summers (2000:28) present the two sources of variation as identified by Shewhart as *controlled variation* and *uncontrolled variation*. On the one hand controlled variation is commonly known as *common causes* and would be

present in the process of the work being carried out. It is only possible to remove this cause if the process is changed. An example of controlled variation is an operator doing a manual repetitive operation with reduction in time possible by introducing an attachment that would reduce handling. *Uncontrolled deviation* on the other hand, also termed as *special or assignable causes* would come from an external source to the process. In this instance, the quality of the fabric or the type of fabric used in the production of the product would be termed as an external source.

The Shewhart cycle (PDCA cycle) and control charts can be used to define standards; problem-solve and as a yardstick assess whether standards have been achieved. Summers (2000:31) state that the Shewhart's cycle was developed for manufacturing processes even though it is possible to successfully use the principle in non-manufacturing environments.

2.1.2 W. Edwards Deming

According to Flood (1993:12) Deming was an American who started his quest for quality in the 1940s by offering his services to the Japanese industry, through the Japanese Union of Scientists and Engineers (JUSE). His main focus was to teach the Japanese top management that customers and suppliers were part of the quality system and that quality was a continuous cycle. According to Latzko & Saunders (1995:27), Deming was of the view that quality had to be directed by management and not based on the number of products produced. The quality

required by customer must be built into the product at the production stage. Madu (1998:4) states that Deming's teachings were based on the work of Walter Shewhart who did research on variations within the production processes. The Shewhart Cycle commenced with design, through production, selling and testing. The results of these measurements were utilised to implement the necessary improvements resulting in the success of the Japanese economy. Using this cycle, Deming introduced the Plan-Do-Check-Act (PDCA cycle), as it is currently used.

The aim of the cycle is to solve problems using a systematic approach. It begins with the *Plan* phase, as this is the most important area used to identify a problem. The *Do* phase deals with the development of the plan in order to implement possible solutions. The *Check* phase is used to monitor the progress of the implemented plan and the *Action* phase, evaluates the results that are achieved in order to either start the process over again or to prevent the problem from recurring.

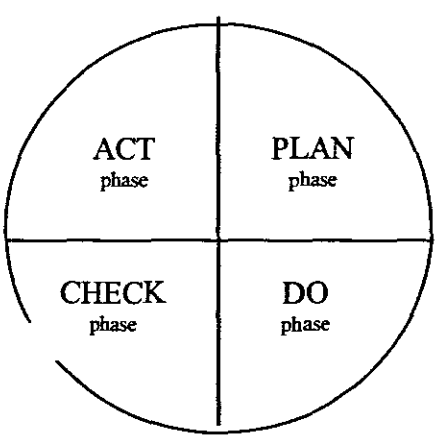

Figure 2.1: PDCA cycle (Latzko & Saunders; 1999:65)

Figure 2.1 represents continuous improvement and therefore once the problem is solved, the process would be repeated over again from the plan phase. Continuous improvement is not easy as time and energy has to be put into the process and ultimately success will depend upon the dedication of management.

According to Latzko and Saunders (1995:46), Deming further explicates the management theory on the improvement of quality, efficiency and competition which consists of 14 points. These points are essential points of action for management on all levels starting from the top down. Latzko and Saunders (1995:46 – 115) explain the 14 points as follows:

1. Create a constancy of purpose with a plan to become more competitive with the improvement of the product and service in order to stay in business,
2. A new philosophy must be adopted. At present common accepted delays, mistakes, faulty materials and defective workmanship is no longer unacceptable,
3. Stop dependence on mass inspection. The quality must be built into the product while it is being produced,
4. Business must be awarded to deserving companies instead of those that have a cheaper price. Suppliers who cannot supply comply with statistical evidence of quality should be eliminated,

5. Find the root of problems. Management has the responsibility of continually improving the system employed in product development, service and processes,
6. Skills should be developed by doing training on the job,
7. Introduce leadership which will enable people to do improve on their jobs,
8. Eliminate fear so that everyone can contribute effectively towards the company,
9. Overcome division between departments. All the all departments must combine efforts and work together as a team to eliminate production problems relating to various materials and specifications,
10. Eradicate the practice of wanting to improve productivity without providing the necessary methods instead of goals, posters and slogans,
11. Eliminate hourly and daily targets related to standard times,
12. Remove obstacles that prevent people from taking pride in their work,
13. Implement a dynamic program of education and training, and
14. Create a structure and system that will drive everyone to work according to the 13 points every day.

The first point encourages management to improve the product continuously and service through research, innovation and education in all areas of the business. This seeks commitment and dedication from everyone concerned to ensure that the task is performed at its best. The second point encourages the organisation to move away from accepting rejects and to support and initiate continuous

improvement of quality. The remaining points deal with the approach of management to previous and current business practices relating to mass inspection, pricing, lack of training, work standards and quantities, education and transparency. The authors emphasise that it is possible to overcome obstacles if the channels of communication in the company are open which will contribute to workers performing at their best levels leading to more effective solutions to problems.

To achieve the 14 points above, Latzko and Saunders (1995:132) state that Deming implemented a plan for management to assist the process of transformation. Latzko and Saunders (1995:132) declare that these obstacles should be understood and resolved through management action. Latzko and Saunders (1995:118-132) summarise these obstacles as *seven deadly diseases.* The seven deadly diseases are, a lack of constancy of purpose; emphasis on short term profits; evaluation of performance, merit rating or annual review; mobility of management; running a company on visible figures alone; excessive medical costs and excessive legal costs".

To overcome these obstacles, the organisation must plan strategically so that they know where the company is heading. Top management must direct the company into the future or the company will not remain competitive. Everyone must share the company vision so that workers understand and know what they are required to do and how these requirements are to be achieved. Management

must shift their focus from financial gains through short-term profits by assessing their current and future needs and future opportunities for new business. The assessment of performance, merit scores, or annual review to establish how efficiently people are operating within the business should be reviewed. This causes people to move from one company to the other for quick results and higher wages.

2.1.3 Joseph M. Juran

Juran played an important role in the development of quality in Japan as Deming had done in America, but his work was more of a technical nature. According to Flood (1993:18) Juran emphasises the importance of top and middle management's involvement in quality issues, and it was his view that quality was the responsibility of management.

In view of this approach, Juran and Godfrey (1999:2.1) defines quality as "... those features of products which meet customer needs and thereby provide customer satisfaction". Quality therefore relates to income and purpose with the emphasis on customer satisfaction leading to increased income. Juran and Godfrey (1999:2.2) further refers to quality as a freedom from deficiencies. This is however, dependent on the following factors:

- the introduction of training programmes and procedure manuals,
- quality defined as conforming to the specification in order to meet customer requirements, and

- customer needs require internal organisational standards not found in specifications.

Juran and Godfrey (1999:2.3) explains the difference between 'Satisfaction' and 'Dissatisfaction'. Satisfaction is described as a product that has the necessary features, which makes the product sell whereas dissatisfaction originates when there are deficiencies.

According to Juran and Godfrey (1999:2.5), the only way to attain quality is to establish a vision, policies and a goal for a company. Flood (1993:18–19) supports Juran by stating that quality planning should involve a quality goal; a plan of action to meet goals, a means of resource identification to meet the deadlines and the translation of the goals into quality.

Juran and Godfrey (1999:2.6) includes a trilogy of three managerial processes namely quality planning, quality control and quality improvement. The concept of trilogy is such, that any organisation can use this process to reduce costs associated with poor quality and waste can be removed from the organisation. Juran and Godfrey (1999:2.6) propose a trilogy diagram (Table 2.2) that is used to describe quality problems as corrective action, troubleshooting and "putting out fires".

Table 2.2: Trilogy diagram

Planning	Control	Improvement
Establish quality goals.	Evaluate actual performances.	Prove the need.
Identify who the customers are.	Compare actual performance with quality goals.	Establish the infrastructure.
Determine the needs of the customers.	Act on the differences.	Identify the improvement projects.
Develop product features that respond to customers' needs.		Establish project teams.
Develop processes able to produce the product features.		Provide the teams with resources, training and motivation to: Diagnose the causes Stimulate remedies
Establish process controls; transfer the plans to the operating forces.		Establish controls to hold the gains.

Source: Juran and Godfrey (1999:2.6)

In summarising Juran's quality plan, the QC model incorporates a feedback mechanism for management with regards to evaluating product performance and a yardstick to measure set criteria (specifications as well as a form of corrective action against deviations). Juran and Godfrey (1999:2.9) describe specifications as a means of communication between buyer and seller or between the producer and buyer. Quality information can thus be communicated directly between the different parties no matter the distance between them.

The quality planning process together with the methods, tools and techniques ensures that the product is produced according to customer specifications. Problems in quality planning occur when there is a quality gap. The first component of the quality gap according to Juran and Godfrey (1999:3.2) is the "understanding gap". In this case, the producer does not consider who the customer is and what the customer's needs are. Figure 2.3 presents the gap that arises due to the failure to understand the customer and the customer needs.

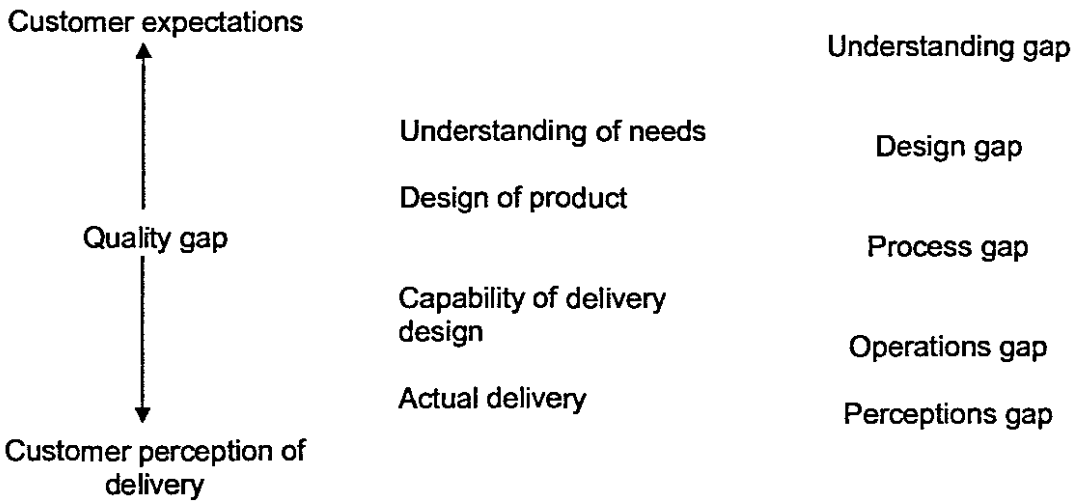

Figure 2.2: The gap and its constituent gaps (Juran and Godfrey, 1999: 3.2)

Lastly, quality improvement would ultimately lead to the reduction of waste, improved delivery, employee and job satisfaction and the company becoming increasingly profitable with numerous material benefits leading to greater customer satisfaction.

According to Flood (1993:19), Juran is concerned that recent work done in quality management has contributed to managers not being in touch with the

basic needs of their organisations. Training is an important aspect of quality awareness so that it will bring about a change in the behaviour of management. Flood (1993:19) provides a method for implementing quality in the form of a 'quality-planning road map' based on Juran's approach relating to the customer and their needs. The importance of the customer is highlighted not only as being the end-user but also as the internal and external customer. The internal customer refers those persons within the organisation who is affected by the work being produced, which means that each person performing a job would be responsible to the next person. The external customer is referred to as someone outside of the organisation affected by the work produced.

Flood (1993:20) has divided Juran's road map into nine different sections presented below:

- customer identification both internally and externally;
- identify the needs of the customer;
- translate those needs into organisational language in order to know what the customer requirements are;
- development of a product that would satisfy a need;
- optimising product features to satisfy the needs of the organisation as well as the customer;
- develop a process, which in turn would produce the product according to customer needs;
- maximise the production process;

- the organisation must demonstrate evidence that the product can be produced under production conditions; and
- convert the process into operations.

The foregoing will lead to a better understanding of the customer and their needs, which could be put into action to satisfy new demands. Flood (1993:21-22) states that an organisation can cope with new customer demands, if they adopt the following eleven steps to quality improvement:

- all employees must be made aware of the need for quality improvement and that it requires leadership;
- goals for continuous improvement of quality must be set within all aspects of work done;
- ensure that goals are set according to organisational needs and that a procedure for achieving them has been established;
- all employees (including management) must be trained to ensure that their role in the improvement of quality is understood;
- problem solving methods must be undertaken to ensure that quality improvement is monitored and prevented on an ongoing basis;
- make sure that quality improvement is monitored on a regular basis;
- ensure that recognition of outstanding contribution to quality improvement is given;
- make sure that the outstanding contributions are published;

- have measurements in place for all processes and improvements made;
- ensure that the management system incorporates the continuous quality improvement and new quality goals of the company; and
- rewards gained, must be based on results achieved.

Juran's work emphasises the field of quality, which is characterised by commitment of management and their involvement in the quality process. Furthermore, it is important to understand the customer, to establish their needs and to find out what the organisation can do to fulfil those needs.

In retrospect Flood (1993:22) states that the problem with Juran's work is that quality is the sole responsibility of management and that the motivation of the workers has not been included. The operators directly responsible for producing the products are not given the responsibility for quality. Lastly, traditional methods of quality control are employed and cultural and political issues are not taken into consideration.

2.1.4 Armand V. Feigenbaum

Feigenbaum is the originator of the concept of Total Quality Control (TQC). Feigenbaum (1991:828-830) states that the key to success in business is to recognise that quality is what the customer and not the company says it is. The fundamentals of TQC, is the ability of the organisation to have a company-wide quality process; a business strategy; a means of managing and controlling

management and operational functions; and bringing together social, ethical and technical aspects of the organisation. In order to achieve this, emphasis is placed on the external customer as well as focusing on supplies and the supplier.

Feigenbaum (1991:831–834) presents four basic management fundamentals of total quality. Firstly, it is important to understand that there is no such thing as lasting quality levels. Feigenbaum declares that "... the only way to compete with quality is with more quality".

The second fundamental is that the trademark of good management is taking the leadership role in developing the skills required, developing the knowledge of quality and ensuring a positive attitude of everyone in the organisation. Leadership helps people to recognise that the effort put into improving will lead to business running smoother. Effective company-wide quality training is a continuous process that must be led by management and should form part of the organisation.

The third fundamental is essential for "successful innovation". New products are presently developed at an increased rate and therefore quality has to be a full or equal partner with innovation. These days, products are manufactured in more than one country and it is imperative that the whole process must be 'clearly and visibly' structured.

The fourth fundamental is that quality and cost are not two separate business objectives but that they compliment each other. It is the responsibility of management to ensure that everyone in the company understands that both quality and cost are important. Moreover, people need to understand that good quality is not more expensive as it is portrayed to be.

Feigenbaum (1991:834) stresses the effectiveness of the quality prize structures in Japan and refers to the importance of the Malcolm Bridge National Quality award programme, which is used in America and encourages quality leadership. Feigenbaum also states that the international standards ISO9000 series point towards a "... broad and systematic approach, rather than a narrow approach to quality achievement".

Flood (1993:36) refers to Feigenbaum and states that the main strengths of this process is the support of a total quality control approach; the vital role that management play in the quality process; and the value of "... socio-technical systems thinking. Lastly participation, co-operation and contribution must be encouraged to ensure that employees have a sense of belonging which will stimulate creativity.

In conclusion, (Flood, 1993:36) confirms that Feigenbaum's work emphasises that total quality programmes are important to effect the necessary changes that are required by any organisation. Management must therefore accept

responsibility for leadership decisions in order for the company to grow and increase customer satisfaction.

2.1.5 Kaoru Ishikawa

Ishikawa's philosophy is that Total Quality Control (TQC) must be implemented company-wide in order to contribute to the improvement of the organisation (Ishikawa, 1985:1). Ishikawa believes that QC becomes important as the industry level improves and 'civilisation rises'. Ishikawa's interest lies in the improvement of the Japanese economy through QC and TQC to strengthen the Japanese ability to export products nation-wide and worldwide. Quality control is described as the ability to do what needs to be done in the company. Ishikawa (1985:5) states that quality control without results, is not quality control and emphasises the need for the company to make money available for the implementation of QC in the organisation.

Flood (1993:33) describes Ishikawa's philosophy for organisations as 'Company-Wide Quality' which involves both vertical and horizontal co-operation. Flood describes vertical as being the co-operation between managers, supervisors and workers and horizontal co-operation as being the quality of supplied goods as well as assessing the end user through customer service. Flood refers to this as being functional co-operation and states that all functions in the organisation are brought together in order to achieve TQC. This process begins from strategic and corporate planning; gathering information on opportunities and constraints;

personnel and training; auditing and accounting; for co-ordinating the organisation's primary activities, and "for actually implementing primary activities".

Ishikawa (1985:13) emphasises that quality control starts and ends with the education of the employees. Elaborating on training, Flood (1993: 33) states that staff must be able to contribute to 'Company-Wide Quality' and that training in 'technical tools' is a key factor to achieve a high standard of knowledge. Tools emphasised by Ishikawa (1990) include: cause and effect diagrams, histograms, scatter diagrams; check sheets, Pareto diagrams, graphs and control charts, scatter diagrams, sampling and sampling inspection. Pareto diagrammes are simple basic graphs used in quality to set priorities. Isolated problems or causes of problems are classified according to the degree of importance and then it focuses on the one which deserves immediate attention. A Pareto graph is a combination of a line graph and a column graph. It is also known as the "80/20" principle that states that 80% of the problems are associated to 20% of the causes. Once the cause has been eliminated, the associated effects will automatically disappear.

The cause and effect diagram (fish bone diagram) or Ishikawa diagram is constructed like a fishbone. The diagram allows one to categorise causes into four areas – man, machine work, methods and materials. By brainstorming each possible cause, it is possible to determine the probable cause of the problem.

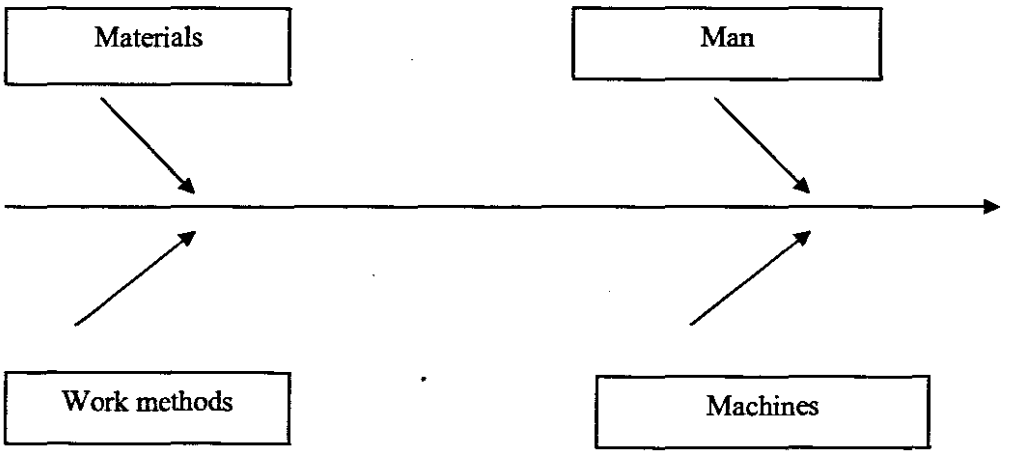

Figure: 2.3: Cause and effect diagram (adapted from Ishikawa, 1990:19)

Scatter diagrams are used to compare two different sets of data to establish whether a relationship exists between one cause and another. For example, we are able to relate the breakdown time to the history of the machine.

Ishikawa (1985:138–153) developed the concept of Quality Control Circles (QCC) to help implement the philosophy of participation. A quality circle is a small group of individuals who perform the quality control activities on a voluntary basis. The group meet regularly to identify, analyse and solve problems related to the workplace and are allowed to implement their ideas. If the QCC members do not have the necessary resources to make the changes, management is approached. Circle members are trained in basic methods of statistics and communication under the guidance of their facilitator.

According to Flood (1993:34 - 35), the main strengths of Ishikawa's work are:

- the strong emphasis on the importance of people and their participation in the problem-solving process;
- statistical and 'human orientated' methods and techniques are provided;
- "... a whole system view is stressed" in order to achieve quality thinking throughout the organisation as well as their suppliers;
- QCC's are normally performed within the manufacturing and service sectors.

Flood (1993:35) describes the weaknesses as:

- the fishbone approach does not show the complete interactive system;
- the management in the East are different to the West and therefore if management are not prepared to listen the whole process breaks down; and
- Ishikawa's ideas and philosophy would not perform well in a 'political and coercive environment'.

Ishikawa's work revolves around the continual engagement of workers in improving, developing and implementing solutions to problems in the organisation by placing pressure on management. Management on the other hand are willing to listen to the workers and are ready to act as they are committed to the quality circles. The workers are motivated as they are continuously looking at resolving problems and contributing to the success of the business.

2.1.6 Genichi Taguchi

Peace (1993:3) declares that it is important to review some of Taguchi's philosophies and contribution to the quality movement. Functional variation can be measured in terms of product performance such as strength, pressure, shrinkage, response time and mean time between failures. Functional performance relates to the performance of the end product or to the process that manufacture the end product. The purpose of the above is to identify the key factors that have the greatest effect on variation and to establish criteria, which can be utilised to ensure that the minimum variation is attained.

Peace (1993:4) confirms that Taguchi has been recognised for three major areas that contributed to the field of quality:

- "the loss function;
- orthogonal arrays and linear graphs;
- robustness".

The loss function reflects the importance of cost and the direct link between 'quality and corporate profitability'. This concept allows management to make sound decisions from data that has been collected in the organisation.

The second contribution is in the form of orthogonal arrays and linear graphs. The two statistical techniques are used to measure 'the effect of a factor on the average result' as well as to determine the variation from the mean. The results of the experiments are plotted on a linear graph, which provides a logical scheme

so that the orthogonal array will not affect the individual factors that are being studied.

The third contribution is the concept of robustness which is a combination of the product and the process. According to Peace (1993:5) the product is defined as the ability of the product to consistently perform as designed with minimal effect from changes in an uncontrollable environment. Furthermore, Peace (1993:5) defines the process as an ability to produce a good product consistently with the least possible changes in an uncontrollable manufacturing environment as there is always a degree of variation in the manufacturing environment. It is possible to have some degree of control but sometimes it is not practical and could be an expensive exercise.

According to Peace (1993:6), Taguchi takes the process a step further to incorporate the philosophy of quality engineering that relates to both design and manufacturing. It encompasses the quality control actions that comprises of the various stages of product research and development, process design, production and customer satisfaction. Goals will be supported that have been set by the organisation with the view to continuously improve quality, prompt problem-solving and cost-effectiveness while satisfying quality gains. The goals can be divided into two categories, namely on-line quality control and off-line quality control.

The following diagram provides a breakdown of the quality engineering function as it is utilised in the industry in terms of on-line and off-line quality control.

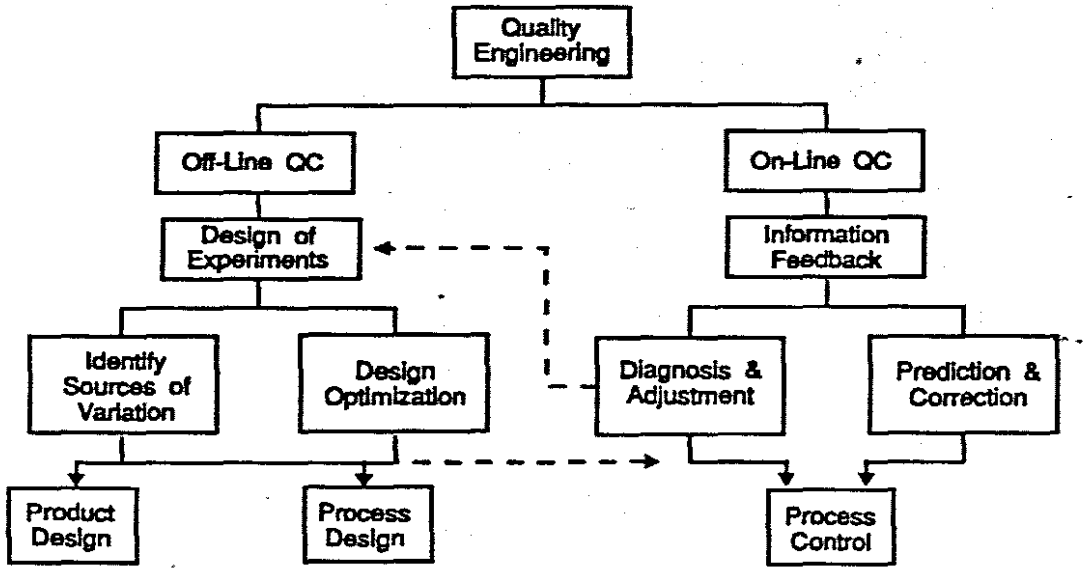

Figure 2.4: Quality engineering (Source: Peace, 1993: 6)

On-line quality control involves the process of continually monitoring the actual products being produced on the production floor. This technique would include examining and measuring products so that corrective action can be taken against any problems that are identified. Information is used as a source of feedback to the supervisor and management and provides valuable information about the status of the produced goods. An analysis of this data must be made in order for management to take the necessary steps required to improve quality on the production floor.

Peace (1993:7-8) states that the off-line quality control process is used to maximise product and process design in support of the in-line quality control function. This function could be related to the prototype lines where products are produced in a simulated production or pre-production environment. Peace (1993:8) divides the prototyping method into three categories, namely: system design, parameter design and tolerance design.

- system design would be involved in the conceptual stage of the product. The strategy for this would be to take a drawing and make it real using past experience, knowledge and technical know-how.
- parameter design is to take the innovation and make it functional. The cost considerations of this design are of utmost importance with the aim of producing the best product at the least cost.
- tolerance design is used to determine the acceptable range of variation around the standards that have been set in the parameter design e.g. a waist measurement with a tolerance of ± 1cm. Therefore, a hip measurement of 91 cm can be either 90 cm or 92 cm making either measurement acceptable.

According to Flood (1993:32), Taguchi's method pulls quality control right back into the design stage. The quality is recognised as being a societal issue as customers are affected by bad quality and not just an organisational issue. Engineers are able to use the method relatively easy and the best method of process control can be used at the least cost.

The weaknesses are that the method has little relevance to process and will not be useful to organisations that use sensitivity analysis. There is no mention of the managing of the quality system, as quality is the responsibility of specialists. Lastly, the human aspect is not discussed and, therefore, there is no contribution made towards managing employees.

Taguchi's method is concerned with being proactive, thereby emphasising that quality must be built into the design of the product prior to manufacturing. This will help to eliminate many of the problems encountered on the production floor.

2.1.7 Philip B. Crosby

Crosby (1980:7-20) states that in order to implement a quality management programme, it must be divided into four categories namely:

- the attitude and participation of management;
- "... professional quality management."
- the program must be original, and
- acknowledgement must be given where due.

Considering the first point, Crosby reasons that management must be involved with the quality process from the beginning. The managers' job entails monitoring and examining of work continually so that the necessary information can be gathered. This results in management at all levels having the right attitude towards quality and a better understanding of quality.

Another issue raised is that management believe people do not care about their work. According to Crosby (1979:9) quality is achieved when the product conforms to the set requirements as well as achieving precise measurements. People achieve the desired result if they know what is expected of them. Furthermore, management must have confidence in their people - a move away from the idea that people don't care.

The second point submitted by Crosby (1979:9) is 'professional quality management' maintains that it is very difficult to find quality people as they are involved with the technical and operational aspects of production. Crosby infers that these people where not allowed to travel and this led to the establishment of 27 Quality councils in the United States of America (USA). Crosby (1979:9) states that the original programmes are short-sighted as it is driven towards product performance. Lastly, recognition was either conducted incorrectly or simply overlooked. Crosby (1979:10) argues that it was found that cash or financial awards was not enough and do not provide effective recognition.

Crosby (1980:10–11) believes that it is important to,

- establish a 'Competent Quality Management program' in both manufacturing and service;
- eliminate 'surprise' non-conformance problems; and
- reduce the cost of quality.

Crosby furthermore, discusses five assumptions that are held by management namely:

- that quality signifies 'goodness', exclusivity, 'luxury', 'shininess' or 'weight';
- that quality is 'intangible' and therefore cannot be measured;
- that there are economics of quality;
- that causes of problems originate by production operators; and
- that quality originates in the quality department.

According to Crosby (1980:19), quality management is a systematic procedure of guaranteeing that various activities happen according to plan. The main aim is to prevent problems from occurring by having the correct control mechanisms in place. The whole approach to quality is based on five fundamental principles of quality management, namely:

- conformance to requirements;
- no such thing as quality problems exist;
- right first time;
- one performance measurement (cost of quality); and
- one performance standard (zero defects).

Most common slogans encountered in the clothing industry are related to cost of quality, right first time and conformance to requirements. The motivation of zero defects rests with management who must ensure that faults are unacceptable in the manufacturing of the product. Conformance to requirements is defined as

measures that have been incorporated in the process, to ensure that the work adheres to the standards that have been laid down by the customer.

The principle would be for management to take the lead in quality with the notion that the operators will follow the examples that have been established. Specific organisational goals will therefore be set for the employees to follow, and then recognition will be granted to those individuals who conform to these goals. Elaborating on the above, Flood (1993:23–24) supports Crosby's quality action plan for management which is detailed as follows:

- management must encourage worker participation;
- a quality team representing all the areas in the company must be formed;
- quality measurements must be developed;
- data must be collected in order to establish the cost of quality;
- supervision must be trained in quality awareness;
- corrective action must be taken immediately;
- a committee for Zero Defect must be established;
- supervision must be given detailed quality training;
- a Zero Defect day must be established;
- measurable goals must be set for specified time periods;
- remove any errors that occur;
- reorganise and reward those individuals who meet goals;
- the quality committee must meet and update programmes;

- do it again.

The points above, is a management approach that should be implemented and communicated in such a way that it is understood by all employees in the company.

2.2 Summary

In order to develop a quality system for the CMT companies, specific areas and principles discussed in this chapter will be applied. Latzko & Saunders (1995:27) emphasises the importance of problem solving through the plan, do, check and action phases of the Shewhart cycle to ensure continuous improvement. This is highlighted by the management theory that refers to the importance of finding the root of the problem, developing skills by doing on the job training and the opening up the channels of communication between various departments.

The quality control aspects of Juran's work (1999:2.6) refer to corrective action, troubleshooting and feedback to inform management of various problems identified. This is vital in the development of the quality assurance framework by ensuring that the following points are adhered, to namely:

- top management must be involved in quality issues;
- the introduction of training programmes and procedure manuals;
- to ensure that the product conforms to customer requirements;
- to plan, control and improve quality;
- to have a mechanism in place that encourages feedback; and

- a means of communication between the seller and buyer.

Ishiikawa's work (1985:33) refers to quality as the recognition that quality is what the customer says it is. It is important that quality is seen as being the responsibility of everyone in the company and therefore the whole concept of quality assurance relates to the involvement of everyone. Ishikawa (1985:13) emphasises the importance of the education of the employees to ensure quality control and the impact of people participation in the problem solving process.

Taguchi's (Peace, 1993:6) techniques are applicable to the clothing industry in the CMA as most of the principles are based on his work. On-line quality control will be referred to as the work of the examiner. Off-line quality control refers to the role of the quality supervisor which is to ensure that the work from the line satisfies customer requirements. The process will include aspects of examining and measuring products and identifying various problems in order to maximise product and process design.

Crosby's work (1979:9) involves the involvement of management in the examining and monitoring function in the quality assurance process. Furthermore, Crosby recommends that management should encourage worker participation.

2.3 Conclusion

Each of the quality pioneers had their own skills and knowledge in specialised areas. They have been able to use this to form a base from which they developed their quality techniques. Some of the areas are specific to processes whereas others are related to the human aspect involved in the quality system. Some authors feel that management involvement is more important than worker involvement. This has lead to much debate on who is right or wrong with support leaning towards a single individual or more than one person. Some of the techniques work well in Japan because of their traditions and belief systems but have not been very successful in the West.

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CHAPTER THREE

NORMATIVE EXPLANATION OF QUALITY IN THE CLOTHING INDUSTRY

3.1 Introduction

Clothing companies in the Western Cape strive to produce garments that meet customer requirements. Customers want an opportunity to return garments that they are not satisfied with, which could have a detrimental affect on the company producing these garments. Companies, therefore have to focus on quality processes to ensure that the garments meet the necessary quality and price. Different clothing manufacturing companies therefore use a wide range of quality processes to ensure that garments meet set standards.

3.2 Concepts of quality in the clothing industry

Quality processes in the industry consist of different concepts which include quality assurance (QA), total quality management (TQM) and quality control (QC). Stevenson (2005:398) defines TQM as a "... a philosophy that involves everyone in an organisation in a continual effort to improve quality and achieve customer satisfaction". Glock and Kunz (2005:208) refers to QA as "... an evaluation of conformance to standards which involves the performance of all the company's divisions as well as the products and services that are produced by the company". Waters (1996:339) describes QC as "... a series of inspection and tests to ensure that planned quality is actually achieved".

Clothing manufacturing companies establish quality standards by using specifications that can be used as a guideline to establish exactly what the customer requires. Thereafter, it is possible for these companies to use various measurements to ensure that the product adheres to specifications of materials, trims (buttons, zips) and samples. According to Glock and Kunz (2000:201) specifications are a means of developing the internal quality processes to ensure that quality conforms to the standard required, also known as intrinsic characteristics. The standard levels outside the organisation will have no influence on the acceptable quality level within the organisation. Similarly, Kadolph (1998:14) deduces that from "... a manufacturer perspective, quality is often defined as consistent conformance to specification and standards. Stevenson (2005:386) defines product quality as performance, aesthetics, special features, conformance, reliability, durability, perceived quality and serviceability.

3.3 Product variation

According to Peace (1993:5), it is normal for a company to have some degree of product variation in a manufacturing environment which means that it is impossible to produce each garment exactly like the previous one. Kadolph (1998:485) defines variation as measurement that deviates from standard or specification. Glock and Kunz (2000:201-202) reveal that variation of garments are caused by material defects, faulty materials, operators, manufacturing

environment and inspection systems. Variation can occur in a single part, on the production line and between parts in a bundle. A quality system is used to ensure that the garments produced are acceptable and to identify garments that do not meet the standards set. Waters (1996:341) describes a unit as defective when the performance goes outside the acceptable limits. A defective unit means that something is going wrong within the organisation. Waters (1996:234) declares that these faults could be caused by human error, machinery, poor materials, faults in operation, the environment and errors in tools and equipment. In addition, there are two quality control measures that can be used to assist with fault-finding, namely Pareto charts and cause-and-effect diagrams.

3.4 Assuring quality in the factory

Managing quality in the clothing industry consists of a range of inspection processes within all areas in the factory to ensure that the garment meets the standards set by the customer. The discussion on quality assurance will be divided into pre-production processes, production processes and post-production processes.

3.4.1 Quality Assurance in pre-production

Planning is one of the most important elements in ensuring effective quality management within the organisation. Decisions have to be made on different levels which would include designers, work study personnel, quality personnel and production personnel. Glock and Kunz (2005:212) state that co-operation

- establishing the company's own test laboratory; and
- using a combination of testing facilities...".

The use of standardised tests is crucial in ensuring that tests are interpreted correctly in order to communicate the results within the company, the supplier and the customer. According to Glock and Kunz (2005:212-213), large manufacturers are more likely to receive guarantees from laboratories than small companies. Tests are conducted on samples of fabric, production fabric and finished garments. Verification of fibre content and wash care instructions are important. Glock and Kunz (2005:213) state that testing should include the following:

- "... fabric and findings;
- design prototypes;
- product assemblies and components;
- conformance to specifications;
- evaluation of customer requests and feedback;
- returned merchandise; and
- competitors' goods".

Some large manufacturers have well equipped laboratories with well trained staff whereas other manufacturers have no testing facilities. Most manufacturers are not able to establish an in-house laboratory due to high capital investment required which includes equipment and staff. Included are simple wash tests that

could be conducted by the manufacturer. Commercial testing facilities are available to ensure that the necessary actions are taken as a result of the performance testing.

3.4.2 Quality assurance in production

The production floor utilise specifications, production samples and quality manuals to ensure that standards are communicated to everyone in the company. Glock and Kunz (2005:214) state that quality personnel will be involved in the evaluation of specific specification sheets, as well as samples from the production floor. One of the ways of ensuring that goods adhere to the expected quality is through an inspection process. Waters (1996:339) explains that organisations traditionally ensure that quality is maintained by a series of examining processes which are often seen as disrupting production.

Glock and Kunz (2005:214) define inspection as the process of examining garments to determine whether the garments meet the standards set by the customer. Inspection could be conducted as follows:

- on finished garments (Waters, 1996:339);
- by supervisors (Glock and Kunz, 2005:214);
- by operators (Waters, 1996:340);
- by random inspection; and
- by statistical quality control (Glock and Kunz, 2005:214).

The inspection process is threefold:

- to ensure that garments meet specification;
- to ensure that garments meet quality standards; and
- to determine whether the garments are acceptable to the customer.

Glock and Kunz (2005:214) declare that many organisations are still dependent on the 100% inspection of finished garments. The inspection process is based on human judgement and therefore, it is possible for errors to occur. Furthermore, visual inspection is used in most organisations and the following errors are possible in assessing quality:

- loss of concentration on the part of the examiner;
- tools used for measurement may be incorrectly read; and
- information is recorded incorrectly.

The inefficiencies of 100% inspection processes have revealed that improvements in the quality control process are necessary, as the value of defective goods, are less than first-quality goods. Defective goods go through the same process of material usage, production and inspection as first-quality goods. Furthermore, the cost of fixing defective goods further inflates the production cost. Consequently, all attempts to ensure that the goods are produced perfect, does not mean that defective goods will not be delivered to the customer. Peace (1993:6) states that Taguchi declares that quality must be built into the process and not examined in the garment after it has been produced. Stevenson

(2005:389) deduces that the consequences of poor quality could result in loss of business, liability, productivity and other costs.

A cheaper method of inspection used, is statistical quality control (SQC). SQC is used as a means to reduce the tediousness of 100% inspection (Glock and Kunz, 2005:215). Waters (1996:345) declares that there are two types of SQC namely:

- acceptance sampling; and
- process sampling.

Acceptance sampling, on the one hand, evaluates the quality of the products and is done at the beginning and end of the operation. Garments are chosen randomly and sampled to see whether the batches are accepted or rejected. The emphasis is on detecting defects in order to ensure that the quality level is high. On the other hand, process sampling evaluates the performance of the process during production. Garments are chosen randomly to see if the operations comply within acceptable levels or if the operations need to be altered. Process sampling emphasises the prevention of defects in order to ensure that the process runs smoothly. The two methods involve random sampling to ensure that the garments meet the specifications. The acceptance of the bundle will depend on whether the level of acceptance has been attained. If the number of faults found is higher than the acceptable level, the bundle will be rejected.

Three sampling plans are available namely:

- single sampling – a single sample is taken and the accept or reject decision is taken;
- double sampling – a second sample would be taken on the first decision to accept or reject the sample; and
- multiple sampling – where three or more samples will be taken to make a decision.

The difference between the first two methods are, that with 100% inspection, only the garments that are defective will be returned to the line for repairs. Acceptance sampling is more cost-effective but entire batches sampled will be rejected putting strain on the production floor.

Depending on the type of process employed within the organisation, inspection points could be at various points within the production sequence. According to Glock and Kunz (2005:217) product specifications should be used as follows:

- to provide standards for the operator performing certain operations on each machine;
- to have operators check the work from the previous operator;
- to ensure that that the operator does not sew over unacceptable work; and
- to ensure that operators check their own work.

According to Glock and Kunz (2005:217) the checking of work reduces time-consuming repairs that could be picked up from finished garments. Based on the above, inspection points will be placed at certain key positions on and off the line. Inspectors are used to evaluate the types of defects that occur or to minimise faults. Glock and Kunz (2005: 217-218) state that a standard form is normally used to record the number of defects found and that the operators responsible for faults must repair their own unacceptable work. Once the garments are repaired, they must be sent back to the examiner for re-inspection.

3.4.3 Quality Assurance in post production

Quality assurance continues in the form of quality audits by analysing finished garments in the despatch area. Glock and Kunz (2005:219) describe quality audits as a means of evaluating the level of defects of a particular plant in order to ensure that defective garments are prevented from entering the distribution centre. The auditor evaluates and records the number of defects as major or minor defects as well as the appearance of the finished garment. This evaluation will include the measurement of the garment, depending on the size of the measurement chart.

Finally, an analysis of returned garments assists the company to evaluate defective products returned by the customers. According to Glock and Kunz (2005:219) some companies perform extensive evaluations on garments

returned so that the problems identified could be used to improve the production process.

3.5 Conclusion

All of the above quality assurance steps are regarded as necessary to ensure that quality is adhered to from the commencement of the process to the end of the process. Correct standards and specifications ensure that all employees know what is expected of them. This will assist the organisation to work together towards improving quality which would in effect reduce production costs.

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CHAPTER FOUR

PREVAILING MACRO AND MICRO ENVIRONMENT OF THE WESTERN CAPE CLOTHING INDUSTRY OF SOUTH AFRICA

4.1 Introduction

This chapter examines the clothing industry from a macro and micro-environment perspective to analyse and identify the prevailing problems and understand the challenges that confront it. Presently, the growth of the clothing industry has been negative due to decreasing competitiveness caused by cheap and illegal imports from the East. The strengthening of the rand against the dollar from 2003 has had a negative effect on the exports in this sector. This has resulted in a decline in sales, profit, exports, and investment resulting in job losses.

4.2 Macro economics

The impact of the macro environment such as political and legal factors, economic, socio-cultural technological factors affect the sector either directly or indirectly. Each of these factors have micro-variables, that affect the industry as a whole and each will also be discussed in detail.

4.2.1 Political and legal factors

Naumann (2002:5) states that the South African economy has the characteristics of both a developed and a developing nation and is the most advanced economy on the African continent. The apartheid era during the 1960's to the 1980's

alienated South Africa from the rest of the world. Consequently the economy became independent from international trade. Restrictions had been imposed in the form of imports, exports, travelling and technology. Furthermore, an import substitution strategy was put in place to protect the clothing and textile industries. The manufacturing sector grew despite the economy being largely dependent on South Africa's mineral wealth and agriculture (Naumann, 2002:6).

The South African economy in the last ten years has been based on a political dispensation allowing free trade on equal terms with other nations often referred to as the trade liberation. The post-apartheid trade policy therefore reflects a shift from an inward to an outward-oriented, export promoting economy. According to Barnes (2005:7), the exposure of the economy to international competition has revealed that the industry is "... inefficient, lacks capital, technology and innovation..." with high labour and management costs in relation to output.

4.2.2 The World Trade Organisation (WTO) Agreement on Textiles and Clothing (ACT) 1995 - 2004

The World Trade Organisation (WTO, 2005:85) Agreement on Textiles and Clothing sets out provisions for its members during a transitional period for the integration of the clothing and textile sector into General Agreement of Tariff and Trade (GATT) 1994. The following elements act as building blocks namely 'product coverage' encompassing yarns, fabric, manufactured clothing and textile products; the integration process of clothing and textiles into the GATT 1994 rules; a process employed to reduce the existing quotas until they are removed;

safeguards against threats or damage to domestic markets during this transitional period and establishment of a Textile Monitoring Body and other provisions (WTO, 2005:85-86).

A safeguard measure for China and General Protocols was promulgated on 27 August 2004. In response to this promulgation, the Clothing Trade Council of South Africa (CLOTRADE) supported by the South African Clothing Employers' Federation (SACLEF) and regional employer associations, submitted a Safeguard Measures application to the International Trade Administration Commission (ITAC) on the 24 June 2005. To clarify this, the industry is calling for the implementation of quantitative controls together with the introduction of a system that can be used to indicate the minimum values for customs purposes. (CCA, 2005:3)

According to Barnes (2005:10), the WTO rules regarding Customs valuation, anti-dumping and safeguard measure applications appear to be very restrictive, complicated and not suited for the clothing sector. There has been a delay in the finalisation of the application due to problems highlighted when the quota system was removed, pointing towards rules and regulations that have not kept pace with globalisation (CCA, 2005:3). Only one month after the Unites States safeguard measures were imposed on knit, cotton shirts and woven cotton trousers, the new quotas are already 60% filled. This means that there is a possibility that the US customers may be interested in importing goods from

South Africa. According to the CCA (2005:3) the Clothing and Textile Bargaining Council has agreed to release funds from the Industry Protective Funds for the respective industries. These funds would act as stabilisation funds and be made available to the clothing and textile industries in the event of it being under threat.

4.2.3 Multi-fibre Agreement (MFA) 1974 – 1994

The MFA set the rules for international trade in textiles and garments made from cotton, wool and synthetic fibre. Quotas were set to limit the amount of imports of textiles and garments from "developing" to "developed" countries. These rules were put in place to safeguard industries in the industrialised countries in order to control the level of imports into these markets from developing countries. The growth of this sector in developing countries has therefore been heavily reliant on the quota allocation under the MFA (MFA, 2005:5).

According to Barnes (2005:9), the ten year phase-out period ended on 31 December 2004 signalling an end to all quotas on textiles and clothing between WTO members. This led to uncertainty of the future of the clothing and textile industry in many countries. Furthermore, new forms of barriers are likely to affect the garment industry in southern Europe, as well as the developing economies that have grown as a result of the quota system. Other rules have been put in place to stop imports, including more restrictive rules and anti-dumping measures being imposed.

Barnes (2005:9) raised concerns about the behaviour of China once the quota system had been removed claiming that China was likely to benefit. Since China joined the World Trade Organisation (WTO) in 2001, the Chinese clothing industry managed to increase exports significantly while demonstrating an ability to increase their range of items and improve and meet international quality standards. The seemingly limitless supply of cheap, skilled labour has led experts to deduce that in a quota-free world, China's exports could double by 2010. This domination of global production has been exemplified by India increasing overall clothing and textiles exports by 33% and China by 546% in January 2005 compared to January 2004.

4.2.4 African Growth and Opportunities Act (AGOA)

In terms of the USA initiative, a new trade and investment policy for sub-Sahara Africa (SSA) is encouraged with certain reciprocal reductions of trade and investment barriers in 37 sub-Sahara African (SSA) countries (Barnes 2005: 9). The policy sets out rules and conditions relating to clothing exported from different countries into the USA. This infers that sub-Sahara African countries that qualify as Lesser Developed Countries (LDCs) are only required to produce garments within their borders.

South Africa and Mauritius are the only African countries that are exempted from these rules. According to Barnes (2005:9) South Africa has to comply with the triple stage transformation to qualify for AGOA, which implies that all yarn, fabric

and garments are to be produced locally or US yarn or fabric may be used. This places South Africa at a disadvantaged, as the rules "...tie the domestic textile industry into the clothing manufacturing process". The shortage of a variety of locally produced fabrics impacts on this rule and therefore, any weaknesses experienced by the textile industry will directly impact on the goods that are being exported to the US.

4.2.5 Duty Credit Certificate Scheme (DCCS)

The DCCS was introduced on 1 April 1993 to encourage clothing and textile companies to compete internationally without government subsidies (DTI, 2005a). The quantitative criteria for SMME's according to the DTI are shown in Table 3.1.

Table 4.1: Classification of turnover for DCCS

Size	Total annual turnover (Vat excluded) Less than	Total Asset Value (Fixed property Excluded) Less than	Total number of full time employees Less than
Medium	R25 million	R5 million	51 – 200
Small	R5 million	R1 million	5 – 50
Micro	R1.25 million	R0.25 million	1 - 4

Source: Department of Trade and Indusrty (2005a)

Companies were able to earn credits based on exports on textiles and clothing within a given year. Alternatively, companies were allowed to sell these rebates to any other importers of clothing and textiles. According to Barnes (2005:9) many of the credits were sold to retailers thus causing a reduction in the demand for domestic products, which in turn had a negative effect on the clothing sector.

Furthermore, the appreciation of the Rand in 2003 placed enormous pressure on the clothing sector resulting in the decline of export sales with additional pressure placed on the domestic market with the influx of imported goods. This export incentive came to an end on 31 March 2005 to be replaced by an interim Clothing and Textile scheme, which will run until 30 September 2006. According to Barnes (2005:9) the clothing and textile industry jointly requested that the DTI put in place a two year interim development programme for the industry. To date, no official confirmation has been received on the clothing and textile scheme, creating immense uncertainty as to whether or not it will be implemented.

The Provincial Development Council (2004:11) concludes that the DCCs are suitable for companies exporting but have disadvantages for importers and local markets. It is proposed that the system should remain in place for a short period so that trade loopholes in the system are closed.

4.2.6 Tariffs and rebates

According to Barnes (2005:10) the clothing industry is currently protected by tariffs of 40% but this is reduced to half as result of the inability of customs to 'police clothing imports'. According to the Provincial Development Council, (2004:9) the problem with clothing exported from other countries is the differentiation in tariffs and the fact that some goods are undervalued or undeclared to the custom officials. This illegal activity has lead to garments being

sold cheaply, thereby destroying the local industry. Consequently it is unable to compete, leading to job losses.

Research conducted by the Provincial Development Council (2004:10) indicates that the current South African tariff rates are on par with the WTO tariff rates up to and including the year 2012. In retrospect, if the tariff structure had been implemented according to the WTO bound rate, the clothing industry could have enjoyed the protection offered under this agreement.

The problem is expanded due to the fact that the Chinese have pegged their currency against the dollar, making it possible for them to export their goods under the value that it cost to produce them. Furthermore, they are able to take advantage of the fluctuating currency and their relaxed labour laws and are able to produce goods at a lower rate as compared to South Africa. The Provincial Development Council (2004:11) is of the opinion that it would be possible to implement anti-dumping duties against Chinese imports of CTFL products.

According to the GATT Article VI (2.1 of 1994) a product would be considered as being 'dumped' when it is introduced into another country at less than its cost price (GATT, 2005). According to the Provincial Development Council (2004:9), the dumping is not confined to exporters but also to companies importing. Some importing companies use this as an excuse of adding value to the business when

in actual fact the garments are exported to another country, thus qualifying the company for a tax rebate.

4.2.7 Clothing, Textile, Footwear and Leather Sector Education and Training Authority (CTFL SETA)

The National Skills Authority commenced on 2 February 1999, with the phasing out of the Clothing Industry Training Board (CITB). According to the CTFL SETA (2005a), the function of this body in subsection 1(a) was to develop and advise the Minister on:

- a national skills development strategy;
- a national skills development strategy;
- guidelines on the implementation of the national skills development strategy;
- the allocation of subsidies from the National Skills Fund; and
- any regulations to be made."

Section 9(1) of the *Skills Development Act, 1998* Act No. 97, 1998 (GOV, 2005) describes the manner in which the Minister would establish a sector education and training authority (SETA) with a constitution for any national economic sector.

A SETA is a statutory body overseeing the skills development activities within a specified economic sector such as Clothing, Textiles, Footwear and Textiles operating under the auspices of the Department of Trade and Industry. There are twenty four (24) SETAs in the different economic sectors as described in the

SETA classification codes of which the CTFL SETA is code 04. The CTFL SETA is classified into 18 sectoral demarcations as represented in Table 4.2.

Table 4.2: CTFL SETA classification

SIC CODE	DESCRIPTION
31111	Preparatory activities in respect of animal fibres, including washing, combing and carding of wool.
31120	Finishing of textiles.
31210	Manufacture of made-up textiles articles, except apparel.
31214	Manufacture of carpets, rugs and mats.
31220	Manufacture of cordage, rope, twine and netting.
31230	Curtaining excluding where the core business of the enterprise is upholstery or furniture.
31213	Manufacture of other textiles n.e.c.
31290	Manufacure of textiles, clothing, leather goods and other textiles n.e.c
31292	Fashion, clothing, textiles and footwear manufacture and design.
31300	Manufacture of knitted and crocheted fabrics and articles.
31400	Manufacture of wearing apparel, except fur apparel.
31500	Dressing and dyeing of fur, manufacture of artificial fur, fur apparel and other art.
31610	Tanning and dressing of leather.
31620	Manufacture of luggage, handbags and the like, saddlery and harness manufacture of footwear..
31700	Manufacture of footwear.
31701	Manufacture of footwear from material other than leather.
99010	Washing and (dry-) cleaning of textiles and fur products.

Source: Sectoral demarcation of the CFTL SETA Standard Industry Classification (SIC) Codes (Clothing, Footwear, Leather and Textiles SETA, 2005a)

Companies registered for Pay As You Earn (PAYE) with a payroll in excess of R250 000 are required to pay a skills development levy of 1% of their payroll to the South African Receiver of Revenue Service (SARS). The SETA under which the company is categorised receives 80% of the levy and the remaining 20% is transferred to the National Skills Fund for projects, which includes the training of unemployed people. 10% of the levy can be used by the SETA for administration

costs and a further 10% is allocated to a discretionary fund that could be used to do research within the sector. Companies are allowed to claim back 60% in mandatory grants by:

- The submission of a Workplace Skills Plan (15%); and
- Submission of a Workplace Skills Implementation Report (45%).

A National skills audit was conducted by CTFL SETA (2005b:15) to obtain an accurate skills profile of the sector. A decision was made to increase learnership training from 2.38% to 5% over the next five years. Furthermore, a plan has been drawn up with the aim of developing specific skills in various areas in the sector. The CTFL SETA report (2005b:15 – 26) identifies five scarce skills with the aim of making funding available to develop the necessary skills required.

The CTFL SETA (2005b:3) have made provision for learnerships aimed at young people from disadvantaged communities to complete the new venture creation learnerships which aims to assist these them with the creation of new business ventures through the National Skills Development Strategy. The CTFL SETA have made a commitment to support 500 learners in this venture over a five year period from 2005 – 2010. The CFTL SETA is in the process of developing a skills plan so that the valuable skills that exist are not lost.

4.2.8 Trade unions

The South African Clothing and Textiles Workers Union (SACTWU) was formed in September 1989 (SACTWU, 2005). The union has been a result of the merger of many unions and is one of the largest unions presently. As a result this has lead to an increase in the cost of labour in this sector. The union is involved in many key areas, which include:

- "collective bargaining which provides wage coverage for its members;
- job security;
- job creation;
- promoting higher educational levels;
- building basic education;
- training; and
- promoting technology."

SACTWU represents its members as "... an international body; at the bargaining council; as part of the SETA; higher education; social dialogue institutions and labour policy structures" (SACTWU, 2005). Unionists are of the view that it is important to have free trade based on fair competition but it is unacceptable to compete with countries that have no respect for basic employment conditions referring to China in particular.

The union is involved in various strike actions to make South Africans aware of job losses in the clothing industry due to illegal imports and dumping. They are

involved in a "buy local" campaign in order for the clothing industry to be sustainable. SACTWU is also in the process of submitting an application for safeguard measures to be put in place by government.

The union has recently approached retailers with a request to sign an agreement, which would force them to buy 75% of their goods locally. It is believed that this action could reduce the number of job losses that the clothing sector is currently experiencing. The union is of the opinion that the retailers are being short-sighted as the people that are losing their jobs are the same people that consume the goods in their stores.

Lastly, the union has gone the extra mile and made a list of companies available to retailers, which included machinery and equipment and skill levels. They are aware of the fact that all garments cannot be produced locally especially cashmere and knitted jerseys due to a lack of machinery. SACTWU is of the view that the consumer would be willing to pay extra for a quality garment made in South Africa (SACTWU, 2005).

The retailers have a major role to play by ensuring that the clothing industry remains sustainable by providing it with orders. The benefit of this would be more buying power which would increase the Gross Domestic Product. Furthermore, it would ensure that jobs are retained in this sector as discussed in economic factors.

4.3 Economic factors

The economic environment is one in which such factors as unemployment exchange rates and other factors influence the economy. This section aims to briefly discuss critical areas affecting the clothing industry as well as to present a background to the economic development of the South African economy.

4.3.1 Unemployment

According to the CFLT SETA (2005b:5), the formal sector employs about 225 000 people with an annual turnover of about R27.5 billion. The total formal employment accounts for 15% with less than 6% related to total output and approximately 2% contribution to Gross Domestic Product (GDP). In 2003, clothing generated sales of about R13 billion with exports figures in clothing and textiles at 20% revealing the heavy reliance of the industry on the domestic market. Clothing were exported to three countries namely US, United Kingdom (UK) and UAE with a nominal export value of R2.3 billion (DTI 2005b:7).

According to Naumann (2002:4) statistics gathered from the South African Clothing Federation (Clofed) now known as CLOTRADE show that over a period of six years, from 1995 –2001, there has been a decline in the number of clothing companies of over 3.6% per annum in the Western Cape. Recently the clothing industry has been characterised by declining growth and unemployment. The migrating of the clothing industry to decentralised areas with lower wages and

the increasing trend of informalisation has led to insecurity, low wages and poor working conditions.

According to the Provincial Development Council (2004:6), job losses negatively impact on the level of economic activity and growth within the Western Province. This situation is exacerbated since job losses occurred in marginalised areas where people earn approximately R262 per week. The irony of this is reflected in the Figure 4.1 (DTI, 2005b) with January 2004 showing an increase of retail sales compared to a decline in manufacturing performances during the same period.

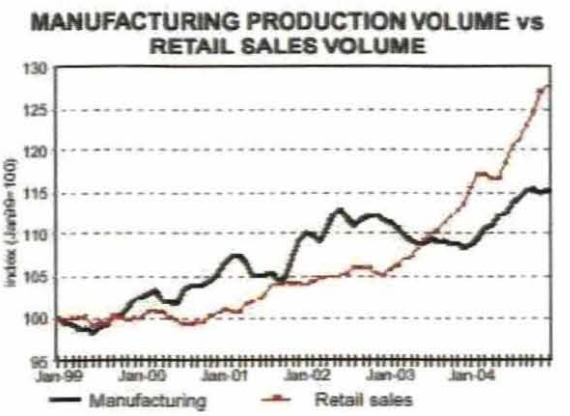

Figure 4.1: Manufacturing volume vs. retail sales volume (DTI, 2005:4)

In this case it is logical to state that due to stimulation in the import demand, there has been a reduction in demand from the domestic manufacturing sector. According to the DTI (2005b:1) this will in turn cause an imbalance between spending and production as well as between imports and exports in the economy, which could cause dislocations in the current favourable business cycle.

Previous studies undertaken by Naumann (2002:4) show that there has been a steady decline in the growth of manufacturing companies in the Western Cape of -3.55% from 1995 – 2001. The Provincial Development Council (2004:6) infer that there have been 21 000 job losses in the clothing and textile sector in 2004. The only option will be for this sector to become more competitive through innovation as it is impossible to negotiate wages even though the labour rate is 500% higher than that of China.

The graph below reflects recorded retrenchments of permanent employees with approximately 30% of the workforce being on a short-term contract. It is important to note that the termination of a contract does not necessarily reflect as a retrenchment. Furthermore, the 2005 figures exclude the large-scale retrenchments of companies such as Rex Trueform, Poloman, Walnut Clothing, Monlyn, Le Bergo, HK Manufacturing, Johnive Design and others.

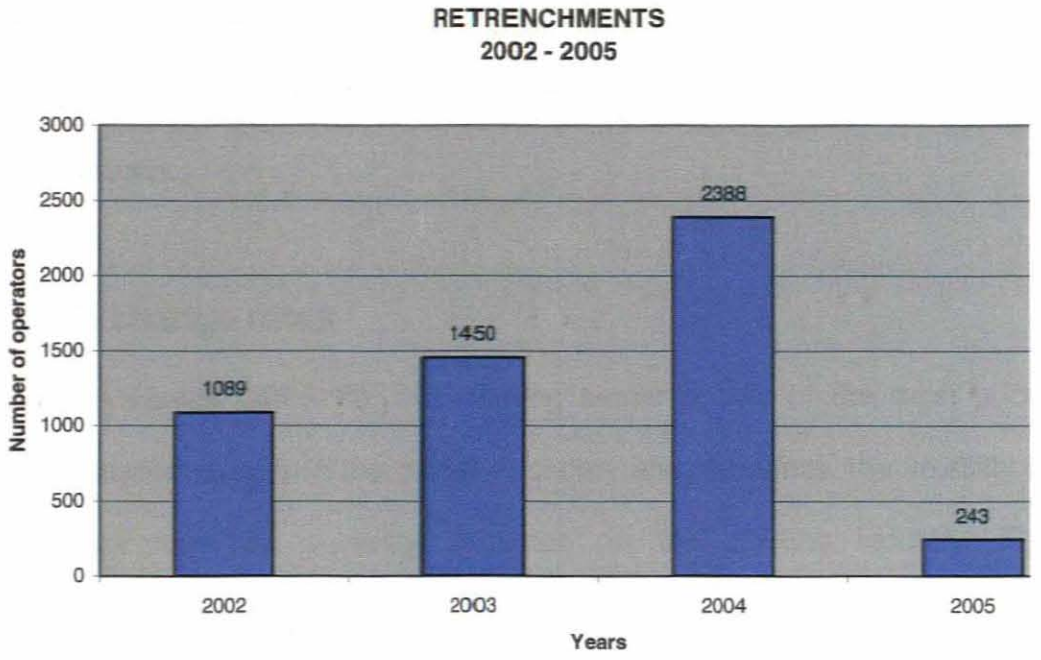

Figure 4.2: Retrenchments in the Western Cape (CCA, 2005)

Barnes (2005:10) deduces that the clothing industry has five areas of concern namely:

- Chinese imports contribute to over 70% of the total South African clothing imports;
- It is difficult for exporting companies to secure contracts due to the uncertainty surrounding the Duty Credit Certificate Scheme (DCCS) replacement programme;
- Imports either through "... illegal imports, dumping or under-invoicing of garments";
- Industry is of the opinion that due to the that customs is unable to affectively police clothing imports;

- The cheap imports from China that have been massively discounted, are having a devastating effect on local manufacturers, with Customs not being able to address the influx of imports due to WTO rules and regulations.

4.3.2 Exchange rates

According to Barnes (2005:10), the clothing sector is one of the most price-sensitive industrial sectors in the global economy and, therefore, the volatility of the exchange rate has severely impacted on the clothing industry. The appreciation of the rand has positively impacted on imports whilst, exports and local demand have been negatively influenced. The strengthening of the Rand has made it difficult for clothing companies to export their products. Barnes reiterates that it is difficult for clothing companies to export their products competitively, which has lead to many exporters losing international contracts. The negative side is the amount of cheaper imports that are available locally.

4.3.3 Socio-economic factors

Clothing is a labour-intensive industry with the Western Cape being currently considered as the second largest employer.

A comparative analysis was conducted to establish the employer/employee strength in the Western Cape as at 30 May 2005 and the findings are as follows:

Table 4.3: Comparative monthly / Annual Statistics: Employees

MONTH	2002	2003	2004	2005
January	33915	34875	33975	33010
February	34004	35462	34100	33122
March	33881	35767	34232	33196
April	33838	35757	34123	33137
May	33889	35646	33084	32751
June	33424	35382	33025	
July	33738	35442	33048	
August	34163	35966	33026	
September	34298	35767	33263	
October	35156	36477	33848	
November	35549	36605	33936	
December	35305	35641	33541	

Source: CCA (2005)

Table 4.3, reflects the employment rate in the industry is fairly steady even though large-scale retrenchments have been observed in the sector. According to the data obtained from the CCA (2005), the employment levels reflected are 32 751 as at May 2005 compared to 33 915 in Jan 2005. This represents a decline of employment of 3.6% as from 2002 to 2005.

According to the Provincial Development Council (2004:3) the clothing and textile sector shows a decline in jobs from January to December 2003. A decline of 386 employees has been observed from April to May 2005 alone and it is reported that this trend will continue if measures are not put in place to control the surge of Chinese imports (CCA, 2005). It is important to note that the statistics do not capture job losses at other big companies.

The largest concentration of clothing companies in the Western Cape are observed in the Metro area with 349 companies compared to 15 in the non-

metro area. Statistics gathered by the Bargaining Council show a total of 364 companies in the Western Cape as at May 2005. It is important to note that even though there has been a substantial amount of job losses and factory closures in the Western Cape, small businesses are emerging and registering with the CCA and, therefore, the figures remain fairly stable (CCA, 2005).

Table 4.4: Comparative monthly / Annual Statistics: Employers / Companies

MONTH	2002	2003	2004	2005
January	303	300	338	356
February	302	304	337	355
March	299	309	349	362
April	297	311	350	367
May	300	326	346	364
June	302	330	346	
July	301	340	346	
August	302	341	349	
September	303	348	352	
October	305	350	353	
November	300	351	354	
December	301	349	354	

Figure 4.3 below shows an illustration of the number of employers in the Western Cape. In 2002, it was fairly steady with an avarage of 301 companies. Between 2003 and 2004, there was a substantial growth of 15.3%. This was due to the strength of the currency making it viable for companies to expand their international links. In 2004 it was steady with very little growth over the last quarter. A noticeable decline can be observed from the graph below as from June 2005.

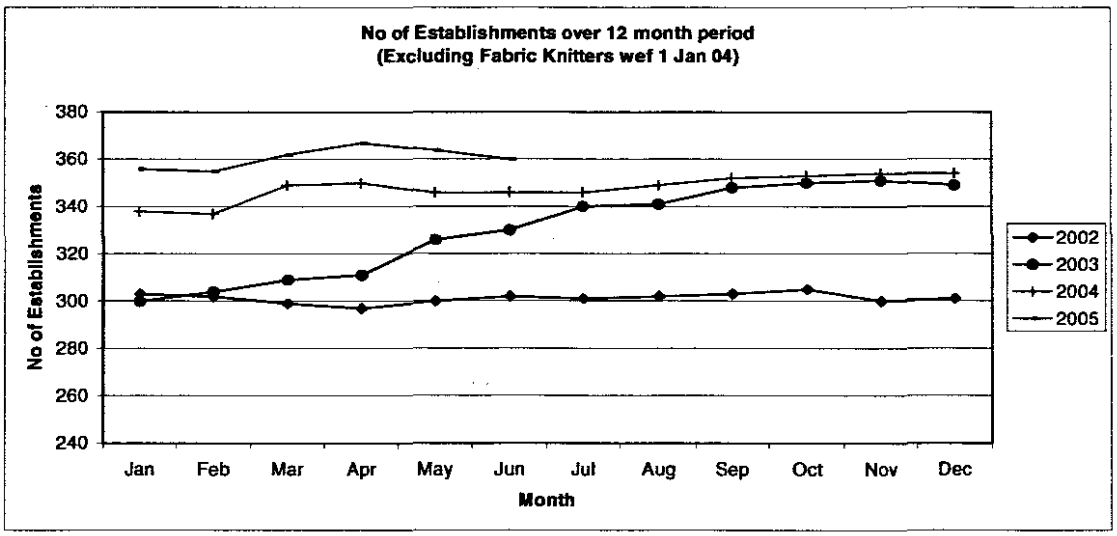

Figure 4.3: Number of employers in the Western Cape 2002 - 2005 (CCA, 2005)

4.3.4 Socio-cultural factors

The clothing sector provides an important source of employment for semi-skilled and unskilled workers, which according to the CTFL SETA (2005b:5) comprises 83% of the workforce. It is therefore of utmost importance that this skill base in the province should be increased. This justifies that the sector would naturally be labour intensive and more jobs could be created at a lower cost than in any other sector. Historically, this has not been an area that would attract investment, especially at the lower levels and it is imperative that appropriate measures are put in place to train blue-collar workers.

As discussed previously, these issues are being addressed by the CTFL SETA (2005b:6) so that companies are given an incentive for assisting employees to further develop their educational levels. The research conducted by the SETA is

invaluable in that it is possible to establish, specific areas where training is required and the gaps that exist in industry.

According to the CTFL SETA (2005b:5), the majority of employees in the clothing industry are females. Most of these employees are bread-winners with an average of four people per family. Retrenchment would therefore not only affect the employee but the extended family.

According to Barnes (2005:10), the Clothing Trade Council of SA (CloTrade) formerly known as CloFed undertook a survey of the demographics of its members. The following statistics were gathered from 50% of the participating members:

- 96% of the employees are previously disadvantaged individuals (PDIs). 79.5% of these PDIs hold a management position, 93.5% are on a supervisory level and 39% hold directorship positions.
- Females make up 83.3% of the workforce with males at 16.7%.
- "White owned businesses account for 59%, Black Empowerment Enterprises (BEE) make up for 12% and foreign companies comprise 3% of CLOTRADE members. The remaining 26% are either directly listed or wholly owned subsidiaries of Johannesburg Stock Exchange (JSE) listed companies".

The survey does not include the whole industry but it is important to note that there is a positive move towards BEE.

4.3.5 Technological factors

The SMME sector does not have access to advanced technology, which makes it difficult for this growing sector to become competitive. Partnerships should be developed between the SMME and its suppliers so that technology can be shared. It is therefore important to reflect on various mechanisms that can be put in place to determine the capacity and skill levels of the informal sector as well as the formal sector (Provincial Development Council, 2004:9).

According to the DTI (2004a:324) even though South Africa has important intellectual capital in science and technology, this has not been applied to the technological development of the clothing and textile industry. This has contributed to the high level of unionisation of this sector and, therefore, technology is seen as a threat to replace the workforce.

The Provincial Development Council (2004:8) refers to the importance of an increasing use of technology and low-cost alternatives without them negatively impacting on employment. Furthermore, government should be willing to set aside 'resources for beneficial programmes' to assist the industry to form partnerships in the CTFL pipeline with the aim of increasing the global competitiveness of the industry.

Very few of the CMT companies have Information Technology (IT) hardware and software in order to access technology and research the new trends available in

production processes. Computer Aided Design (CAD) is important as most of the large manufacturers have these systems in place. Furthermore, communicating with CMT companies is difficult as we are living in an electronic age and everything is done with a push of a button.

According to Meyer-Stamer & Schoen (2003:3), the RALIS project was conducted at the Technology Station situated at the Cape Peninsula University of Technology (CPUT) and sponsored by the Department of Science and Technology (DST) and the German Agency for Technical Cooperation (GTZ) in order to establish the competitiveness of the clothing sector. Mini projects were developed with CMT companies benchmarking their businesses against quality, pricing and service levels between companies. According to Isaacs (Interview, 16 November 2005), the result of this project would lead to an increase in sustainability, job creation and increased global competitiveness.

4.4 Micro-economics

According to the Provincial Development Council (2004), the government is focusing on a micro-economic reform strategy for the clothing and textile sector by looking at the following key issues, namely: to create employment; grow the domestic market share; to exploit the export market in order to grow it; to encourage capital upgrading in order to be competitive; support the transformation of the sector; to increase productivity; enhance value-chain

efficiencies; exploit trade agreements made available by the WTO; improve the co-ordination of the sector; and lastly to address design and fashion capabilities.

This has lead to the various research projects being undertaken at a provincial government level. Based on the Provincial growth and development summit held on 14 November 2003, the Provincial Development Council posits that the Clothing and Textile industry be recognised as being a priority sector to address the issues of employment, growth and investment.

4.4.1 Country of origin labelling

As from 23 May 2005, the country of origin labelling was implemented and, therefore, from this date onwards, any imported garments entering South Africa must have a permanently affixed label stating the country of origin together with the importer's registration number. An additional clause has been added to clarify that the whole garment must be locally produced in order to carry the "Made in South Africa" label. Furthermore, locally produced garments are required to have a tax payer identification number instead of the company's registration number. Garments manufactured with imported materials should have a label stating "Made in South Africa from imported materials". The label identification gives the consumer an opportunity to decide whether they would want to purchase a garment that is made in another country (CCA, 2005).

According to Barnes (2005:25) the certification criteria were implemented because US customers were interested to establish whether the garment produced could meet the specified quality standard. On the one hand, the US customer became interested in the technology, managerial and production capacity and the ability to produce in mass. Lastly, some customers were interested in the suppliers' labour standards. The European consumer on the other hand, was more interested in labour standards, the ability of the supplier to conform to quality standards as well as to show flexibility and versatility with regards to producing garments and material.

This information is vital to the South African clothing industry as they have the ability to produce a variety of garments. Barnes declared (2005:26) that the industry has not been willing to risk exposing itself fully to the US market, neither has it been able to develop a specific niche market. Furthermore, specialised markets lead to smaller runs, with better margins and quick response time. In order to meet this niche market, the clothing industry must further develop the skills of the employees working in this sector.

4.4.2 CTFL SETA Sector Skills Plan

The CTFL SETA learnerships have been developed to assist the industry to improve the sustainability and growth of the sector with the aim to assist in the development of skills needed to transform the industry. The CTFL SETA (2005b:7) highlights a shortage in the areas of technologists, researchers and

scientists, engineers, technicians and artisans, production managers, business managers, In-Company Training (ICT) and professional education and training practitioners.

The clothing and textile industry has been identified as a key area for growth and employment creation due to the labour intensiveness of the sector. The Skills Plan developed by the CTFL SETA (2005b:13) states that there is a critical shortage of skilled technical labour as ageing workers retire, taking with them valuable skills. New employees lacking the necessary skills required are replacing the existing gaps in the market. The survival of the sector depends on the extent to which the workforce skills are improved in order to function on an internationally competitive level.

Statistics provided by the CFTL SETA (2005b:6) show that semi-skilled and unskilled employees in this sector amount to 83%, which suggests that this sector is an important source of job creation. As the sector is seen as being the most labour-intensive industry, more jobs can be created at lower cost within a much shorter period of time.

4.4.3 Utilisation of production capacity

According to the DTI (2004a:14), there is a close correlation between manufacturing production volumes and retail sales volumes as the bulk manufacturing output is sold in the domestic market. This should, therefore

increase the amount of manufacturing volumes to be in line with the buoyant domestic demand conditions as retail volumes grew more than 10% in 2004. However, this is not the case, as a large gap exists between manufacturing and retail performances.

This large gap can be directly contributed to the increase in imports and the deteriorating export growth in response to the strengthening of the Rand. According to the DTI (2005b:20) "... manufacturing and SA's aggregate real imports are estimated to have grown by 17.5% and 13.4% respectively in 2004". This means that manufacturers have not benefited from the increase in demand as this demand has been met by imports, subtracting from real GDP growth. The clothing and textile industry are experiencing problems due to the stiff competition from imports as domestic demands are met. This trend is likely to persist for a short period, which will allow the manufacturers more time to adjust to the strong currency.

4.4.4 Lack of economies of scale

A weakness that the manufacturing sector is faced with is the economies of scale that can be achieved by our competitors. According to the DTI (2004a:323) the cost of capital in South Africa is fairly high, which can only be compensated for when demand is notably high and stable to justify the risk coupled with capital investment. Demands for large scales of economy exist but South African companies are not geared up to meet these demands.

4.5 Conclusion

Government has realised the need to address various problems that the industry is faced with on a national and regional scale. This has lead to various research projects being undertaken by the provincial government as well as the DTI. This lead to the country of origin labels that manufacturers are required to place on the garments produced. This gives the South African consumer an opportunity to decide whether they want to purchase a garment made locally or elsewhere. It is necessary to educate the consumer to ensure that this course of action is successful. Furthermore, it has been revealed that the export markets are more interested in other areas of the business. The clothing industry needs to become more flexible with the focus towards producing quality garments with quick response times.

The skills development plans have been put in place to ensure that the critical shortage of skilled labour can be addressed. This will change the present situation the industry faces, where this sector consists predominantly of unskilled and semi-skilled people.

As discussed previously, the increase in imports has had a detrimental effect on the production capacities of local manufacturing companies. This has had a negative effect on the clothing industry because they are not able to mass-produce to the same economies of scale as the Chinese.

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CHAPTER FIVE

THE STATUS OF SMALL-BUSINESS DEVELOPMENT IN THE CLOTHING INDUSTRY

5.1 Introduction

This chapter explores small clothing businesses in the Western Cape and the role this sector plays in job-creation and increasing the standard of living for workers in urban and rural areas. A breakdown of the small manufacturing companies will be provided with associated activities performed in the course of conducting their business. The business characteristics in this sector are also discussed as well as the impact on the economy. The impact of the sector on the economy is examined. The chapter will conclude with a discussion on the role of government in promoting small manufacturing as well as the importance of training and development with industry.

5.1 Background

Siropolis (1997:3) defines a small business as one that must be 'managed' and 'independently owned'. Scarborough (1996:7) defines an entrepreneur as "... one who creates a business in the face of risk and uncertainty for the purpose of achieving profit and growth by identifying opportunities and assembling the necessary resources to capitalise on them".

Cronje, Du Toit, Marias and Motlatla (2004:46) state that small business are able to perform some functions more efficiently, thereby contributing to the success and competitiveness of larger companies. Furthermore, small businesses are of the utmost importance because if they are removed from the operation, large manufacturers would have to perform activities that could be done more effectively elsewhere. As a result of this interdependence, the activities of small businesses are crucial to address economic growth, job creation and the alleviation of poverty in the Western Cape. In the South African context, the contribution of SMMEs to employment and output is not nearly as much as that of many other countries (DTI, 2004b:67).

Figure 5.1 displays the basic structure of the SMME clothing manufacturing industry in the Western Cape which contain six different categories. The first two deal with CMT companies who sub-contract to large manufacturers or design houses. This category makes up seventy percent of the SMME sector due to the following:

- lack of product development;
- lack of finances to purchase raw materials; and
- lack of finances to purchase new equipment.

Competition in this sector is intense, as the large manufacturers and retailers influence the pricing structure.

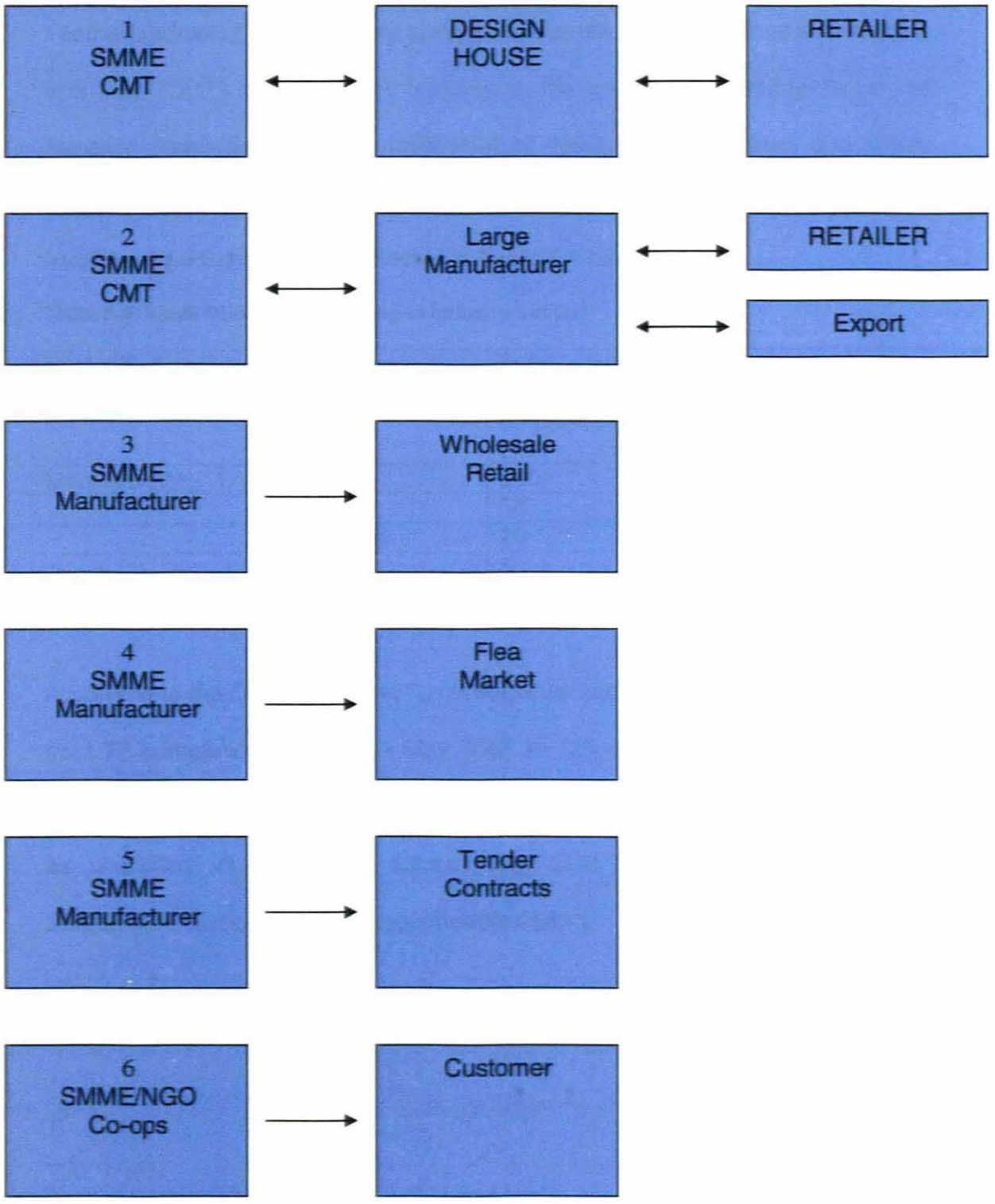

Figure 5.1: Structure of SMME companies: Western Cape CPUT Textile Technology Station

5.3 Small-business in the Clothing Industry

For the purpose of this research, small business will be described as a Cut, Make and Trim (CMT) company who conform to the specifications contained in the *National Small-Business Act,* 1996 (102 of 1996). Small, Medium and Macro Enterprises (SMME) in the manufacturing sector/sub-sector is classified in accordance with the criteria reflected in Table 5.1 below:

Table 5.1: Small Business according to industry sector

Sector/Sub-sector	Size or class	Total full time equivalent of pay employees less than	Annual turnover (Rm) less than
Manufacturing	Medium	200	40,00
	Small	50	10,00
	Very small	20	0,40
	Micro	5	0,15

Source: *The National Small Business Act, 1996 (102 of 1996)*

According to the CCA (2005) the "... association had increased their membership from 72 companies as from 31 May 2005 to 126 companies on 21 September 2005". 70% of the 126 companies registered, are in the category of SMME/CMT as classified in Table 5.1 above. The CCA therefore represents more SMME/CMT companies than large manufacturers.

The number of employees per membership is reflected in the table below:

Table 5.2: Employees per number of companies

Category	Number of companies
Less than 20 employees	10
Between 21 50 employees	26
Between 51 – 74 employees	15
Between 75 – 100 employees	11
Between 101 – 149 employees	14
Between 150 200 employees	13
Between 201 – 250 employees	11
Between 251 – 300 employees	1
Between 301 – 350 employees	2
Between 351 – 400 employees	4
Between 401 – 500 employees	6
More than 500 employees	13
Total	**126**

Source: CCA (2005)

The profile of the ten employer organisations who are members of the Bargaining Council (31 July 2005) are reflected in terms of the following statistics:

- 47,6% of the companies represented are categorised as micro, very small companies (less than 50 employees);
- 32.45% are within the medium company category (employing 51 – 200 employees); and
- 19.87% represented are within the large company category (employing more than 200 employees).

According to the CCA (2005:2) the "... employer parties to the Bargaining Council are more than 80% representative of SMME's / CMT's". In support of the above, Mr. Allie (interview, 16 January, 2006) stated that eighty percent of the CMT companies in the Western Cape had joined the bargaining council as this was a requirement.

According to Rogerson 2001: 53) the informal economy in the Metropolitan area employs as many people as the formal industry. Naumann (2002:4) claims that there are in excess of 200 CMT companies in the Mitchells Plain area alone. In retrospect, according to Allie (interview, 16 January, 2006) the 200 companies include other areas in the Western Cape as well. In the mid-1990's, the association dealt with the Mitchells Plain area only, but has subsequently expanded its jurisdiction to include additional areas.

The Provincial Development Council (2004:13) reiterates the findings that the SMME sector has the ability to create more jobs in the clothing industry than in the formal sector. Allie (interview, 16 January, 2006) argues that the SMME sector has been playing an important role in job creation, but has not been given an opportunity in terms of market share to significantly impact on the economy.

5.4 Business characteristics

According to Allie (interview, 16 January 2006), the owners of CMT companies consist of people in the clothing industry that apply their skills and sell their services to larger companies. The production capacities of the big companies are not affected by high production costs. Large companies have large buildings (leased or owned), employ more than 200 employees and have various departments functioning independently, which increases manufacturing costs, thereby making production costs high. A few CMT companies do not purchase their own fabric. The cut parts and trims are thus supplied by the large

manufacturer or retailer. To enhance the competitiveness and performance of this sector would positively affect the industry as a whole.

Large-scale closures of companies have lead to an increasing need to supply the domestic market. A support mechanism must be established to assist companies to implement best-practice procedures to ensure success. Allie (interview, 16 January, 2006) states that a support-group should be established to:

- assist unemployed people looking for alternative employment;
- show emerging entrepreneurs best practices based on different company practices; and
- select an area to start regular meetings.

A weakness in the clothing sector is the decrease in labour productivity resulting in an increase in unit costs. Productivity must be improved and a concerted effort is needed to develop skills for both management and labour in order to decrease labour costs. Allie (interview, 16 January 2006) states that turnaround time is an advantage for the clothing industry and that logistically the local market has the upper hand compared to importing countries.

The findings of a survey undertaken by Rogerson (2001: 53) on 381 companies in the Western Cape, revealed shortcomings in the export programme. Due to internal and structural constraints, it may be assumed that it would not be

feasible for CMT companies to pursue the exporting trade and this weakness could be based on the following factors:

- lack of knowledge and understanding of international markets;
- lack of managerial and technical savvy, competence, professionalism and expertise; and
- lack of direction in terms of policy on assessing foreign markets.

According to the Provincial Development Council (2004:27) the South African clothing industry export growth will depend on the following factors:

- to augment the quality of the garments produced;
- identify different markets;
- produce garments with better design flair;
- expand product lines
- establish good relations with foreign buyers; and
- meet delivery dates, price and quality.

According to Allie (interview, 16 January, 2006), CMT companies do not consider factory design, production processes, quality, strategic planning, production planning and upgrading of technology, as important and focus mainly on day-to-day running of the business. To enable CMT companies to export, it is regarded as important to develop global quality standards, standardise production and move to be more versatile. According to Allie (interview, 16 January 2006), this would prove to be difficult due to the lack of available resources and skills.

According to Rogerson (2001: 53), CMT companies do not have the marketing or administrative skills to export garments. CMT companies operate on survival mode in order to meet quantity deadlines so that other financial obligations can be met.

An investigation in the SMME sector (Department of Science and Technology, 2004:22) revealed that the following problems existed in the CMT sub-sectors namely:

- "... owners are typically managers and are permanently pushed for time;
- management in terms of strategic planning, marketing and contract negotiations are lacking. Production planning is inadequate and the lack of quality systems results in rework";
- the orders received are small, making "...the production runs short";
- CMT work independently thus causing animosity and rivalry amongst each other;
- "... bargaining power and bargaining skills are seriously lacking"; and
- strong competition in this sector and the informal sector reduces the price-level, thus making it impossible for small businesses to become sustainable.

According to the Department of Science and Technology (2004:31) the following areas need to be addressed in quality and productivity management systems by CMTs:

- the management systems in CMTs are not simple and cost effective;
- a simple paper-based systems that allow them to measure and control quality and productivity;
- the simple systems developed for these small businesses must be implemented, "... piloted and evaluated in selected CMTs"; and
- short courses and mentoring must be developed and implemented in the industry which must be incorporated into short courses and mentoring programmes at CMTs companies.

5.5 Government intervention

The DTI (2004b:6) describe the SMME sector as the 'backbone' of the economy with an employment figure of 50% of the workforce and a contribution of 35% towards the GDP of the country. In support of the above, Kruger, de Wit and Ramdass (2005:32) states that the SMME sector accounts for 50% of employment and gross domestic profit (GDP). Our past is reflected in the 'racially skewed ownership patterns' and the exclusion of Black South Africans in education, training and enterprise development. The foregoing is supported by Rogerson (2001: 58) who stated that the term "established SMMEs" was referred to as businesses that were white-owned and managed by white entrepreneurs. Companies owned by historically disadvantaged communities were referred to as emerging SMMEs. According to Rogerson (2001: 59), the CMT sector has changed and therefore the perception of an absence of black SMME entrepreneurs has indisputably changed in the Western Cape.

The new Skills Development Framework as promulgated by the Department of Labour (2001) has made provision for training within the clothing sector. The aim of the skills development framework is to address the shortage of skills; to move towards higher value-added opportunity and to eradicate past labour inequities to advance greater equity. A survey (2001) conducted by the Bureau of Market Research (BMR) found that micro-enterprises had minimal training and very few were interested in being studied (DTI, 2004b:8).

Barnes (2005:11) explained the Customised Sector Programme (CSP) aimed at the clothing and textile industry which focuses on the strategic development of the industry as follows:

- identification of 26 Key Action Programmes (KAPs) with the aim of addressing the crisis that the industry is facing presently;
- re-establishing their foundations; and
- maximising opportunities.

An investigation by the Provincial Development Council (2004:7) suggests that Cape Town is being recognised as the design centre of South Africa and possibly Africa. The Provincial Development Council recommended that a Centre of Excellence be developed to oversee the research and development activities for the clothing and textile industries. In addition, a mechanism should be implemented to ensure that African designs are put into the mainstream.

A large portion of funding used by SMME companies is secured from their own savings or from their families rather than financial institutions and, therefore, most of the machinery used in this sector is second-hand. The Provincial Development Council (2004:16) describes access to finance as a restriction for SMME companies who manufacture goods for large manufacturers or retailers. SMME companies are unable to cover their overheads for the longer time periods required by export, due to their short financial cycle. The short financial cycle contributes to the current low levels of investment in productive assets, computer -aided design and cutting equipment.

According to the Provincial Development Council (2004:9) the SMME sector does not have access to advanced technology. SMME companies should have access to this information which could possibly assist these companies to make use of technology and evaluate the benefits of low-cost alternatives. An investigation has been undertaken by government to establish the need to provide incentives which would assist SMMEs to purchase new equipment. Furthermore, a partnership should be developed between the large manufacturers and CMT companies in order to ensure the effective use of machinery and new technology.

According to the Provincial Development Council (2004:13-14) the government is in favour of the promotion and development of SMMEs even though legislation negatively impacts on the sector. The role of the National Bargaining Council

(NBC) should be reviewed and support should be given to these companies in order for them to become sustainable. In addition, the NBC should be more sensitive to the needs of small businesses and understand the realities and difficulties that exist in this environment. Once these problems have been addressed, these companies should be nurtured until they fully comply with the necessary legislation that must be adhered to.

The trade union has an important role to play in establishing a practical environment that works within the SMME sector. SACTWU has agreed to hold a meeting with the SMME sector so that any negative perceptions could be addressed. (Development Provincial Council, 2004:14)

5.6 Education and Training support

Education and training plays a major role in the development of skills in any organisation and this area has been addressed by the CTFL SETA audit of the clothing and textile industry. A different approach is needed to address the needs of SMME companies as there is a big difference between the two entities. Likewise, CTFL SETA (2005b:15) emphasises the need for an audit to be conducted on the SMME sector to establish what their training needs are.

Jones and Tilley (2003:7-8) state that the interaction between small business and Higher Educational Institutions could benefit the sector as follows:

- small manufacturers do not have the time, resources, technology or expertise to do market research and develop new business ideas;
- these businesses do not operate at their optimal level;
- most of the employers lack formal management education;
- SMMEs could make use of the skills that are available from students that graduate from Educational Institutes; and
- SMMEs struggle to obtain finance for their businesses.

According to the Provincial Development Council (2004:17-18), the Cape Peninsula University of Technology (Bellville campus) must be supported to improve training and skills development and foster a Centre of Excellence for the industry. Companies should be responsible for enrolling their employees in the programmes offered at the institution, as well as making bursaries available to unemployed people. More funding should be made available for materials development and the development of learnership material.

DTI (2004b:11) states that most small companies who have a permanent workforce would train employees on an informal basis and therefore, if these companies wanted to undergo change, they would need to invest in more formal training of employees. This training would play an important role in the development of much-needed technical and managerial skills in this sector.

5.7 Conclusion

Small businesses have a significant role to play in the development of the South African economy. It has an opportunity to contribute to job-creation, as well as reduce the negative impact of the sector with regard to the shedding of jobs as is being experienced currently. An important area that must be addressed is the development of the required skills and productivity improvement.

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CHAPTER SIX

RESEARCH DESIGN AND METHODOLOGY

6.1 Introduction

An action participatory research approach was adapted which included a combination of both qualitative and quantitative research methodologies. Two research methods, namely focus group sessions and survey questionnaires were concluded as is explained in this chapter.

6.2 Action research

According to Welman and Kruger (2001:21) action research is distinguished by a problem that exists in an organisation or in a "... specific applied setting." He compares action research to case studies in that it tries to find a solution to a defined problem. Welman and Kruger (2001:21) further describe applied research in industry as follows:

- problems in organisations give rise to research projects;
- these projects are aimed at improving research projects;
- participants in the research projects would normally be employed by the organisation; and
- results would be viewed in a positive light and the findings would be accepted and implemented by the rest of the organisation. "... If the results are negative, the organisation will attempt to use secondary, but valuable ideas obtained from the study" (Welman and Kruger, 2002:22).

Bless and Higson (1995:56-59) support the above view by describing a framework for action research as:

- request for assistance;
- negotiation between the researcher an another party;
- planning; and
- implementation.

Neuman (2000:24) supports Welman and Kruger's (2001) view of action research as being applied research, by referring to it as finding ways of solving certain problems or assisting practitioners to achieve tasks. Action research is employed in businesses, government, social-service agencies, health organisations and educational institutions, as it relates to things that affect daily lives. The results are often used by someone other than the person doing the research. Therefore, in most cases, the use of the results, are not under the control of the researcher. The researcher is, therefore, obligated to translate the results into a language that can be understood by the user.

The foregoing is supported by Bless and Higson-Smith (1995:55) who describe participatory research as being distinguished by two characteristics, namely the relationship of the people involved in the research, with research being the tool for action and a means of increasing human knowledge. The research techniques focus on particular problems in society and a means of finding solutions to these problems, in order to improve the quality of life. The researcher

collaborates with various parties as equal players to investigate the problem and its causes to develop long-term solutions to problems.

Action research is a "... form of participatory research in which action and research compliment each other" (Welman and Kruger, 2002:190). Further, it can be distinguished by the participants' active role in the planning and implementation of the research outcomes, as well as the social change that would be brought about and this affect on the various parties.

Bless and Higson-Smith (1995:56), argue that participatory research is not necessarily action research, "... although action-research is always participatory". Action research requires the researcher and the other party to be equal partners in the planning and implementation of the project and that each person would make a valuable contribution to the project. Further, action research and research takes place 'alternatively', which results in a continuous learning experience for the parties concerned.

Action research is demonstrated in Figure 6.1 as follows:

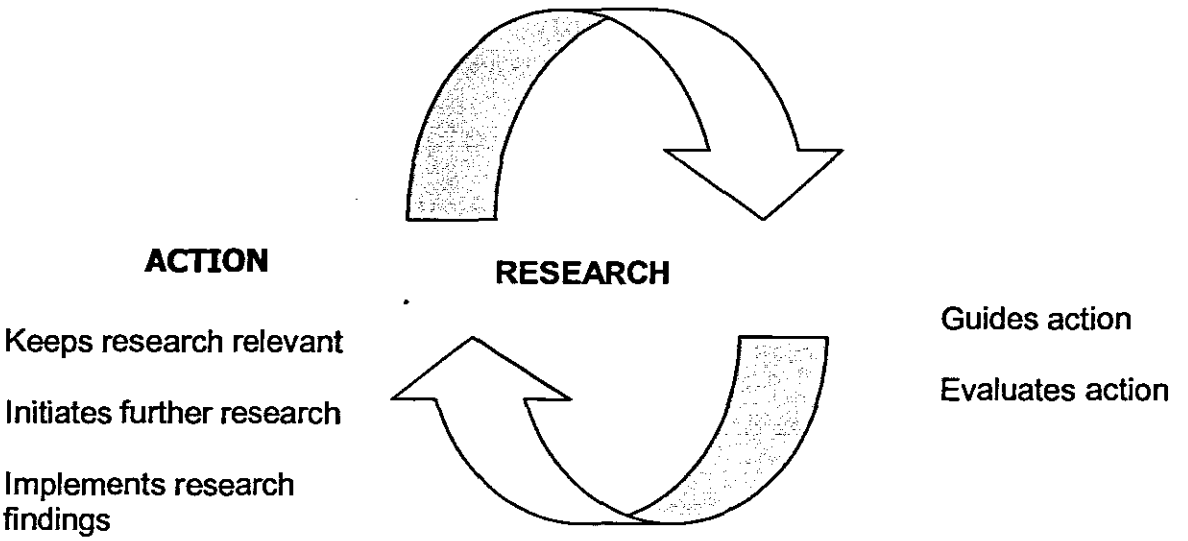

Figure 6.1: Action research (Bless and Higson-Smith, 1995:59)

Figure 6.1 illustrates the dependence of action and research and the continuous process of learning that takes place between the researcher and the participants.

6.3 Methodologies adopted

The qualitative and quantitative methodologies, adopted in this research study is explained hereunder.

6.3.1 Qualitative methodology

Neuman (2002:158) states that qualitative researchers consider ideas before collection of the data and that many of the concepts are developed during the data-collection phase. The concept of qualitative research is further explored by emphasising the examination and reflection of data, which happens

'simultaneously and interactively'. A researcher begins the process by gathering data and deciding on the basis of measurement, depending on the findings. The ideas will give guidelines on the direction to follow as well as to create new ways of measuring the data. The new means of measurement will assist the researcher to determine how the collection of data will be continued, and leads to the connection of ideas and data through a continuous interactive process.

The main aim of the researcher is to follow an 'inductive route'. According to Neuman (2002:158) they begin with empirical data, which follow with abstract ideas, then processes relating to ideas and data, and end with a mixture of ideas and data. On the one hand, Welman and Kruger (2002:178) define qualitative research as field studies used successfully to describe groups, (small) communities and organisations. On the other hand, Bouma (2000:178) describes qualitative research as the gathering of data by using various methods such as observation, in-depth interviewing, focus groups or the use of textual material.

In view of the foregoing, focus group sessions is a method that can be used to successfully extract information required. It is a valuable tool to establish the views of participants on a number of issues. Welman and Kruger (2002:189) describe focus group sessions as being more than one person that is interviewed at a time. Bouma (2000:181) states that a focus group session consists of six to twelve people that would agree to meet with the researcher to discuss an issue that has been raised by the researcher. This creates a snowball effect where

people are encouraged to share their ideas and thoughts around the subject being discussed. The method therefore combines the strength of in-depth group interviewing and observations, as the group interacts.

According to Welman and Kruger (2002: 189) focus group sessions are conducted in various phases, namely:

- the introduction of the topic to be discussed;
- rules set out ahead of time;
- one person should speak at a time;
- sessions are guided by a set of questions which the researcher would introduce to the group; and
- each participant is allowed to make a final statement that may not be opposed.

Six focus group sessions were held with various stakeholders from the clothing sector which included retail, large manufacturers and small manufacturers. During these sessions, a set of questions was presented to ascertain whether a need existed for small companies to have a developed quality framework. The participants in the focus group sessions assessed the reliability of these questionnaires, prior to distribution to the various small businesses in the Western Cape.

The focus group sessions were held as a pre-research method to determine whether there was consensus that a problem of poor quality management indeed existed and needed to be addressed. According to Sarantakos (2000:181) focus group sessions and discussion groups can be used for various purposes, namely:

- as a pre-research method which would be used to ensure that sufficient information is gathered around the study object to ensure that possible errors are prevented;
- as a post-research method to expound trends and variances, reasons and causes, through the views of the respondents;
- as a main study it supplies information about the group processes, spur-of-the-moment feelings, reasons and explanations of attitudes and behaviour as effectively as any other method;
- the intensity and direction which the discussion is moved can be used to bring about change in the group; and
- alternatively, group discussions enable the researcher to access valuable information about group processes, attitude change and manipulation, attitude and opinion of group members, the group to the public, the effectiveness of certain methods, and so on.

6.3.2 Selection process / Choice of respondents

According to Sarantakos (2000:182) the respondents are selected either through a random procedure, a systematic or cluster sampling, or other ways that can be

justified by the object of the study, nature of the respondents or the underlying methodology. Invitations were posted to the clothing sector using an address list compiled by the Technology Station in Clothing and Textiles located at the Cape Peninsula University of Technology, Bellville campus. An attempt was made to ensure that the focus group sessions comprised of a mix of retailers, large manufacturers and small manufacturers. The participants targeted for the group discussions were responsible for quality procedures and standards in their respective organisations or occupied a managerial position. The quality produced in their organisations would therefore, be the responsibility of the individuals who were in a position to accept or reject orders from small companies. Sarantakos (2000:182) supports the view that the members of the group should be talkative, though knowledge of the research topic is vital. The reason for having both retail and large companies in the group discussions was to stimulate the discussion from a diversity of perspectives. Participants would have an opportunity to share their experiences with the rest of the group in order to achieve consensus.

6.3.3 Goal directed discussion

Five questions were developed for the discussion. The questions were introduced to the participants, one at a time. Each participant had an opportunity to interact with the group. All the information gathered was recorded and participants had an opportunity to contribute further to the discussion.

Given that the facilitator (researcher) is required to occupy the central position of the discussion, the success of the group discussion is largely dependent on the quality of the group facilitator. According to Sarantakos (1997:187), leaders should possess the following qualities:

- knowledge of the research topic in terms of theory and methodology;
- experience of working with groups with an ability to control the discussion and involve all participants, in order to move discussion forward;
- have leadership qualities; and
- an ability to create a relaxed atmosphere amongst the participants.

In support of the above, Bless and Higson-Smith (1995:113) state that the researcher must be skilled at facilitating group discussions to successfully use this method.

The disadvantages of using group discussions are:

- participants may be fearful of giving their true opinion, especially if their views would affect their personal and professional life;
- the recording of data could be problematic;
- the discussion could be dominated by a few individuals and this could affect the direction and outcome of the discussion;
- there could be some participants that do not participate in the discussion at hand;
- the participants may want to please the facilitator;

- the success of the method depends on the qualities of the facilitator and the combination of members in the group;
- it could be difficult to keep the discussions focussed on the subject at hand;
- the group might attempt to mislead the facilitator; and
- the findings might not be representative.

It is therefore, important to compile a complete report of the discussion as soon as possible, after the discussion has taken place. According to Welman and Kruger (2001:190), the researcher must make an effort to capture all the information gathered as accurately as possible in order to bind various themes together. The researcher will be able to establish a consensus trend between the various issues discussed.

6.4 Quantitative method

According to Barbie and Mouton (2003:49), the quantitative research approach involves the analyses of empirical data with the view of answering a research question. Quantitative research is typically presented in the form of numbers. Neuman (2000:122) declares that this type of research places importance on the measurement of variables and the testing of hypotheses which are connected to various situations.

Leedy (1997:104) describes the quantitative approach as being used to answer questions among measured variables in order to elucidate, forecast and control

phenomena. The organisation, presentation and systematic sequencing of information should be applied in a logical format. Similarly, Bouma (2001:19) states that quantitative research is used to answer questions on specific things. According to Neuman (2001:123) quantitative methods are described as having the following characteristics:

- they can be used to measure the research hypothesis;
- concepts are shown as separate variables;
- measures are put in place before the collection of data;
- data is presented in the form of numbers from accurate measurement tools;
- standard procedures are used and replication is acceptable;
- this is followed by the analysis of data using various mathematical techniques in order to illustrate the relation to the hypothesis.

The presentation of the data must be presented within logical rules and terms to attain the desired effect. Researchers use methods that allow them to measure variables of interest objectively. Leedy (1997:106) states that there is an interaction between the researcher and the participants which leads to the data emerging in categories, patterns and information that will help to explain a phenomenon. Leedy (1997:106) further explains that situations in *mileau* can be measured through a well-designed questionnaire.

6.4.1 Question design and administration

According to Frazer and Lawley (2000:18-20) the questionnaire design process has to follow five basic steps, namely:

- to establish what information is required and who would be targeted to supply the information;
- determine what type of method would be used to access information and the length of the questionnaire;
- prepare a draft questionnaire ;
- pre-test and amend the questionnaire accordingly; and
- measure the reliability and validity of the questionnaire.

Questionnaires can be completed by the respondent without any direct personal contact with the interviewer. The questionnaires can be posted, faxed or emailed to the respondents and be collected thereafter. A pilot questionnaire was developed from the focus group sessions which were held to investigate the existence or type of quality system presently utilised in small manufacturing companies. The pilot questionnaire was e-mailed to each participant for input and critique. Feedback was received and the necessary changes were made before the questionnaire was distributed. The pilot questionnaire is attached at Appendix B

1. Self-administered questionnaires would only be appropriate if according to Babbie and Mouton (2003:258), the population being surveyed is literate. The assumption made in this research was that all respondents were literate.

Structured questions were formulated to collect the data that was required. Sarantakos (1998:225) states that the cover letter is used to introduce the respondents to the research topic and the researcher. The letter may motivate the respondent to participate in the completion of the questionnaire. The questionnaire consisted of a combination of closed questions, open questions and scale response questions.

Neuman (2000:266) deduces that failure to respond to a questionnaire can take various forms namely:

- the respondent was not contactable;
- the respondent was unable to understand the questionnaire and was therefore unable to complete the survey;
- the respondent was not willing to complete the questionnaire;
- the respondent refused to answer some questions;
- respondents fear that the questionnaire is not legitimate; and
- respondents may be negative towards surveys;

The response rate for the completion of this questionnaire was 66.7%.

6.4.2 Advantages of mailed questionnaires.

According to Bless and Higson-Smith (1995:111-112), a mailed questionnaire is able to reach a large population over a short period of time at the least cost. Furthermore, respondents can decide to furnish their details or remain

anonymous. Important information that requires input from more than one person could be dealt with appropriately, as the respondent has more time.

Three types of response format choices could be utilised in a questionnaire. As previously mentioned, the questionnaire utilised for this research contained all of the following choices and the advantages and disadvantages of each of the response formats is discussed forthwith.

6.4.3 Open-ended

Frazer and Lawley (2000:26), describe this type of question as being suitable when the researcher wants precise information but the answers may be difficult or too lengthy to list. Respondents are encouraged to have freedom of expression. It is best to limit the use of open-ended questions in large scale survey as they are time-consuming and difficult to analyse.

Frazer and Lawley (2000:29) list the following advantages and disadvantages:

Advantages of open-ended questions

- respondents are free to convey how they feel.
- it is not necessary to list all possible answers.
- useful in exploratory research.
- give respondents an opportunity to answer in their own words.

Disadvantages of open-ended questions

- respondents can speak or write as much as they like.
- respondents may give to little information
- respondents' handwriting may not be clear enough.
- answers need to be coded before hand.
- could be challenging for the respondents.
- they are very time-consuming to complete.
- they are difficult to analyse.

6.4.4 Close-ended

Frazer and Lawley (2000:26) describe close-ended questions as being either single, 'dichotomous' (two alternative responses are provided example yes or no) or 'multichotonous (where a list is provided for the respondent to select from).

Frazer and Lawley (2000:26) list the following advantages and disadvantages:

Advantages of close-ended questions

- both respondents and researcher finds them easier to use.
- it is easier to recognise a response than to remember it.
- gathered data can be easily analysed.
- responses do not vary much and can be meaningfully prepared.
- response rate is higher as more questions are answered.

Disadvantages of close-ended questions

- respondents could be 'lead' when answering questions.
- the researcher must ensure that all possible responses are mutually exclusive and exhaustive.

6.4.5 Scaled response

Frazer and Lawley (2000:28) describe scaled response as the use of a scale to measure the attributes of the construct. The respondent can choose whether they agree or disagree with a question that has been asked.

Frazer and Lawley (200:28) list the following advantages and disadvantages:

Advantages of scaled questionnaires

- Where information is difficult to quantify they are useful.
- Useful to use for sensitive topics.
- Easy to use.
- It is possible to reword items to check reliability.

Disadvantages of scaled questionnaires

- The responses could be biased.

6.5 Survey questionnaire

The survey questionnaire used in this research consisted of 10 sections namely:

- Demographics and background which provides information about their company name and location;
- Information about the company size in order to ensure that they were within the limitations set out;
- Information on the clientele so that the company could be categorised according to the SSME structure discussed in chapter four;
- The type of production procedure employed to establish the types of products produced;
- The relationship with the client to establish the customer-supplier relationship;
- The production processes used to assess the type of quality system employed in the company;
- Quality and the degree to which it is used to contextualise the performance of the quality system;
- Training and how it was used in the organisation; and lastly
- The respondents' willingness to be part of a focus group session.

Brewerton and Millward (2001:99) state that research questionnaires should include information on demographic/descriptive data, behavioural and attitudinal data. Brewerton and Millward (2001:99) describe the issue of confidentiality as important with regards to demographics, especially in organisational settings. Many respondents are not willing to supply information on their demographics

and would rather prefer not to respond to the questionnaire. The respondents who wished to remain anonymous were included in the research study.

The survey was conducted over a period of six months from February to July 2005. The database of companies registered with the Textile Technology station was used to contact the CMT Co-ordinators of retailers, large manufacturers and design houses, telephonically. The CMT Co-ordinators received questionnaires by electronic mail, fax or by post.

Completed questionnaires were returned by post or fax during this period. Non-respondents were contacted before a decision was made to exclude the respondent. Another means of contact was through the CMT Co-ordinators known to the researcher. A number of questionnaires were sent to these individuals who took responsibility for dropping and collecting the questionnaires at the company, as many of them were not contactable via fax or email. This method resulted in a snowball effect which proved to be very helpful by ensuring that the questionnaires were returned and other owners could be contacted.

6.6 Validity and reliability

One of the basic principles of social research is to attain validity. According to Neuman (2000:164), reliability and validity are key issues that the researcher has to face when doing measurement. Neuman (2000:164) states that reliability and validity are concerned with how the tangible measurements are related to the

constructs. According to Neuman (2000:164) reliability and validity are significant because constructs in social theory are often vague, scattered and cannot be observed directly. Neuman (2000:164) concedes that it is virtually impossible to achieve perfect reliability in social research. The researcher must ensure that the measurement is reliable and valid in order to establish the truth regarding a situation, or phenomenon, to be credible and to believe in the findings produced.

Sarantakos (1998:78) describes validity as the ability to determine whether actual findings support theoretical values. Similarly, Babbie and Mouton (2003:122) refer to validity as the extent to which an empirical measure sufficiently reflects the true, real meaning of the hypothesis under investigation. The above definitions, therefore, suggest that a measurement is valid when it reflects the truth about the situation and condition of the environment being studied. Neuman (2000:164) supports this statement where validity is referred to as truthfulness. Neuman (2000:164) refers to validity as an idea that the researcher has about the situation and how it compares with what is actually happening in the real world. The measurement will not be valid if the tool used to analyse the setting does not fit with what is happening in the environment. Bouma (2000:85) states that it is important to be careful when constructing a questionnaire and to get other people to give input in order to increase the validity of the instrument.

Validity can be measured in two ways, namely: empirical validation and theoretical validation. Validity is unquestionable if the findings produced by the

measurement are supported by both the empirical and theoretical validation. Empirical validation tests criterion validity whereas theoretical validation is employed where validity is difficult and covers face validity, content validity and construct validity.

The following methods of validity will be discussed namely, criterion, face, content and construct validity:

- **Criterion validity** uses a standard or criterion to measure a construct. It measures whether the results of the prediction against the actual findings at a later stage are valid known as predictive validity. Concurrent validity assumes that the finding already exists (Neuman, 2000:168).
- **Face validity** measures what it is supposed to measure. According to Sarantakos (1998:79) face validity is when 'on the face' it appears to be valid. Leedy (1997:33) deduces that this type of validity relies on the subjective judgement of the researcher in relation to the measuring instrument and the sample measured.
- **Content validity** refers to the range of meanings included in the concept and how it will be measured (Babbie and Mouton, 2003:123). Sarantakos (1998:79) describes this validity as a measurement that covers all aspects of the research topic. Leedy (1997:33) declares that this type of validity is sometimes equated with face validity. Furthermore, validity is achieved with the accuracy with which the instrument measures the factors

associated to the situation being researched. This would be related to how the questions asked would accurately extract the information sought.

- **Construct validity** shows evidence of a logical relationship between variables (Babbie and Mouton, 2003:123). The instrument can be administered to two different groups who differ in opinion. If the findings prove to differ, the instrument will be viewed as being valid. According to Leedy (1997:34) this type of validity could be related to honesty as this concept cannot be observed or isolated. Construct validity (Neuman, 2000:165) is described as a measurement validity that uses multiple indicators. One looks at how similar indicators converge and the other looks at how different indicators diverge.

Leedy (1997:35) describes reliability as a technique that can be used to establish how well the instrument yields the same results every time. It can therefore be deduced that if the same instrument is used under similar conditions, the same result will be obtained. Bouma (2000:86) states that questions of reliability would refer to the accuracy of the measuring instrument and if it is the appropriate tool to use. Various types of reliability tests that can be conducted, namely:

- **Stability reliability** is viewed by Neuman (2000) and Sarantakos (1998) as reliability over time.
- **Representative reliability** is used to establish reliability across subgroups or groups of people. This instrument is used to establish whether the

results will be reliable if it is employed in groups other than the original group (Sarantakos, 1998:84)

- **Equivalence reliability** is applied when researchers use multiple indicators. It is used to establish whether the measure in question will produce consistent results across indicator (Neuman, 2000:165).

The following are the most common utilised methods:

- The **test-retest methods** compare the result of the same instrument measured at different times (Leedy, 1997:35). The same subjects would be tested with the same instrument and if the same results are obtained, the instrument is reliable.
- **Split-half method** means that the responses to the items in the research instrument are divided into two groups and the scores are then compared (Neuman, 2000:165)
- **Alternate-form method** is tested by using similar questions in one instrument in order to assess the correlation between two groups. A high correlation indicates the degree of reliability of the instrument (Sarantakos, 1988:84).
- **Inter-item and item-scale test** establish the degree of reliability of the instrument using inter-item correlation or item-scale correlation (Sarantakos, 1998:84).

6.6 Data Analysis

The collected data (questionnaires) was captured and encoded using the Statistical Program for Social Sciences (SPSS). The same computer package was used to analyse the data. The programme checked the reliability and validity of the research instrument and the respective selected results is discussed in Chapter eight.

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CHAPTER SEVEN

RECORD OF FOCUS GROUP SESSION

7.1 Introduction

Six focus group sessions were held over a three day period with the participants selected from the small, large manufacturing and retail companies as contained in the databases as administered by the Technology Station in Clothing and Textile, Cape Peninsula University of Technology, Bellville campus. An exploratory approach was adopted to ascertain whether quality policies and procedures existed to ensure that quality standards were specified and adhered to on the production floor.

The purpose of the focus group sessions was to establish the prevailing and desired practices in the following areas:

- the desired quality process;
- the common definitions of quality;
- the customer requirements;
- the drivers of quality;
- the problems encountered and customer demands;
- the needs of the retailer, large manufacturer and CMT companies, and
- the mechanism adopted to monitor quality.

The recorded responses in respect of the foregoing provided the premise and format, for the design and development of a questionnaire.

7.2 Desired quality process

The focus group discussion identified the following elements which were regarded as necessary in a **quality process.** The responses recorded in respect of all six focus group sessions are recorded and summarised under separate heading:

- a brief should be designed and implemented that would assist with the manufacturing process on the production floor;
- a pre-production meeting should be held to discuss the brief supplied;
- the products to be produced, should be identified and the following points should be considered:

- new and unknown samples,
- sample fabrics,
- bulk fabrics (production fabric),
- can the fabric be sewn up as production samples?

- a partnership should be formed with the customer;
- the manufacturer has to ensure that the necessary schedules were received for both fabric and production;
- on receipt of goods, it is the responsibility of the manufacturer to check the following:

- fabric
- trims
- standards
- cutting (sewability, fusing and a Pareto analysis done)

The participants agreed that it was important to ensure that all the elements processes mentioned above were not undertaken in isolation.

7.3 Common definition of quality

Quality was described as meeting and exceeding customer needs, which meant that the garments had to conform to the requirements and specifications, ensuring reliability and durability.

7.4 Drivers of quality

The participants were of the view that retailers were the drivers of quality. It was determined that due to the dramatic change in the buying habits of consumers a diverse product range was required to satisfy this need. This was greatly influenced by the environmental issues as well as the availability of raw materials in South Africa. Concern was raised about the quality of the raw materials received from the suppliers. Both the manufacturers and retailers inferred that their priority was to satisfy customer needs and it was determined that the consumer was a combination of both the market trend-setter and end user.

7.5 Customer requirements

The discussion highlighted the importance of establishing good client relationships and the following points were revealed:

- that the necessary co-operation, commitment and follow-up should be built into this relationship;

- that the necessary assistance and service be offered;
- that the quality of raw materials received are acceptable; and
- that the customer be honest and trustworthy.

7.6 Problems and customer demands

Three questions were presented to the participants to establish what the production processes should entail namely:

- what are your needs?
- what are the problems encountered?
- what customer demands were placed on them?

The discussion highlighted the following points relating to problems, needs and demands namely:

- that sealed samples be completed timeously;
- that pre-production meetings be held;
- that the correct machinery be used;
- that the supplier supplies goods in time for production;
- that all relevant information is received; and
- that correct lead times are allocated.

The view was expressed that points above would assist the small manufacturing company to plan correctly to ensure that goods are delivered on time. The discussion revealed that the participants had to wait for information regarding samples, re-dyes and fitting before production.

The sessions also indicated that production of quality garments was often difficult due to absenteeism, machine problems and problems with mechanics. The bad local supply base was determined as being responsible for sub-standard raw material and late delivery of materials which aggravated the problem further. The problem was further compounded by bad attitudes, arrogant buyers, misunderstanding, returns, cancellations and no transparency.

7.7 Needs highlighted

Common needs that were listed by manufacturers and CMT companies were the issue of pricing, quality checks, feedback, contractual agreements and written specifications supplied. This section will be divided into three sections so as to outline all the needs noted by the various sectors represented.

7.7.1 Retailer to manufacturer

The retailer discussed the importance of developing clearly defined objectives, standards, procedures and specifications to ensure that quality goods were produced. The participants stated that buyers, laboratory staff and technologists are required to have technical knowledge of the product being produced and to ensure that materials were tested. The manufacturers had the responsibility of communicating specifications required to the operators. The correct persons had to be involved in discussions concerning briefs provided to the manufacturer. The participants were of the view that communication played a major role in ensuring

that there was regular feedback which encouraged quick responses to decision-making.

7.7.2 Large manufacturer to retailer

The participants argued that it was important for the retailers to realise that any changes and/or additions to the garment after it had been sold would affect the price. The standards, specifications and procedures had to be set out in such a manner that it was easily understood. The retailers were criticised for not being flexible and realistic and that their objectives were not always clearly defined. In order for goods to be delivered on time, it was important that acceptable lead times were given.

7.7.3 CMT to manufacturer/retailer

The participants stated that they required assistance with a quality system as this would assist in the reduction of the reject rate. The participants explained that it was important for the manufacturer to be specific about quality requirements.

The participants noted that manufacturers/retailers were accountable and responsible for unacceptable goods supplied. The various parties agreed that it was important to decide on the action that would be taken by the supplier to compensate for their mistakes. In view of the foregoing, the participants proposed that a liaison person should be made responsible for dealing directly with the CMT companies and that follow-up was necessary to maintain contracts.

Furthermore, it was declared that only approved CMT companies would be used and that a partnership should be formed with the company. The manufacturers agreed that it was important to assist the CMT companies that produced their goods, as it would ensure that quality garments were produced and show their commitment to the success of the CMT companies.

7.8 Mechanisms adopted to monitor quality

The companies are expected to have a quality system and production processes which would ensure that the garments measure up to the standards required. The participants examined the checks and balances that were needed to ensure that the quality received was acceptable. The following questions were formulated by the respondents which were regarded as necessary to ensure that quality was monitored:

- are examiners employed to check quality;
- are quality control checks carried out on the line;
- are roving quality checks carried out on the line;
- are the correct specifications available;
- are operators held responsible for their quality;
- are audits conducted on examiners, despatch and customers to establish effectiveness of quality; and
- are correct specifications available?

7.9 Conclusion

The variables contained in the questionnaire were based on the findings of the analysis of the responses received from the focus group sessions, refer to Appendix C. As discussed elsewhere, a significant factor for an effective quality system was the knowledge of the product and controls implemented in the company to ensure successful business practices. Constant communication was also regarded as essential between all parties to solve problems before production commenced. Furthermore, follow-up was necessary and required on a regular basis to ensure co-operation was forged between CMT companies and retailers/manufacturers. A good quality system would trace problems encountered and records could be kept for future use.

CHAPTER EIGHT

SURVEY FINDINGS

8.1 Introduction

The chapter presents the findings of the survey that was conducted in the clothing industry in the Cape Metropolitan area in the Western Cape. The questionnaire was developed from data collected from the focus group sessions discussed in chapter six. The questionnaire was divided into seven main sections (A-F) namely company details, company size, client information, production procedure, client relationship, production process, quality, training and organisational quality goals. Company details reflected in Section A will be withheld due to the confidential nature of some of the information provided. The findings of the latter six sections of the questionnaire (B-F) are presented under separate headings.

8.2 Company size

Section B was divided into two questions which comprised of 1) The number of employees in the company, and 2) The annual turnover per year in thousands of rands.

The findings below were based on the number of people employed in the company in accordance with the Standard Industrial Classification (SIC) as prescribed by the *National Business Act, 1996 (Act 102 of 1996)* which describes

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The findings below were based on the number of people employed in the company in accordance with the Standard Industrial Classification (SIC) as prescribed by the *National Business Act, 1996 (Act 102 of 1996)* which describes

a CMT company as one employing less than 50 people and an annual turnover of less than R2 000 000 per annum. The responses to the first question are shown in Table 8.1.

Table 8.1: Number of employees / company

	Number of companies	Percentage
0 - 15	12	25
16 – 30	16	33.3
31 – 45	14	29.2
46 – 60	6	12.5
Total	48	100

The data in Table 8.1 gives a clear indication that all the respondents represented in the sample, adhere to the requirements set out by the *National Business Act, 1996 (102 of 1996).*

Table 8.2 indicates that the majority of 61.1% of the respondents earn in the category shown as other which indicates that they earn less than R76 000.

Table 8.2: Annual turnover / year in R'000

	Number of companies	Percentage
76 – 150	6	15.4
151 – 225	1	2.6
226 – 300	4	10.3
301 – 375	2	5.1
375 – 400	2	5.1
Other	24	61.5
Total	39	100

According to the feedback received, most of the respondents earn less than R76000 per annum which indicates that they fit the criteria for small businesses. 38.5% of the respondents earn between R76 000 and R400 000.

8.3 Client information

Section C was divided into three questions to establish whether the respondent produced for a retailer, large manufacturer, a boutique, a hawker or any other customer. The results are presented below:

Table 8.3: Customer category

	NUMBER OF RESPONDENTS	YES	NO	TOTAL
Retailer	40	80	20	100
Large manufacturer	46	63	37	100
Boutique	40	30	70	100
Hawker	40	7.5	92.5	100
Other	40	15	85	100

Table 8.3 shows 80% of the respondents produce goods for retailers whilst 63% of the respondents produce goods for large manufacturers.

The respondents were asked to give an explanation of other types of customers and the results are shown below:

Table 8.4: Other customers

	Number of respondents	Percentage
Promotions	2	66.7
Supply own customers	1	33.3
Total	3	100

Table 8.4 reveals that three of the 48 respondents were either involved in doing promotions or supplying their own customers.

8.4 Production procedure

The aim of Section D was to establish the categories under which the SMME companies were divided, ranging from cutting only to finishing only. The section was divided into two questions and the results of the first question relating to the type of method employed in the company are shown in the table below:

Table 8.5: Types of methods employed

	Number of respondents	Percentage
Cut only	2	4.3
Cut and manufacture	2	4.3
Cut, manufacture and finish	27	57.4
Manufacture and finish	14	29.8
Finish only	2	4.3
Total	47	100

Table 8.5 reveals that most of the respondents are involved with all aspects of the manufacture of products with 57.4% involved in the complete process of cut, make and trim.

The following question aimed to establish whether the respondent produced a variety of goods, specialised products or both.

Table 8.6: Comparison between goods produced

	Number of respondents	Percentage
Variety of goods	18	40.9
Specialised products	10	22.7
Variety and specialised products	16	36.4
Total	44	100

The results in Table 8.6 reveal that only 36.4% of the respondents are involved in producing both variety and specialised goods.

8.5 Client relationship

Section E was divided into six questions in order to establish the kind of relationship the respondents had with their customers. The first question was used to gauge the number of customers the respondent produced goods for and the findings are shown below:

Table 8.7: Number of customers

	Number of respondents	Percentage
1 – 2	13	28.3
3 – 4	17	37
5 – 6	4	8.7
9 – 10	9	19.6
>10	3	6.5
Total	46	100

Table 8.7 reveals that only 28.3% of the respondents are dependent on between one or two customers. 34.8% of the respondents have between 5 – 10 customers.

The following two questions, 1) How is your relationship with your customer? and 2) How would you describe the assistance received from your customer; have been broken into five categories from excellent to poor. The following information was gathered:

Table 8.8: Relationship with customer

	Excellent	Above average	Average	Total
Number of respondents	21	17	7	45
Percentage	46.7	37.8	15.6	100

All the respondents have a good relationship with their customers with 37.8% rating their customers above average and 46.7% rating their customers as being excellent.

Table 8.9: Customer assistance

	Number of respondents	Percentage
Excellent	11	25
Above average	21	47.7
Average	10	22.7
Below average	2	4.5
Total	44	100

Table 8.9 reflects that only 4.5% of the respondents were not satisfied with the assistance they received from their customers.

The following question evaluates the quality of goods received from the customer and the findings are as follows:

Table 8.10: Goods received

	Number of respondents	Percentage
Excellent	10	25.6
Above average	18	46.2
Average	10	25.6
Poor	1	2.6
Total	44	100

Table 8.10 revealed that 71.8% of the respondents stated that the quality of goods received, were excellent or above average, whereas 25.6% stated that the quality of goods were average.

The respondents were asked whether any of their styles had been cancelled. 14.9% reported that styles had been cancelled.

Table 8.11: Cancellation of orders

	YES	NO	TOTAL
Number of respondents	7	40	47
Percentage	14.9	85.1	100

The respondents were asked what the reasons for cancellation of orders were. The findings are described in Table 8.12 as follows:

Table 8.12: Reasons for cancellation

Reason	Respondents	Percentage
Defective fabric	1	20%
Poor workmanship	3	60%
Machine problems	1	20%

8.6 Production processes

Section F comprises of nine questions which aim to establish what production processes were employed in the company. The respondent has to select a 'yes' or 'no' answer for the first four questions. The first question established whether

the respondents have pre-production meetings to discuss new styles. The findings are as follows:

Table 8.13: Pre-production meetings for new styles

	YES	NO	TOTAL
Number of respondents	32	13	45
Percentage	71.1	28.9	100

71.1% of the respondents have confirmed that pre-production meetings are held in their companies.

The following question attempts to assess whether the samples are received back prior to production. The results are as follows:

Table 8.14: Samples received before production

	YES	NO	TOTAL
Number of respondents	44	2	46
Percentage	95.7	4.3	100

The findings reflect that 95.7% of the respondents received their samples back prior to the commencement of production. The next question aimed at establishing whether machinery was set up prior to production and the results are shown below:

Table 8.15: Machinery set up prior to production

	YES	NO	TOTAL
Number of respondents	38	6	44
Percentage	86.4	13.6	100

According to the findings, 86.4% of the respondents had their machinery set up before the style went onto the line with 100% confirming that the samples were made up with machinery used on the production floor.

The next set of questions, were broken up into different categories in order to establish how much time was associated with different activities performed on the production floor. The data shown in each of the following tables have been ranked according to the number of respondents per category. The highest number of respondents will be ranked one with the lower number of respondents dependent on the number of categories.

The following question was aimed at establishing how long before the start of production sealed samples were received. The results are shown in the table below.

Table 8.16: Sealed samples received before production

	Rank	Number of respondents	Percentage
4 days	1	15	38.4
2 days	2	9	23.1
1 day	3	8	20.5
1 – 5 hours	4	3	7.7
3 days	5	2	5.1
Months	6	2	5.1
		39	**100**

Based on the figures above, the findings show that 15 out of the 39 respondents received sealed samples four days prior to production.

The following information presents the time allocated to the making of sealed samples.

Table 8.17: Time allocated to the making of sealed samples

	Rank	Number of respondents	Percentage
4 – 2 days	1	20	54.1
1 week	2	11	29.7
2 weeks	3	3	8.1
1 month	4	3	8.1
		37	**100**

The findings in Table 8.17 revealed that most of the respondents took between two days and one week to make up their sealed samples. A total of 31 respondents out of 37 were able to complete their samples in one week, namely a total of 83.8%.

The following information was aimed at establishing whether pre-production meetings were held and how long before the start of production, these meetings were held.

Table 8.18: Time elapsed before pre-production meetings

	Rank	Number of respondents	Percentage
1 day	1	11	31.4
1 – 5 hours	2	9	25.7
4 days	3	9	25.7
2 days	4	5	14.3
3 days	5	1	2.9
		35	**100**

Table 18.8 shows that 31.4% of the respondents had pre-production meetings one day before production started. 25.7% between one hour to five hours before and 25.7% four days before the start of production.

The last set of data presents details on the time that various components were received by the company. The components range from cut work to trims. The information is presented in Table 8.19 below.

Table 8.19: Time lapse before components are received

	Rank	Number of respondents	Percentage
3 – 4 days	1	11	27.5
1 – 6 hours	2	10	25.0
1 – 2 days	3	8	20.0
1 – 2 weeks	4	8	20.0
3 weeks	5	5	7.5
		40	**100**

27.5% of the respondents received their components within three or four days. The third ranking includes all the respondents whose time elapse from one to two days and one to two weeks with a percentage of 20%.

8.7 Quality

The following section consists of ten questions. The purpose of this section is to establish what type of quality system is employed within the organisation. The question posed aimed to determine whether the operators were held responsible for their own quality.

Table 8.20: Operator responsibility for quality

	YES	NO	TOTAL
Number of respondents	38	6	44
Percentage	86.4	13.6	100

The findings revealed that 86.4% of the respondents expected operators to take responsibility for their own quality.

Table 8.21: In-line inspectors

	YES	NO	TOTAL
Number of respondents	20	26	46
Percentage	43.5	56.5	100

The findings reveal that the 56.5% of the respondents do not employ in-line examiners in their organisations.

Table 8.22: Supervisors responsible for roving inspection

	YES	NO	TOTAL
Number of respondents	42	4	46
Percentage	91.3	8.7	100

The figures in Table 8.22, reflects that 91.3% of the respondents include the roving inspection function as part of the supervisor's responsibility.

Table 8.23: Final inspection in despatch

	YES	NO	TOTAL
Number of respondents	45	2	47
Percentage	95.7	4.3	100

The findings presented in Table 8.23 suggest that final inspection process in the despatch department is of utmost importance to 95.7% of the respondents.

Table 8.24: Specifications understood

	YES	TOTAL
Number of respondents	45	45
Percentage	100	100

The findings in Table 8.24 suggest that all the respondents understood the specifications that they received from their customers.

Table 8.25: All details covered in specification

	YES	NO	TOTAL
Number of respondents	45	1	46
Percentage	97.8	2.2	100

Almost all the respondents (97.8%) are satisfied that all details have been covered in the specification sheet.

Table 8.26: Set standards and procedures in place

	YES	NO	TOTAL
Number of respondents	43	4	47
Percentage	91.5	8.5	100

The findings in Table 8.26 suggest that 91.5% of the respondents have set standards and procedures in place in their organisation.

Table 8.27: Operators informed of customer requirements

	YES	TOTAL
Number of respondents	47	47
Percentage	100	100

Table 8.27 indicates that operators are informed about the requirements of the customers in order to produce a quality garment that satisfies the needs of customers.

Table 8.28: Held responsible for poor quality fabric

	YES	NO	TOTAL
Number of respondents	28	17	45
Percentage	62.2	37.8	100

The findings represented in Table 8.28, suggest that 62.2% of the respondents are held responsible for garments produced with poor quality fabric thus leading to rejects.

Table 8.12 revealed that the following specifications were omitted on specification sheets received by the respondents, namely:

- needle size, thread type and thread colour ;
- measurements;
- make up of garment and data minutes;

- any unusual procedures; and
- as per sample (sample of specification given).

This has been clearly shown in the Figure 8.4 below.

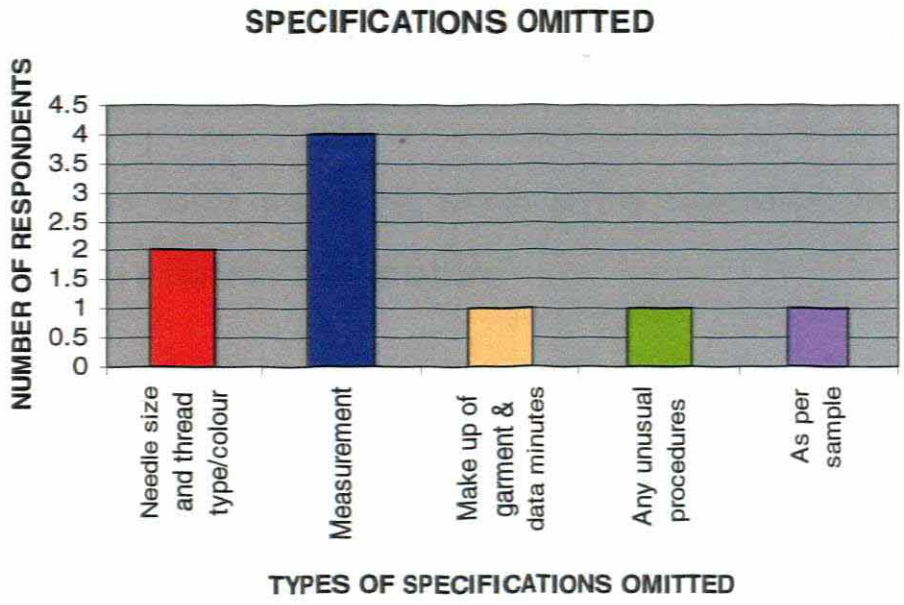


Figure 8.4: Specifications omitted

8.8 Training

This section aims to establish whether the respondents had training programmes in place to further develop their employees.

Table 8.29: Training for examiners

	YES	NO	TOTAL
Number of respondents	11	34	45
Percentage	24.4	75.6	100

About three-quarters of the respondents 75.6% stated that they did not have a training programme in place for their examiners.

Table 8.30: Training for operators

	YES	NO	TOTAL
Number of respondents	16	29	45
Percentage	35.6	64.4	100

The figures above reveal that 64.4% of the respondents had no training programme in place for their operators.

Table 8.31: Selection process for examiners

	YES	NO	TOTAL
Number of respondents	17	28	45
Percentage	37.8	62.2	100

The results in the table above show that 62.2% of the respondents had no selection process in place when employing examiners.

Table 8.32: Examiners trained

	YES	NO	TOTAL
Number of respondents	27	17	44
Percentage	61.4	38.6	100

The findings in table 8.32 revealed that 61.4% of the respondents stated that their examiners had been trained.

8.9 Organisational goals

The aim of the final section was to determine whether the respondents had mission-statements, goals and policies in place in their organisations, relating to quality.

Table 8.33: Mission statement

	YES	NO	TOTAL
Percentage	51.2	48.8	100
Number of respondents	22	21	43

The figures above reveal that only 51.2% of the respondents had a mission-statement in their organisation.

Table 8.34: Goals understood

	YES	NO	TOTAL
Percentage	87	13	100
Number of respondents	40	6	46

The table above reveals that 87% of the respondents were of the opinion that the employees understood the goals set by the organisation.

Table 8.35: Company policies in place

	YES	NO	TOTAL
Percentage	84.8	15.2	100
Number of respondents	39	7	46

The figures in Table 8.36 above reveal that 84.8% of the respondents had company policies in place within their organisations.

8.10 Conclusion

Analysis of the information gathered in this chapter will be utilised to establish a quality assurance system that can be used by small manufacturing companies in the Western Cape.

CHAPTER NINE

ANALYSIS OF FINDINGS

9.1 Introduction

The analysis is based on the findings collected from the questionnaire survey as reflected in Chapter eight. The SPSS programme was utilised to analyse the findings so as to facilitate the formulation of the conclusions and recommendations. Company details are withheld due to the confidential nature of some of the information provided. The first part of this chapter provides an analysis of the following variables in the questionnaire:

- company size;
- organisational quality goals;
- client information;
- production procedure;
- client relationship;
- production processes;
- training; and
- quality procedures.

The second part of the chapter will detail and explain the relationship or non-relationship between the identified variables so as to establish the effect on quality assurance.

9.2 Company size

Of the 72 companies that responded positively to the questionnaires, 48 were included in the analysis as they conformed to the "small" category described in the National Business Act, (102 of 1996) of less than 50 employees or an annual income of less than R10,000,000. Figure 9.1 provides a breakdown of the companies into the different size categories, with 33% employing between 16 and 30 people. The findings revealed that only 13% employed between 45 and 60 people with an annual revenue of less than R10,000,000 and therefore, these respondents were included in the analysis.

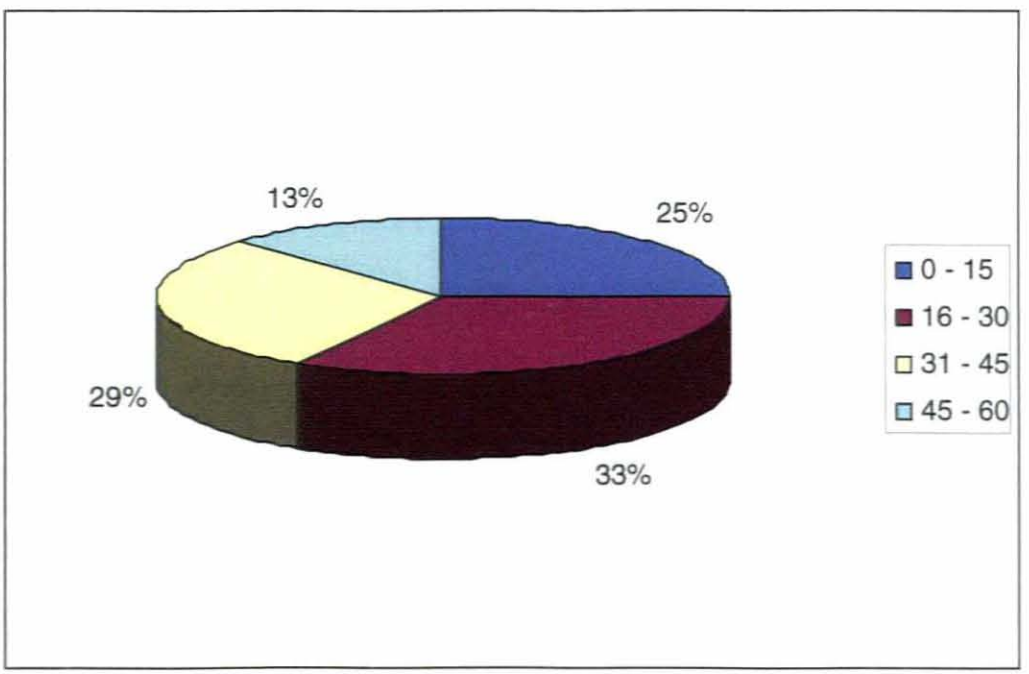


Figure 9.1: Breakdown of company size

The findings reveal that the annual turnover of the majority of the respondents falls into the "very small" category being less than R4,000,000.

9.3 Organisational quality goals

Most of the respondents (51.2%) had mission-statements suggesting that they worked towards common purposes and values in their organisations. A large proportion (87%) had goals that were communicated to everyone in their companies. Organisational goals are typically used to supplement mission-statements to support short-term and long-term goals. These findings suggest that strategic management was not necessarily addressed in the same way as experienced in many large companies. There was a disproportion of companies having mission-statements and those with goals. Arguably, the managers of these businesses had not been exposed to organisational planning while in the employ of large manufacturers. Most respondents (84.8%) confirmed that they had policies and procedures in place to ensure the effective running of their companies.

9.4 Client information

The findings in Figure 9.2 reveal that 28.3% of the respondents had one to two customers, 45.7% had three to six and the rest nine or more customers. The findings, therefore, suggest that these respondents could possibly be supplying both the retail and manufacturing sectors simultaneously.

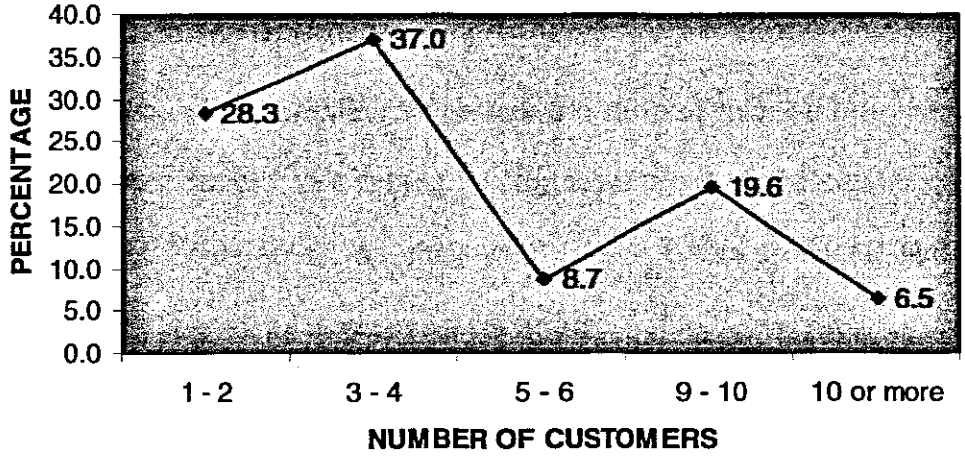


Figure 9.2: Number of customers

Figure 9.3 suggests that most respondents (66.7%) were manufacturing goods for retailers compared to 60.4%that were manufacturing for large manufacturers.

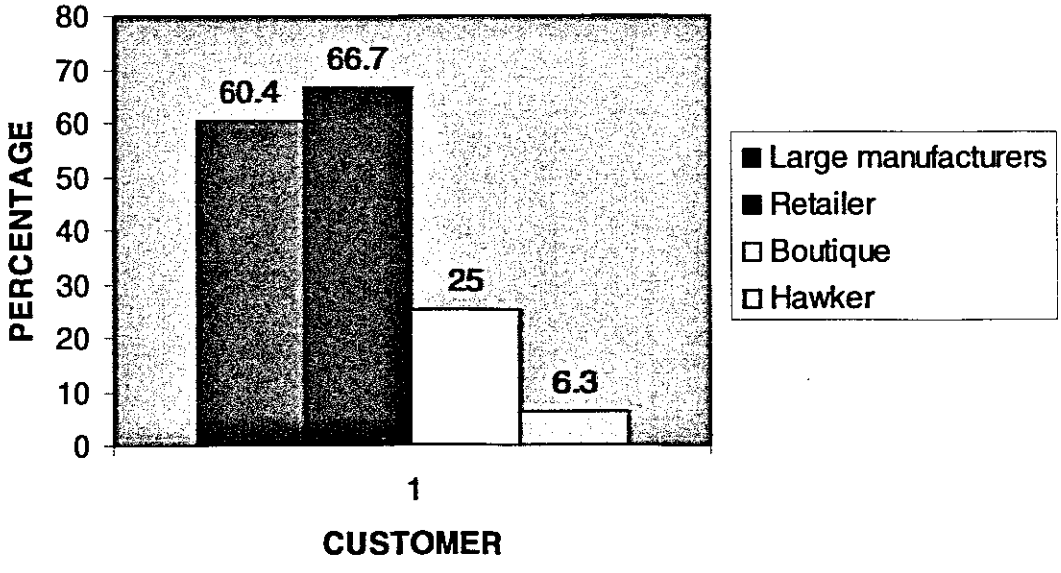
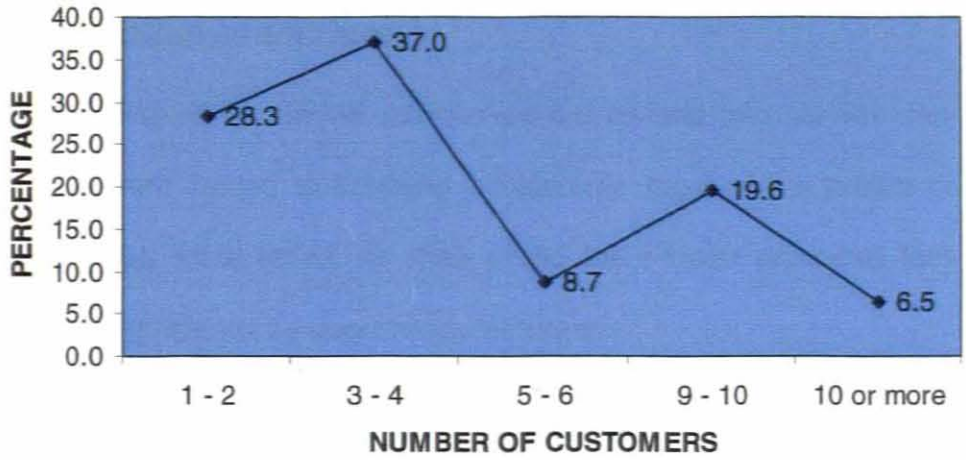


Figure 9.3: Customer categories

These findings confirm that there is a trend of retailers supplying both large and small manufacturing companies.



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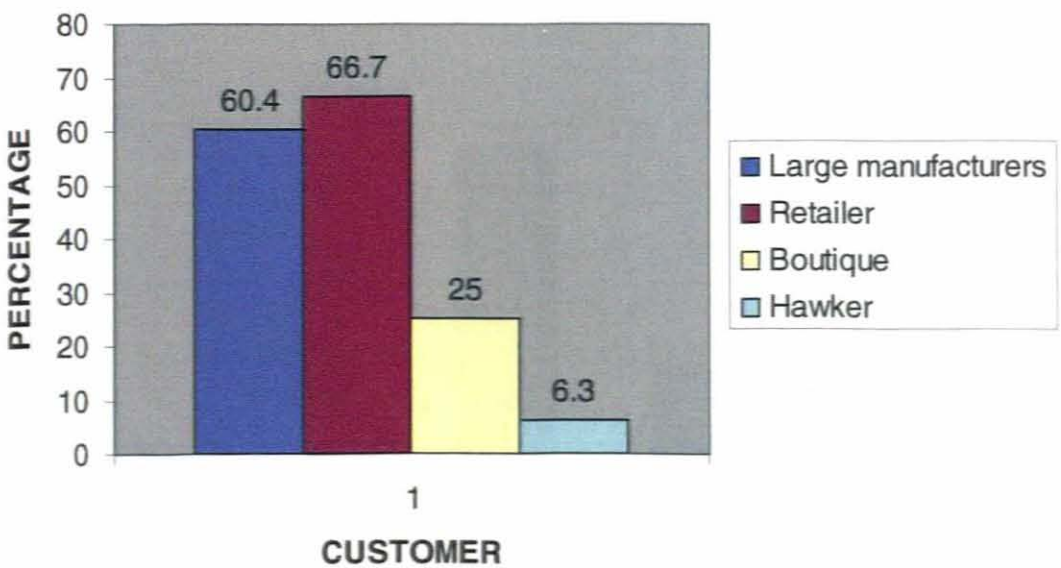

Figure 9.3: Customer categories

These findings confirm that there is a trend of retailers supplying both large and small manufacturing companies.

9.5 Production procedure

As indicated elsewhere, SMME companies are divided into various categories which range from cutting to finishing. Historically, most of the orders given to CMT companies were small, as they would have been produced less cost-effectively and efficiently by larger manufacturers.

Figure 9.4 suggests that a large proportion (57.4%) of the respondents are involved in the cut, make and trim processes compared to 29.8% who make and finish only. These findings suggest that the recommendations should incorporate all aspects of quality-assurance from cutting to finishing.

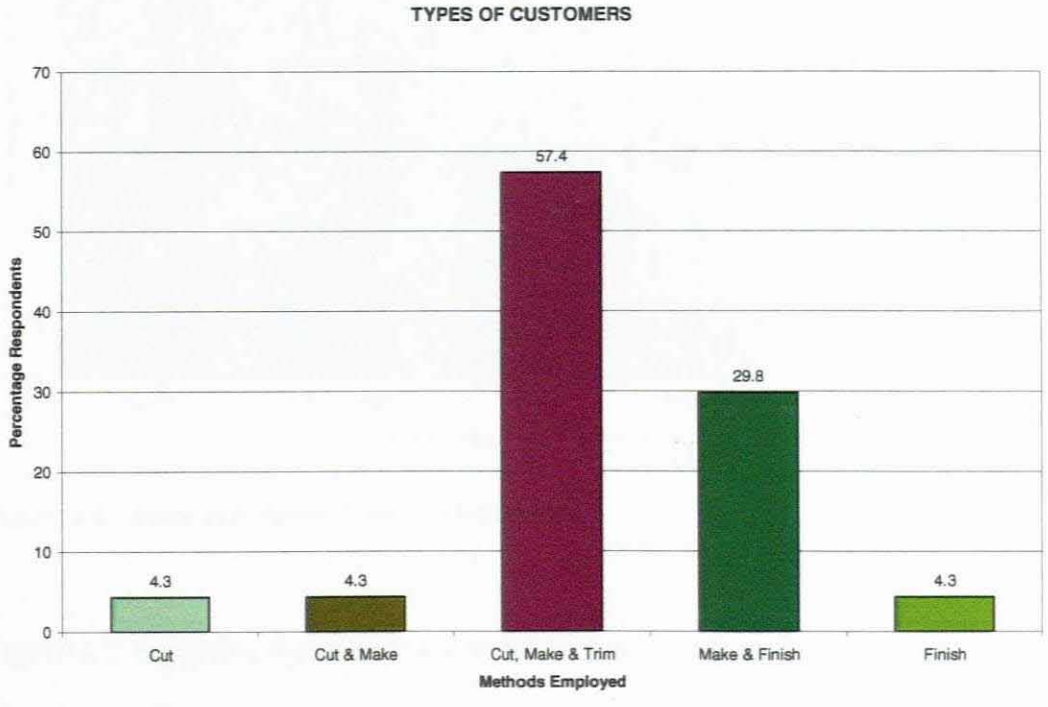

Figure 9.4: Production methods

The change in production methods presents CMT companies with a tough challenge in a 'cut throat' environment to show an ability to produce larger orders

of acceptable quality. As these small businesses move towards becoming more competitive they have to become flexible and produce a variety of products.

9.6 Client relationship

Two key elements, namely communication and quality of goods received are investigated. Firstly, communication between supplier and client is of the utmost importance to ensure that a relationship is developed between the two parties.

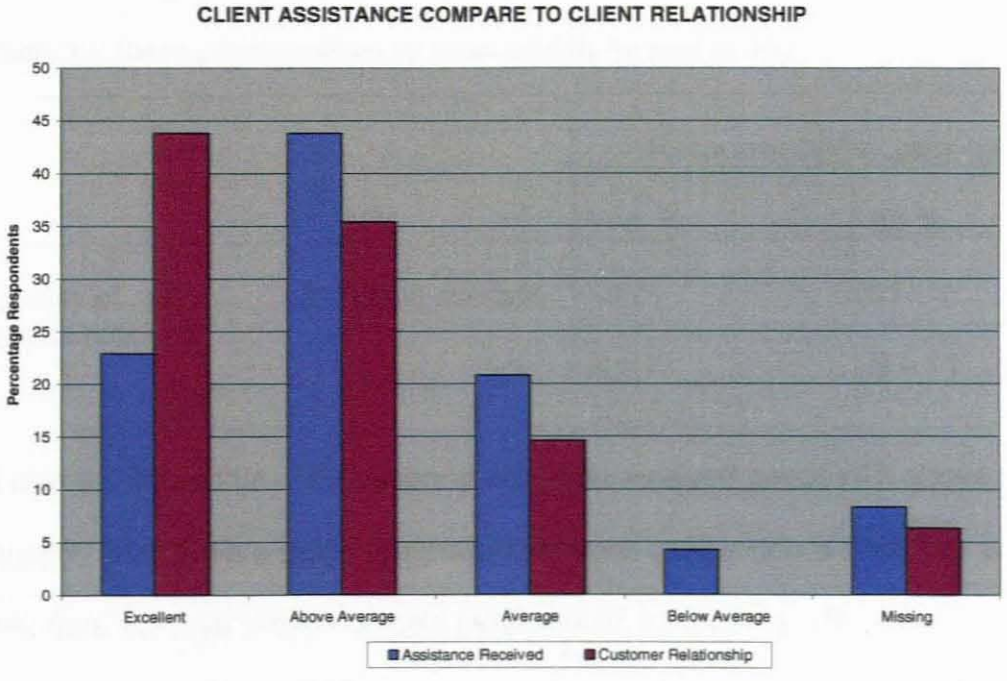

Figure 9.5: Client assistance / client relationship

Figure 9.5 suggests that there is indeed an above average relationship between the client receiving assistance and the relationship that the two parties have developed. The findings suggest that a concerted effort is being made by the

retailer and large manufacturer to assist small manufacturing companies so that successful business practices are guaranteed.

Secondly, large manufacturing companies supply small manufacturing companies with components and trims that are required to make up the garment. The findings were cross-tabulated to establish whether the small manufacturing companies were held responsible for poor quality garments produced as a result of poor quality goods (including fabric) received.

Table 9.1: Rated goods received by responsibility for poor quality

		Responsibility for poor quality	
		Yes %	No %
Quality of goods received	% Above average	38.9 N = 7	61.1 N = 11

Table 9.1 infers that of the respondents, who received goods with above average quality, 38.9% were held responsible for poor quality goods that they produced whereas the rest were not held responsible for poor quality goods produced. Based on the above, CMT companies who purchase their own fabrics should be held responsible for poor quality goods. It is possible to surmise that the orders would not necessarily be cancelled and that respondents would have an opportunity to reach some kind of agreement with the customer which could result in a reduction in the price of the goods.

9.7 Production processes

The production process assists the company to ensure that the product meets the required standards of quality, quantity and budget. It was important to establish whether sealed samples were received before the commencement of production. A large proportion (95.7%) of the respondents confirmed that the samples were received prior to production. Figure 9.6 provides an indication of the time intervals during which samples were received from the customer.

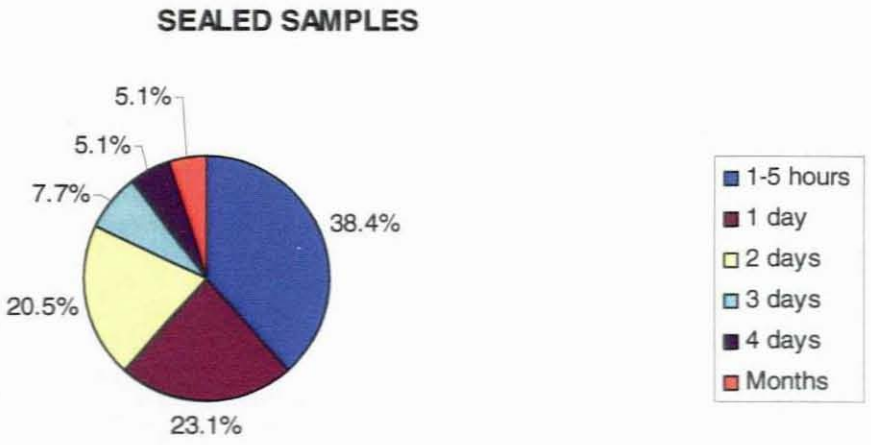

Figure 9.6: Time periods of receiving sealed samples prior to production

Of the respondents that received their samples before production started, 38.4% received samples within four days and 43.6% received samples within one day and one to five hours. Arguably, the respondents who received the samples in less than four days would not have had sufficient time to react to problems that were highlighted for correction on these samples. Further findings revealed that most respondents (54.1%) required between two to four days for making of sealed samples compared to 29.7% who required one week to make-up sealed

samples. The other 16.2% respondents confirmed that they required between two weeks and one month to make-up sealed samples.

Once the sealed samples were received by the small manufacturing company, it would be necessary to have pre-production meetings to ensure that all the necessary customer requirements were met. Most of the respondents (71.1%) confirmed that pre-production meetings where held before the new styles were introduced onto the production floor.

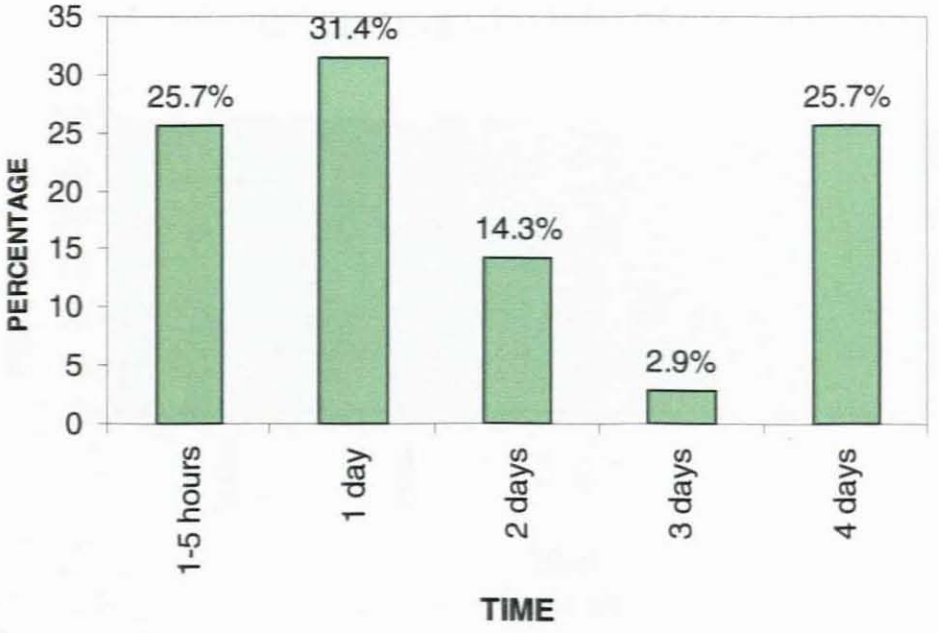

Figure 9.7: Time lapse before pre-production meetings

Figure 9.7 suggests that while 57.1% had meetings between one to five hours and one day before production, 25.7% had meetings within four days of the new style going into production. Arguably, pre-production meetings were not held in

time to allow sufficient planning and setting-up of machinery prior to new styles being introduced onto the production floor.

The production sample should be made up using the actual fabric, trims and machinery used on the production floor. The findings revealed that 100% of the respondents made up the production samples on machinery that was used on the production floor. Most of the respondents (73%) had received components before the style was issued into production. Figure 9.8 presents a breakdown of the time frames in which components were received by the respondents from the clients.

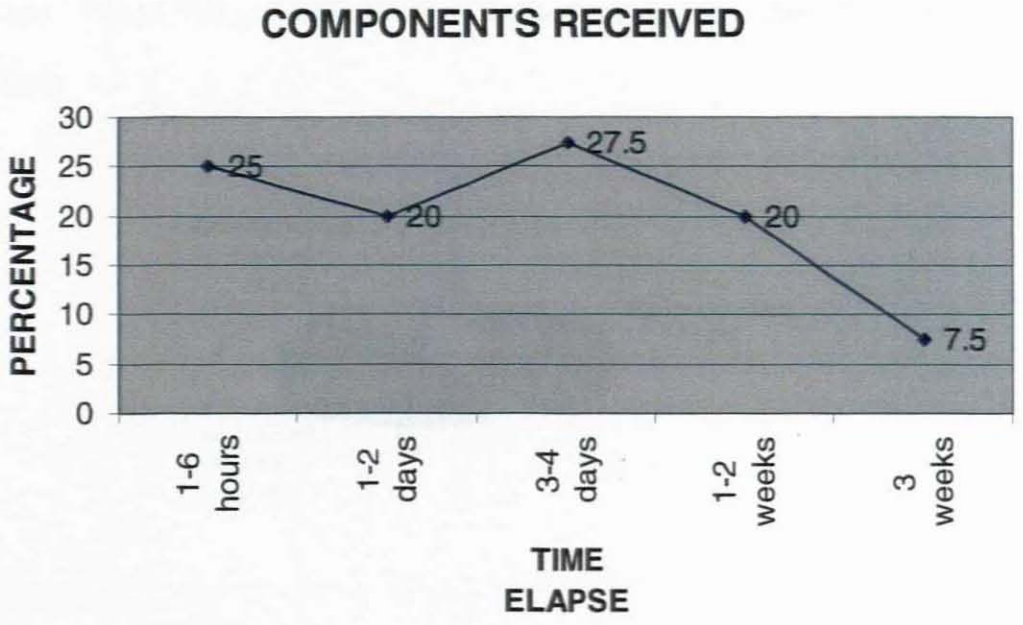

Figure 9.8: Time frame components received

Figure 9.8 indicates that 45% of the respondents received the components between one to six hours and one to two days before the style was introduced

onto the line and 27.5% of the respondents received their components within 3-4 days. The findings suggest that it would be extremely difficult to make up production samples and engage in pre-production meetings within such a short time. This short lead time would, therefore, have a negative effect on production problem-solving as these samples would not be made up using the correct components.

9.8 Training

One of the aspects of quality assurance is to establish whether examiners participated in training programmes to ensure that their skills were continually improved. Figure 9.9 provides a breakdown of categories related to training of examiners.

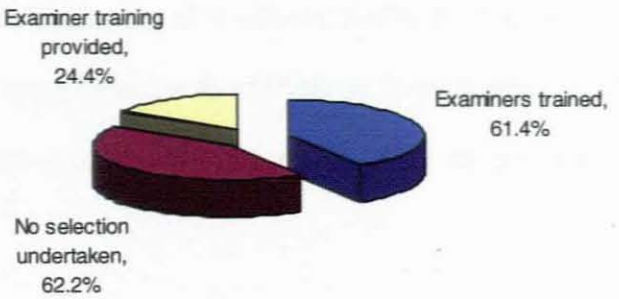

Figure 9.9: Breakdown of examiner training

The findings indicate that 61.4% of the respondents had examiners who had undergone a training programme. The findings further revealed that 62.2% had

no selection criteria to appoint or recruit to participate in training. Furthermore, only 24.4% of the respondents had an examining programme in place for examiners. Therefore, without the proper selection and accredited training available, examiners might not necessarily fit the profile required to ensure that garments produced met customer standards.

9.9 Quality procedures

Quality assurance involves doing things right the first time, every time. Quality of conformance according to customer specifications is met if the specifications received are understood. The findings suggest that 100% of the respondents understood the specifications received. According to most of the respondents (97.8%), all the details were received in the specification sheet. Further findings indicate that 28.6% of the respondents had not received measurements with the specification sheets. Exclusion of measurements is unacceptable, as this is the basis on which the conformance to standards is evaluated. Furthermore, correct information received would assist the respondent to comply with the customer requirements.

From Figure 9.10, only 43.5% of the respondents employed examiners at the end of the line to ensure that the garments produced satisfied customer requirements. Supervisors were responsible for conducting in-line roving inspection as part of their work-load according to a large proportion of the respondents (91.3%).

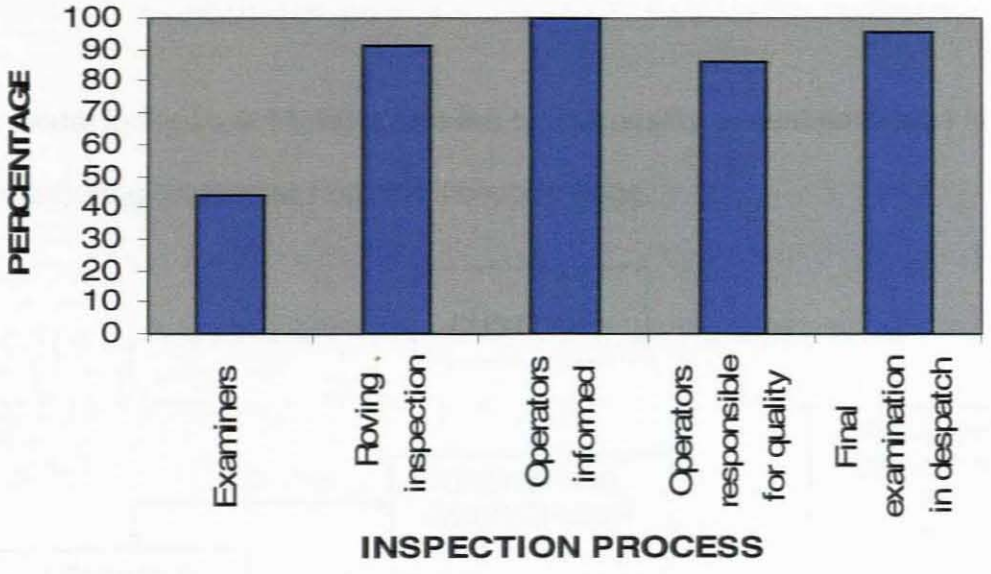

Figure 9.10: Inspection process employed

The findings in Figure 9.10 suggest that all the respondents informed their operators of the requirements set out by the customers. Of these respondents, a majority of 86.4% held their operators responsible for their own quality. Furthermore, most of the respondents (95.7%) confirmed that they had final examiners in the despatch department to ensure that garments that did not meet the required specification, were prevented from leaving the factory. Therefore, any garments not conforming to the quality requirements would have been repaired by the operator.

From Figure 9.10, only 43.5% of the respondents employed examiners at the end of the line to ensure that the garments produced satisfied customer requirements. Supervisors were responsible for conducting in-line roving

inspection as part of their work-load according to a large proportion of the respondents (91.3%).

The model in Figure 9.11, illustrates the typical quality system employed in large manufacturing companies from the inception stage.

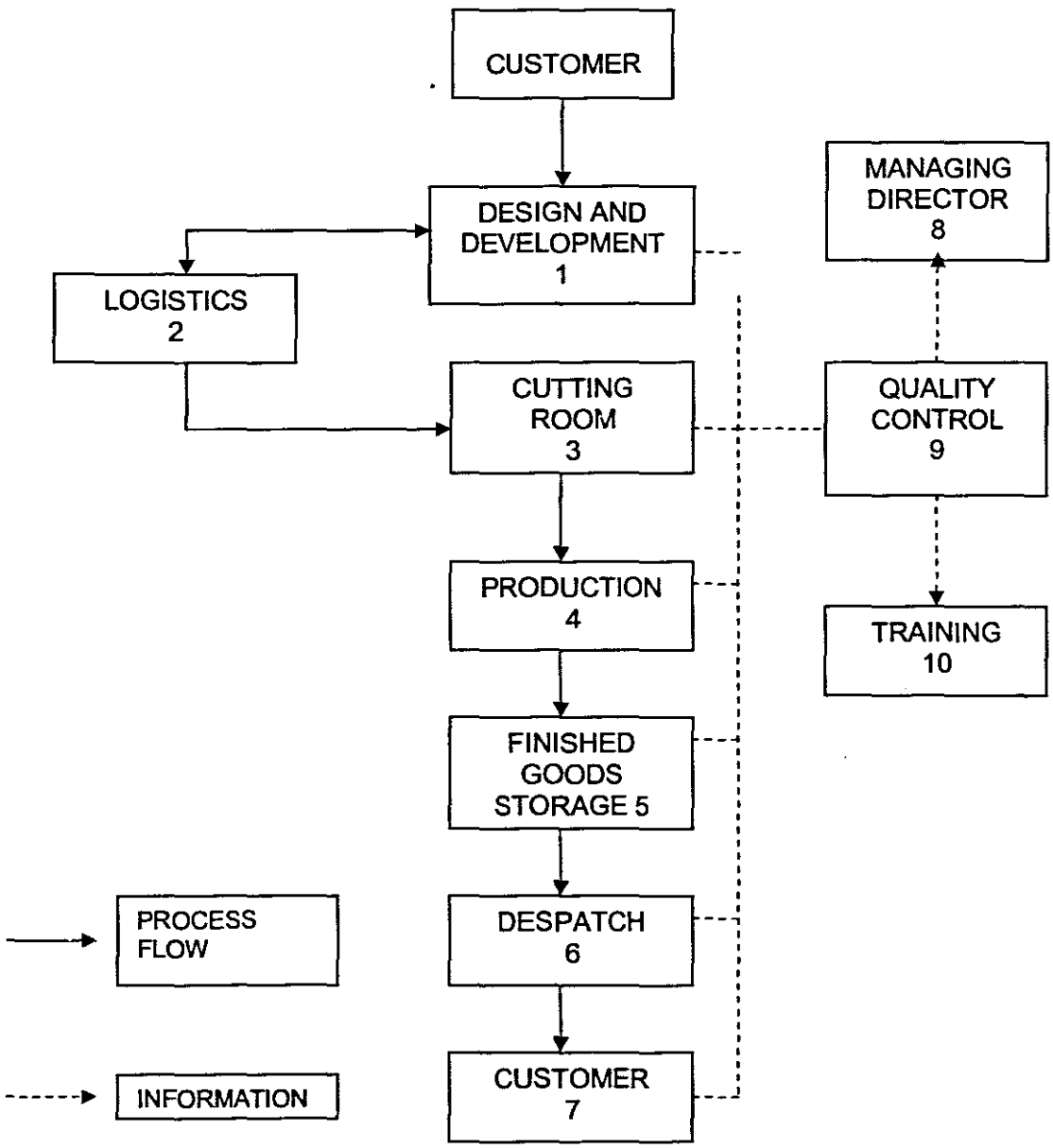

Figure 9: 11: Flow chart representing a typical quality system in a large manufacturing company

1. The design and development stage includes the development of ranges of consistent design quality in line with company policies and objectives. Specifications drawing clearly define quality standards. Block patterns and grading specifications conform to customer specifications.
2. The logistics department incorporates the sourcing and planning of raw materials and trims to meet required specifications. The procedure for inspecting incoming goods, procedure for dealing with rejected goods, the rating of suppliers, contract procedure and testing are covered in this stage and the training of quality personnel.
3. The cutting room ensures that goods not conforming to standards are returned to the raw materials store; ensures the production floor is supplied with cut work of acceptable quality.
4. Production involves the procedure for stopping production on the grounds of quality; relationship with the production engineering function; procedures for declaring a garment a second and the procedure for introducing a new style onto the line or changing methods.
5. Finished goods cover the inspection policy and the care, storage and pressing of finished garments and the procedure for obsolescence.
6. Despatch ensures that goods are delivered to designated destinations.
7. The quality reporting procedure cover aspects of operator inspection records; in-process inspection reports; final viewing reports; quality audits reports and quality manager reports.

8. The general manager defines and determines the degree of quality desired by the company. By being aware of internal and external factors management ensures that the desired quality objectives are achieved.

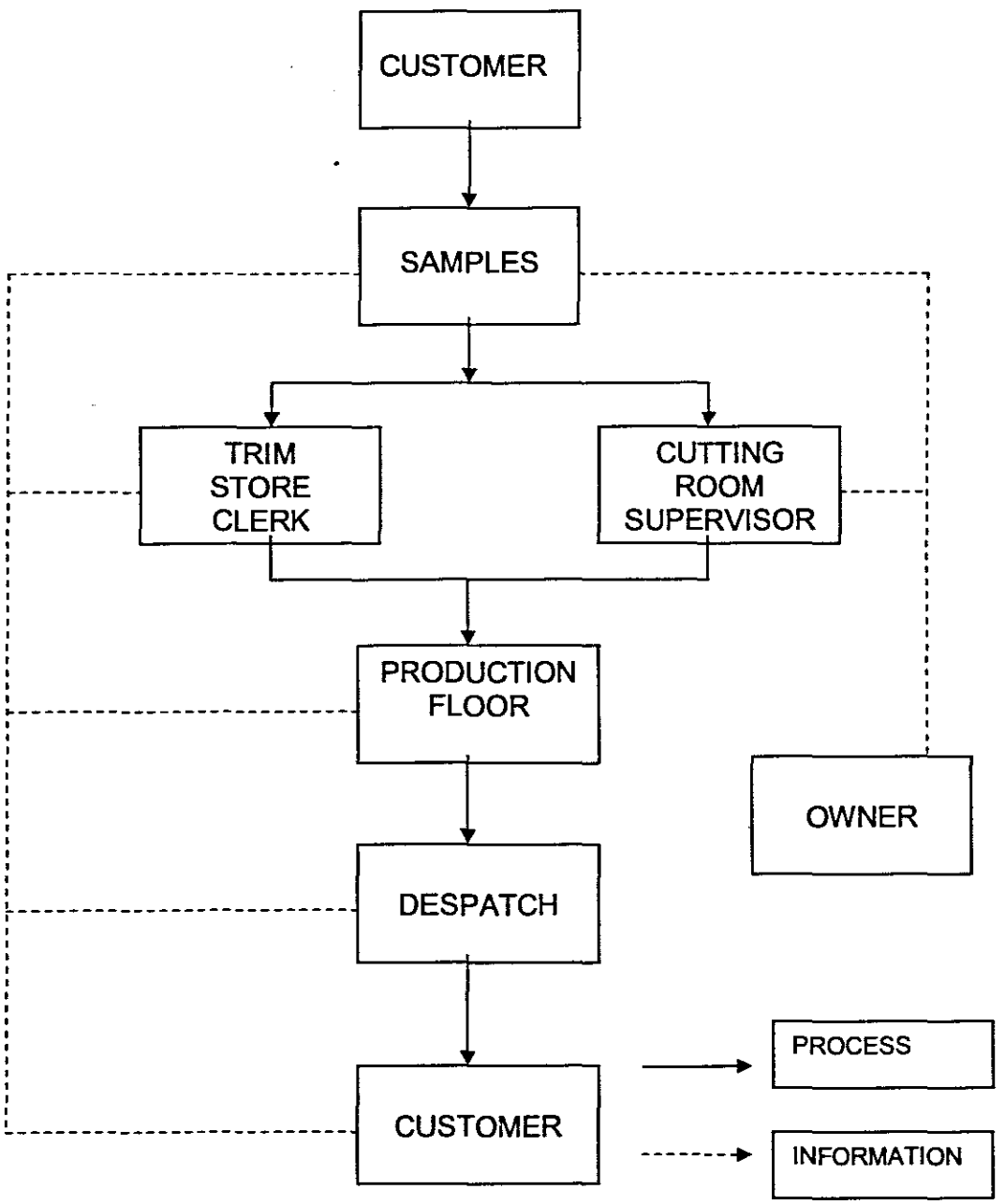

Figure 9.12: Flow chart of suggested quality system in small manufacturing company

Figure 9.12 illustrates the proposed quality process in small manufacturing companies. The differences between the two models are:

- The owner of the small manufacturing company is responsible for co-ordinating, planning and controlling production in line with availability raw materials, trims, labour and machine capacity. Decisions relating to the quality of garments are the responsibility of a quality controller. Quality control is the responsibility of everyone in the company. In large manufacturing companies, these tasks and responsibilities are delegated.
- The large manufacturing company presents a range of styles to the retail buyer. After a decision is reached between them on price and styling, samples are developed for approval. The large manufacturer, present the small manufacturer with an approved sample. The order is secured based on the ability of the small manufacturer to replicate these samples to set standards.
- On the one hand the design and development department of the large manufacturer, supplies the logistics department with information regarding approved styles. This information is used to source raw materials and the receipt, testing, storage and issuing of fabric is handled by this department. On the other hand, small manufacturing company receives previously tested fabric and ensures that non-conforming fabric is isolated. Any discrepancies are communicated to the owner, who liaises with the CMT co-ordinator of the large manufacturer or retailer. In this case, the small manufacturer is not held responsible for defective work.

- The trims function is part of the logistics department in large manufacturing companies with a specific person being responsible for the acceptable quantity and quality of the trims. In the case of small manufacturers, fabric and trims received are inspected and counted to ensure acceptable quantity and quality and that these goods conform to delivery notes.
- The cutting room in large companies focuses on receiving goods from the store and is therefore not responsible for inspection of fabric. In small manufacturing companies, the fabric will issued to the cutting room where it is inspected immediately.
- In large manufacturing companies, production samples are made up by a sample machinist for approval. The sample hand participates in pre-production meetings to ensure that any problems encountered with the make-up of samples are communicated to the different parties. In the small company samples are made up by the supervisor as soon as it is received. Any problems relating to the make-up, machinery and attachments are addressed immediately to ensure that when the style commences, all necessary actions have been taken.
- Large manufacturing companies have holding areas for finished goods where they are final inspected. In small manufacturing companies, the final inspection process is done in the despatch department to ensure that garments comply with the necessary quality requirements.
- The large manufacturer audits the goods produced by the small manufacturer in terms of desired standards of the small companies

premises. Thereafter these pre-approved goods are delivered to the large manufacturing company. The goods are again audited by the customer of the large manufacturing company (retailer) for approval.

9.10 Conclusion

Based on the above analysis, it may be concluded that guidelines for a quality assurance framework must be established, which should include the following components:

- the activities relating to samples being received;
- the activities relating to fabric inspection;
- the activities regarding receipt of trims;
- the activities employed in the cutting room;
- the activities employed on the production floor; and
- the activities relating to customer.

CHAPTER TEN

RECOMMENDED QUALITY ASSURANCE MODEL/FRAMEWORK FOR SMALL MANUFACTURING COMPANIES

10.1 Introduction

The following steps are proposed for companies involved in cut, make and trim. The company will thus be responsible for cutting the garments as well. The responsibility is vested in the large manufacturers or retailers to ensure that the samples, patterns and fabrics are delivered at least three weeks prior to production. Alternatively, if the garments are cut before delivery to the company, they should be received at least two weeks before the style is due on the line. The sample together with the cut work and trims should be delivered at the same time.

10.2 Samples

At least three sealed samples should be made in the sample size requested by the customer (appendix H). Once these samples have been **returned and approved, production may start.** The sample must be used as a guideline to ensure that the production looks similar to the sealed sample. Styles should **not** be cut or manufactured unless the approved samples have been received. The main points to consider are as follows:

- any changes to be communicated to all relevant parties (Appendix I),
- a list should be kept of all parties who have been informed,
- all parties to sign on receipt of the sample, and

- all documentation to remain with the sample.

The specification sheet (appendix K) should include the following details namely:

- a technical drawing of the style,
- fabric type,
- trimmings required,
- size and size ratios,
- dimensions of garment and allowed tolerances,
- methods of manufacturing,
- types of machinery required and attachments, if possible.

The next step would be to make up a pre-production sample in the actual fabric that will be used in the manufacturing process. These production samples should be completed at least four days before the style is due on the production line. The following should be considered when doing pre-production trials (appendix J) namely:

- ensure that the measurements are filled in on the size chart and indicated as over or under the measurement provided. A space has been provided for comments and recording differences;
- ensure that all details relating to the make-up of the garment are included;
- ensure that the pre-production samples are sent to the relevant persons,
- ensure that the factory measurements must be checked and that the correct measurement charts are used;

- ensure that all relevant documentation accompany the sealed samples;
- ensure that copies of the style is kept until such time that the style goes into production.

10.3 Fabric inspection

The large manufacturing supplying the goods must ensure that the fabric sent to the CMT companies complies with the necessary standards required and has been approved. A suggested percentage of between 10% - 20% should be checked (by the large manufacturer) to ensure that the textile supplier supplies the fabric according to specification required. The fabric should then either be cancelled or a rebate should be claimed. No fabric should be cut before it has been tested and approved by a Test House. For CMT companies, this service is provided by the Technology Station in Clothing and Textiles, Cape Peninsula University of Technology, Bellville campus. The CMT companies should not be held responsible for fabric faults, if they are not responsible for purchasing the fabric. The CMT companies should, therefore, not be held liable for garments produced due to poor fabric supplied.

The following guidelines should be used as soon as the fabric has been received as follows:

- a visual inspection must be carried out on the rolls received,
- any visible damage to rolls should be checked,
- checks for soiling should be done,

- delivery dates should be checked,
- the contract should be checked for other important details.

Once the fabric has been delivered to the store, the following procedure must be followed to check for faults (appendix G):

- shortage in metres – metres of fabric received does not meet the actual measurement that should have been received,
- poor colour matching,
- unapproved colour,
- fabric holes and snags,
- fabric flaws,
- pilling,
- weight testing,
- skew grain lines,
- printing faults and streaks,
- unacceptable barre lines,
- pile faults,
- spirality,
- shaded garments should be sorted out before the style goes onto the production floor (ensure that the same dye lots/batches are cut together),
- stretch fabric should be rolled off overnight so that the fabric can relax to its original width and length,

- if the fabric is stored under humid conditions, it must be allowed to dry out before it is spread, and
- compile a list of all faults found together with a sample for own records.

A record should be kept of all the number and type of faults identified and this information should be sent to the large manufacturer. This information gathered can be used to develop a faults library. To reiterate, the fabric must be stored under the correct conditions to avoid soiling. All rolls of fabric must be handled with care. Lastly, cloth must be stored according to fabric batches to avoid shade variations.

10.4 Trim store

The trim store clerk should receive the cut sheet and specification to ensure that all trims are planned and checked timeously for the new style. The cut sheet should contain information about the quantity, colour and type of trims that are required for the new style. CMT companies responsible for ordering thread should ensure that the colour- coding is done according to the specification sheet. The trim clerk should check the following:

- colour shades are matching,
- the correct quality of trim has been received (especially zips, elastic, studs and buttons),
- the correct quantity of trim is available,
- transfer failures,
- the correct trim is supplied with the style and

- the trims have been counted.

A good practice is for the trims clerk is to sign the delivery note to show that the trims have been received (Appendix E). Equally important is the signature on the cut sheet and a space that shows whether the trims have been checked or not. The trims must be counted and any short delivery should be reported before the commencement of production so that the shortfall can be rectified. The trim clerk should record all information relating to the trims in the issue book. Once the style has been issued to the line, the supervisor or line feeder should sign for the trims.

10.5 Cutting room

The main function of the cutting room is to ensure that the production floor is continuously supplied with quality cut work and, therefore, a high degree of accuracy is required at this point. As mentioned previously, the large manufacturer will supply the company with the patterns. The master pattern should be checked against the pattern to ensure that it is correct. The master pattern should be stored correctly to ensure that it is not damaged. The marker should be checked to ensure that all the sizes and parts have been included as per the sample. The marker should be laid on the cutting table and the positions for splicing should be marked out.

The lay slip should contain information about the number of lays, the size of the lay, the ratios per size and the length of the lay. The layer up has to conduct a

quality check as the fabric is being spread on the cutting table to ensure that faults found are removed and/or highlighted. All joins must be made within the marked area for the splicing to ensure that no parts are short.

The cutter must ensure that the cut work is of acceptable quality. The markers must be positioned correctly and the number of plies must be checked. All parts that require block cutting or fusing, must be cut out roughly and sent to the various sections before the soabars are attached. Soabars should be used to avoid shading. The following points should be taken into consideration in the cutting room:

- markings for positioning should be done before the parts are bundled;
- fusing should be done before bundling;
- a specific number of units should be bundled depending on the product produced;
- all the necessary data should be on the bundle ticket;
- the bundles should be packed on shelves per style;
- the correct information should appear on the soabar;
- a quality check must be conducted before the work is issued to the production floor; and
- daily and weekly summary reports must be handed to the cutting room manager.

10.6 Production floor

A quality-assurance system on the production floor involves everyone from the line feeder to the manager. As mentioned before, each style must have a sample and specification sheet with reference to:

- a description of the style including a drawing;
- the fabric used including samples of the trims;
- critical garment dimensions including the agreed tolerances; and
- quality procedures relating to the pressing of completed garments.

For this study the term 'quality controller' will refer to the person responsible for the overall quality of the products produced in the company. The sample hand/supervisor must inform the quality controller about any problem encountered with the make-up of the production sample. The quality controller must liaise with the customer regarding quality and constructional concerns.

A pre-production meeting should be held three days prior to production and should include the supervisor, quality supervisor as well as the mechanic. All concerns relating to the make-up and quality of the garment should be discussed, as well as the operators best suited for an operation including the machinery and attachments to be used. All the necessary documentation should always accompany the sample as the garment is being produced. Training of operators should be introduced at this point.

In-line inspection should take place as the style moves through the manufacturing process. The quality supervisor must be present on the line to ensure that each operation meets the required standards. The operator must be informed of the following:

- the standards required for the operation,
- to ensure that the work adheres to the necessary specifications and is produced right first time,
- to cross check measurements to ensure that the garment is within tolerance (if measurements are required, to measure every fifth garment), and
- to inform the QC of the first garment off production and each new size thereafter.

It is proposed that the quality controller ensure that they are satisfied with the quality of the garment and that the operator understands what is expected before moving to the next operator. Any operator who persists in producing faulty garments must be retrained until the fault disappears.

Measurement charts should be placed on the examiner's table where they can be easily seen. The first ten garments produced off the line should be examined to ensure that they meet the specifications of measurement and quality. Following a style change on the line, the frequency of examining will naturally increase until the garments are of an acceptable quality level. The measurement of the garments should include the following areas:

- measurement for over spec;
- measurement for under spec;
- mixed measurements and
- variations in part lengths.

The examiner will continue to examine the rest of the garments according to the procedure used by the quality controller. A sticker which contains an inspection number will be stuck onto the garment. This is used to assess which examiner is responsible for passing faulty work. Every fifth garment must be measured to ensure that the garments coming off the line are acceptable. When problems are identified, the frequency of examination will again be increased until the problem has been solved.

Completed garments should be examined for the following faults depending on the style produced:

- thread not matching main body colour;
- seams uneven;
- hems uneven;
- pockets sewn uneven or skew;
- collars or necklines uneven or skew;
- plackets and buttonstand not aligned correctly;
- side seams or leg seams twisting;
- checks and stripes not matching;

- problems with lining (either too tight or too full)
- stitching broken or loose;
- needle damage;
- non-inclusion of seams;
- hems roping;
- puckering of seams;
- missing buttons, bartacking, belt loops, buttonholes, studs, etc.;
- buttonholes skew, tension too tight or too loose; and
- correct stitches/cm.

All garments placed aside for repairs should be placed on a designated place on the examining table which must be in full view of the line supervisor. An examiner's report should be filled in, each time a fault is found (appendix L). The examiners report contains details of the operator, operation, style number and the clock numbers of each operator. Each time a fault is found, it is marked with a stroke against the appropriate operator's name. The line supervisor is responsible for collecting repairs from the examining table. The line supervisor is responsible for returning faulty garments to the operators on the line. This will avoid any conflict that could arise if the examiner returned the work to the operator for repairs, as she may be seen as being on the same level as the operator.

Furthermore, this interaction assists the supervisor to establish which operators are producing the most faults on the line. The line supervisor will be able to make informed decision regarding the passing or failing of garments. The line supervisor should inspect the operators work (roving inspection) at least twice a day. At least five garments per operator should be examined to ensure that the quality is acceptable. In the event that the repairs are above the acceptable level, the line supervisor will continue to assist the operator until the desired quality level has been achieved. The operators must be informed that the repairs are their own responsibility and that repairs should be carried out in their own time. Any problems encountered on the line must be reported to the quality supervisor and line supervisor immediately.

Even though the operators are responsible for the quality of their garments, the examiner is responsible for 100% inspection. A 100% inspection procedure would include the following:

- the garments should be examined according the method decided by the quality supervisor according to the requirements in the specifications;
- the faults will be returned to the operator for repair via the line supervisor and any faults will be recorded on an examiner's report ;
- the line supervisor will be able to establish who is responsible for faulty work;
- the quality supervisor will visit the examiner at least thrice a day to ensure that the work being passed is acceptable. Work to be audited should be

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- the quality supervisor will visit the examiner at least thrice a day to ensure that the work being passed is acceptable. Work to be audited should be

taken from the top, middle and bottom to ensure that nothing has been overlooked. This will help the quality supervisor ensure that the examiner is doing her work effectively;

- if the audit reveals discrepancies, the quality supervisor should increase the audit;
- the manager and supervisor should look at the faults and discuss the appropriate action that should be taken;
- the total faults should be accumulated per day and a discussion held with the quality supervisor;
- a weekly report should be compiled (appendix M); and
- all of the above should result in the quality of the operator improving due to the action that will be taken by the supervisor.

The basis on which quality is accepted is dependent on the judgement and character of the person responsible for quality in the organisation.

The garments are now ready to go to the pressing department were they will be pressed according the specifications supplied by the finishing supervisor. The quality controller should check for the following:

- poorly finished;
- over pressed;
- water marks and
- unacceptable creasing.

At this point, final inspection should be done to check the appearance of the garment. The garments will be placed on a rail for transportation to the despatch. The garments should be counted to check whether the quantity corresponds with the specification. On completion, the rails will be transported to the despatch department.

The garments should go through a pre-audit before leaving the factory to ensue that the quality of an acceptable level. The quality controller should select 10% of the completed garments (different sizes and colours) ready for delivery. The quality controller examines these garments using the measurement charts, sealed sample and specification sheet supplied.

Any faults found, should be categorised as follows:

- critical, means that the damage to the garment is such that it is beyond repair or it would need extensive rework, which could lead to the cancellation of the order,
- serious, means that the garment requires repairs but it will most likely be sold as a second and it could possibly affect future orders from the customer,
- minor, means that the problem is not a serious, example a threads hanging from the hem of the garment,
- other, means that the returned garments meet quality specifications but have been accepted from the customer for goodwill.

Faults will be recorded on the warehouse audit sheet (appendix N). The style should be rejected if the sample reveals a high number of faults which, therefore, means that the complete style would have to be re-examined. Once the style has been passed by the quality controller, the customer can be contacted so that the delivery instructions can be received. Once the delivery instructions are received, the packaging can be completed and the destination can be attached to the goods.

10.7 Customer audit report

As soon as the style has been received by the customer, an audit will be conducted. All the documentation pertaining to the style will be made available which includes the following:

- sealed sample;
- agreed tolerances;
- measurements;
- size charts;
- pre-audit sheets;
- fabric testing report if available; and
- specifications (pricing, ticketing, labelling, etc.)

Any faults found will be recorded on the customer's return sheet (appendix O) and a claim will be made out for damaged goods. Minor faults would not normally result in the rejection of a style but it is important that corrective action be taken to solve the problem to prevent it from happening in the future.

CHAPTER ELEVEN

CONCLUSION

The findings of the focus group sessions highlighted the significance and need for clearly defined objectives and set standards and procedures. According to Juran (1999:2.1), companies would only be able to attain quality if vision, policies and goals are established within it. Analysis of the survey findings suggest that while most of the companies had policies and goals, many had no mission-statements. The companies that had mission statements had embarked on strategic planning. The other companies focused on short-term planning. Short-term planning was involved with quality planning, testing quality goals, developing action plans and identifying resources to meet deadlines.

Communication was viewed as a key element with all participants. Communication was seen as a process to ensure business success. Open channels of communication were regarded as necessary between buyers and sellers (Latzko & Saunders, 1995 and Juran, 1999) to encourage problem-solving. In most cases, there was above average communication between all parties involved.

A manufacturer stays in business as long as the product produced satisfies the customer required needs regarding quality and price. To achieve this objective the company requires a system aimed at ensuring that quality is included into the process from the commencement of the product cycle. The survey confirms that quality control systems are used in the small manufacturing companies in the

Western Cape. Garments not conforming to customer requirements were held back as rejects.

Juran (1999:2.1) defines quality as conforming to specifications in order to meet customer requirements. The quality "trilogy" therefore focuses on the methods, tools and techniques used to ensure that the product is produced according to customer specifications. Specification analysis revealed that companies who understood the specifications had all the necessary information in the specification sheets. The quality control function utilised in the companies were dependent on the details contained in the specifications to ensure that garments met customer standards.

Taguchi (Peace, 1993:5) refers to quality control as products conforming to standards despite being produced in an uncontrollable manufacturing environment. The QC function involves on-line and off-line quality control processes, which continually monitor and measure products on the line so that corrective action can be taken while the garments are being made-up. The research revealed that most of the respondents employed the quality control function within their companies. The respondents referred to QC in some cases as roving inspections, end of line examination and auditing. Most of the companies employed examiners either in despatch or on the production floor, to ensure that manufactured goods that did not conform to customer requirements,

were prevented from leaving the company. Roving inspection was regarded as part of the supervision function in some companies.

The research identified the value of operators taking control of their own quality, but that this was only impossible because the operators and examiners had undergone training to develop specific skills to produce quality garments. In support of the above, Latzko & Saunders (1995:116) emphasises that 'education' will assist organisations, to move away from accepting rejects and support continuous quality improvement. Deviations were seen as being inevitable and therefore control charts were an essential tool to define standards. These tools could be used as yardsticks to assess whether these standards were indeed achieved or not (Summers, 2000:31).

Further research

During the course of this research, the focus has been specifically aimed at the quality processes involved in manufacturing. To further develop the small business sector, four areas have been identified for further research namely:

- to establish the influence that the production processes have on the quality of goods;
- to establish the degree of influence that customers have on small-business;
- to establish whether goals and policies alone contribute to the success of a small business; and

- to establish whether supervisors in small companies have the necessary skills, training and expertise to quality checks on-line.

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APPENDICES

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APPENDIX A
RESUMÉ OF FOCUS GROUP SESSIONS

24 June 2003

Quality process

Design the brief that is required by manufacturing
Have a pre-production meeting in order to discuss the brief
Identify the products that are to be made
- New and unknown samples
- Sample fabrics
- Bulk fabric (production fabric)
- Can it be sewn up as production samples?

Form a partnership
Identify customer expectations.
Schedule fabrics, production, etc.
Delivery
- Fabric
- Trims
- Standards checked
- Cutting - sewability, fusing, pareto analysis

ALL OF THIS NOT TO BE DONE IN ISOLATION.

EVIDENCE THAT CHECKS AND BALANCES ARE IN PLACE.

Knowledge of product and controls.
Exam approved sample ensure
- Clear guidelines are given
- Internal controls are applied e.g. Checks (tumble dry, etc.)

Traceability – can the problem be quantified?
- Re-inspection
- Rejection

Sufficient information
- Facts and figures in place
- Not a guessing game (standards and specs clearly understood)

Identify global international standards
- Random sampling – establish major, minor, other repairs and rejects.
- Focus on specific areas.

25 July 2003

What are customer requirements?
Quality of goods
Relationship with customer

Pricing – rating
Delivery
- On time
- Lead time

Good planning
Correct samples
Quick turnaround of samples
Credibility
Processes
Correct resources
Machinery
Quality system in place
Communication

Define quality – general bases.
Satisfying customer needs.
Producing garments to customer specs.
Conforming to customer requirements.

What dictates quality – customers and demands placed on them?
Competition
Price
Service
Training
Communication
Market expectation
Retailer
Operation
Flexibility
Environmental influence
Technology (machinery)
Competition
Raw materials
Suppliers – conformance
Good housekeeping
Ergonomics
Pre-approvals
Versatility
Diversity
Product range

What are your needs?
Customer to do quality checks (before, during and after)
Communication (feedback on trims and materials)
Confirmation
Contractual agreement – set out ahead of time

Approved sample – done timeously
Correct lead times
Confidentiality
Changes communicated timeously
Ethical considerations
Price
Relationship
Reasonable demand
Understanding the customer requirements
Written specs.

What are the problems encountered?
Attitudes
- Misunderstanding

Machinery
- Breakdowns
- Unavailability
- Maintenance
- Attachments

Absenteeism
Supplier
- Quality of raw materials
- Late delivery

Mechanics
Training (continuous training)
Communication
Transparency
Responsibility
Ambiguity
Lack of leadership / bad management
No / lack of information
Incorrect processes
Incorrect machinery used on samples – create production problems
Poor planning
Social economic problems (drug abuse, AIDS, etc.)
Unfair expectations
- Delivery
- Line performance
- Skills (versatility)
- Standards
- Poor economics
- Price

What checks and balances are in place to ensure quality?
Examiners
Quality controllers

Operator responsibility for quality
Final examination
Roving quality checks
Operation sequencing
Examiner reports
Quality inspection on cut work
Pattern pieces correct
- No. of pieces
- Pattern piece

Correct specification / style / examiner / operator.
Examiner identification.
Audit examiners
Audit despatch
Customer audit

26 June 2003 – 09h00

What are customer requirements?
Quality
Prompt delivery
Price – value for money
Full delivery
Acceptable styling
Quality of raw materials
Service
Visual appealing
Communication
Honesty
Commitment
- Advise
- Customer viz. supplier
- Feedback (positive feedback)

Credibility
Co-operation
Teamwork
Follow-up
Reliability
Durability of the product

Do you measure up to standards set?
Quality system / production process in place
Pre-production samples
Patterns correct
Critical path
Time schedule / time action
Being product responsible

Technical skills
Technology
Use CMT companies that are approved
Partnership with CMT company – satellite
Loyalty
Develop CMT companies
Accountability
Trends
- Travel
- International

Define quality – general bases.
Sewn correctly using the correct thread colour and ensuring that all components are on the garment.
The garment must be visually appealing
Appearance, fit durability
Harmony
Comply with sample specifications before and after washing.
Properly finished.
Communicate quality standard.
Power – mutual agreement
Planning
Quality is a service

What dictates quality – customers and demands placed on them?
Consumer
- End user
- Market trend

Customer satisfaction
Sealed samples – timeously
Fit
Materials
Functionality
Quality auditing
Presentation of finished product.
Internal customer service
Planning lead times before delivery
Styling
- Produce specialised products

Correct machinery
Pre-production meeting
Training
Safety of garments
Pricing

What are your needs?
RETAILER TO MANUFACTURER
Price
Understanding the product
Contracts in time (time cost money)
Timeous decision-making around requirements
Materials tested
Styling suit fabric
Inconsistency
Timeous approvals
Quick responses
Buyers to be reasonable
More accommodating
Communication
Retailers – manufacturers
Manufacturers to CMT
CMT – operators
Involve the correct people in the design briefs

CMT TO LARGE MANUFACTURER
Communication
Delivery date
Honesty
Commitment
Understanding / Partnership
Good relationship
Correct machinery
Housekeeping
Safety
Transparent
Skills
Planning
Quality system
Reject factor
Product type – specialisation
Business ethics
Understanding the product
Quality requirements given to them to be specific
Confident
Accountability
Responsibility
Reliability
Follow up – maintain contact
Liaison person between manufacturer and CMT – ONE PERSON
Teamwork (how can we help)
Two way street (manufacturer to CMT to manufacturer)

Not to use CMT as holding place.
How do we compensate for our mistakes (large manufacturer)?
Attention to detail

What are the problems encountered?
Contract not always on time
Unrealistic delivery dates
Unrealistic quality standards
Waiting on information on releases of sampling, re-dye, fitting
Progress chaser to follow up
Price (if there are additional parts, prices should change)
Sub-standard fabric
Arrogant buyers

What checks and balances are in place to ensure quality?
Red seals – written specifications
First off – first cut before production
Critical meetings (external and internal)
Pre-production meetings
Trim schedule checked and ready
Process control
- Attachments
- Machinery
- Maintenance

Quality standards implemented at each operation
In line / on-line audit (roving inspection)
Written documentation
- In line
- On line

Audit box document (final)
Audit despatch
Audit on line randomly
Housekeeping
Discipline

26 June 2003 – 14h00

What are customer requirements?
No-nonsense garment
Quality product at affordable price
Right place, right time
Fitness of purpose
Fashionable
Easy care of garment
Reliability
Trust

Not to use CMT as holding place.
How do we compensate for our mistakes (large manufacturer)?
Attention to detail

What are the problems encountered?
Contract not always on time
Unrealistic delivery dates
Unrealistic quality standards
Waiting on information on releases of sampling, re-dye, fitting
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Written documentation
- In line
- On line

Audit box document (final)
Audit despatch
Audit on line randomly
Housekeeping
Discipline

26 June 2003 – 14h00

What are customer requirements?
No-nonsense garment
Quality product at affordable price
Right place, right time
Fitness of purpose
Fashionable
Easy care of garment
Reliability
Trust

Service
Quality is a given
Variety
Durability
After-sales service
Customer expectations too high
Consistency
Ethics
Understanding
Appearance

Define quality – general bases.
Meet customer needs
The garment does not break
Conformance
Ensure colour, thread acceptable
Threads do not break – acceptable standard

What dictates quality – customers and demands placed on them?
Appearance
Perception
Fashion
Price
Peer pressure
Customer demand
Industry standard (what market will bear)
Skills
Training
Responsibility of everybody
Every process should be a quality process
Critical path dictates
Quality
Customer is king
Listen to customer

What are your needs?
RETAILER
Store-ready garment
Trust supplier
Supplier must not cut corners
Good relationship with supplier
Flexibility
Retailers not to be inflexible
Knowledge of product
- Buyers
- Lab

- Technologist

Communication
Lead time (planning)
Ethics
Clearly defined objectives
Set standards, specifications and procedures
Loyalty

LARGE MANUFACTURER
Wants retailer to realise that price can be affected by changes
Flexibility
Realism
Communication
- Retailer – manufacturer
- Manufacturer to retailer

Good relationship
Product knowledge
Acceptable lead time
Even distribution of pipeline
Samples received timeously
Should not make garments they are not good at
Allow the manufacturer to make a profit
Clearly defined objectives
Understand standards and specifications & procedures
Trust
Loyalty

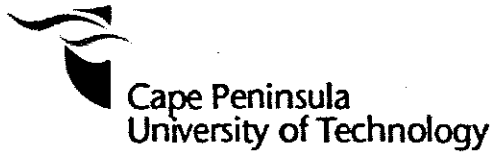
What are the problems encountered?
Inflexibility
Communication
Late deliveries
Poor quality
Cancellations
Bad raw materials
Price
Quantities
Bad local supply base
Lead times
Poor planning
Inconsistency
Indecisiveness
People problems
Last minute style change
Seasonal problems
Returns
Attitude

Skills
Training
Absenteeism

What checks and balances are in place to ensure quality?
Specifications
Standards
Procedure
Quality control personnel
- In line examiners
- Roving inspectors
- Auditing

Company philosophy (core values of the business)
Training
Document statistics
Analysing data
Quality system design
Evaluation and/or assessment of suppliers
Does the supplier have a quality system?
Can the supplier produce what they say they can produce?
Inspection
Inspection process %
AQL (Acquired Quality Levels)

APPENDIX B: QUESTIONNAIRE



21 August 2005

Dear small business Owner

A QUALITY ASSURANCE SYSTEM FOR SMALL MANUFACTURERS IN THE WESTERN CAPE.

A survey is being conducted to develop a quality-assurance framework for small manufacturing companies within the clothing industry in the Cape Metropole. To facilitate this research, a questionnaire survey is being conducted and you have been identified as a respondent. The research is being conducted under the auspices of Cape Peninsula University of Technology (CPUT), Bellville campus (previously named Peninsula Technikon).

Ms Ingrid Norton, a lecturer at CPUT, is completing this research project as a requirement towards the attainment of a Master's degree in Entrepreneurship.

The aim of the survey is to determine the following:

- the size of your company and turnover, so as to classify your business according to *the National Business Act, 1996 (102 of 1996).*
- the identification of your clients;
- the category of the CMT structure in which your business is placed; and
- the processes that are applicable within your organization;

Your response will be treated with the **strictest CONFIDENTIALITY** and will only be used for the purpose of this study.

The completion of the questionnaire should take approximately 30 – 35 minutes of your time.

We are grateful for your contribution.

Thanking you.

Yours sincerely

Ingrid Norton
Phone: (021) 9596471 (w) 0828644447 (cell)

Cape Peninsula
University of Technology

QUALITY QUESTIONNAIRE

Purpose of questionnaire: To determine whether there is a need for the development of a Quality Assurance system for small manufacturers in the Western Cape.

(Kindly circle, tick √ or fill in where appropriate)

A. COMPANY DETAILS

1. Questionnaire number:.....
2. Company name:.....
3. Address: .....

.....

.....

B. COMPANY SIZE

4. How many people do you employ in your company?

0 - 15	16 - 30	31 – 45	46 - 60	61 - 75	76 – 90

5. What is your annual turnover per year in thousands of rand per year?

76 - 150	151 - 225	226 - 300	301 - 375	375 - 400	Other

C. CLIENT INFORMATION

6. Do you produce goods for a large manufacturer? [Y] [N]
7. If yes, name the large manufacturer you produce for.

.....

8. Do you produce goods for any of these customers?

Retailer	Boutique	Hawker	Other

If other, please explain:

D. PRODUCTION PROCEDURE

9. Which of the following methods apply to your company?

Cut only	Cut and manufacture	Cut, manufacture and finish	Manufacture and finish only	Finishing only

10. What type of products do you produce?

Variety of goods	Specialised products	Variety and specialised products

E. CLIENT RELATIONSHIP

11. How many customers do you produce goods for?

1 – 2	3 – 4	5 - 6	7 - 8	9 – 10

12. How is your relationship with your customer?

Excellent	Above average	Average	Below average	Poor

13. How would you describe the assistance that you receive from your customer?

Excellent	Above average	Average	Below average	Poor

14. What is the quality of the goods received from the customer?

Excellent	Above average	Average	Below average	Poor

15. Have any of your orders been cancelled? Y N

16. Supply the reason for cancellation:

Defective fabric	Poor workmanship	Machine problems	Incorrect trims	Late delivery date

F. PRODUCTION PROCESS

Tick (√) the appropriate block

		YES	NO
17.	Do you have pre-production meetings to discuss new styles?	☐	☐
18.	Are samples received back before production starts?	☐	☐
19.	Are the machines set up before the production starts?	☐	☐
20.	Are samples made up on the machinery used on the production floor?	☐	☐

21. Do you receive all your components per style/ per size on time

22. How long before the commencement of production is the sealed samples received?

4 days	3 days	2 days	1 day	1 – 5 hours

23. How much time is allocated to the making of sealed samples?

1 month	3 weeks	2 weeks	1 week	4 – 2 days

24. How long before the style goes onto the line is the pre-production meeting held?

4 days	3 days	2 days	1 day	1 – 5 hours

25. How long before the style is due on the line is all the components received?

3 week	2 – 1 week	3 – 4 days	2 - 1 day	1 – 6 hours

G. QUALITY

Tick (√) the appropriate block

		YES	NO
26.	Do the operators take responsibility for their own Quality?	☐	☐
27.	Are in-line inspectors / examiners employed by the company?	☐	☐
28.	Is roving / in-line inspection process part of the supervisor's responsibility?	☐	☐
29.	Do you have a final examination in the despatch area?	☐	☐
30.	Do you understand the specifications required by your customer?	☐	☐
31.	Are all the required details contained in the specification sheet?	☐	☐
32.	Do you have set standards and procedures in place?	☐	☐
33.	Are your operators informed of the customer requirements?	☐	☐
34.	Are you held responsible for garments produced incorrectly due to poor quality fabric?	☐	☐

35. What specifications are omitted on the specification sheet?

.....

.....

.....

.....

H. TRAINING

Tick (√) the appropriate block

		YES	NO
36.	Do you have a training programme in place for examiners?	☐	☐
37.	Do you have training in place for the operators / machinists?	☐	☐
38.	Have your examiners gone through a selection process?	☐	☐
39.	Have your examiners been trained?	☐	☐

I. ORGANISATIONAL QUALITY GOALS

Tick (√) the appropriate block

		YES	NO
40.	Do you have a mission statement?	☐	☐
41.	Are your goals clearly understood by everyone?	☐	☐
42.	Do you have company policies in place?	☐	☐

J. Are you prepared to be part of a focus group discussion? ☐ ☐

If yes, kindly supply:

Name			
Surname			
Telephone no #s			

APPENDIX C:

SPSS ANALYSIS ON QUESTIONNAIRES (STATISTICS) OUTPUT 4

How many people do you employ in your company?

N	Valid	48
	Missing	0

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-15	12	25.0	25.0	25.0
	16-30	16	33.3	33.3	58.3
	31-45	14	29.2	29.2	87.5
	46-60	6	12.5	12.5	100.0
	Total	48	100.0	100.0	

OUTPUT 5

What is your annual turnover per year in thousands of rands per yr?

N	Valid	39
	Missing	9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	76-150	6	12.5	15.4	15.4
	151-225	1	2.1	2.6	17.9
	226-300	4	8.3	10.3	28.2
	301-375	2	4.2	5.1	33.3
	375-400	2	4.2	5.1	38.5
	Other	24	50.0	61.5	100.0
	Total	39	81.3	100.0	
Missing	9999.00	9	18.8		
Total		48	100.0		

OUTPUT 6

Do you produce goods for a larger manufacturer?

N	Valid	46
	Missing	2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	29	60.4	63.0	63.0
	No	17	35.4	37.0	100.0
	Total	46	95.8	100.0	
Missing	9999.00	2	4.2		
Total		48	100.0		

OUTPUT 8a

Do you produce goods for Retailers?

N	Valid	40
	Missing	8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	32	66.7	80.0	80.0
	No	8	16.7	20.0	100.0
	Total	40	83.3	100.0	
Missing	9999.00	8	16.7		
Total		48	100.0		

OUTPUT 8b

Boutique

N	Valid	40
	Missing	8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	12	25.0	30.0	30.0
	No	28	58.3	70.0	100.0
	Total	40	83.3	100.0	
Missing	9999.00	8	16.7		
Total		48	100.0		

OUTPUT 8c

Hawker

N	Valid	40
	Missing	8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	3	6.3	7.5	7.5
	No	37	77.1	92.5	100.0
	Total	40	83.3	100.0	
Missing	9999.00	8	16.7		
Total		48	100.0		

OUTPUT 8d

Other

N	Valid	40
	Missing	8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	6	12.5	15.0	15.0
	No	34	70.8	85.0	100.0
	Total	40	83.3	100.0	
Missing	9999.00	8	16.7		
Total		48	100.0		

OUTPUT 8 IF OTHER

If other, please explain

N	Valid	3
	Missing	45

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	promotions	2	4.2	66.7	66.7
	To supply our own customers	1	2.1	33.3	100.0
	Total	3	6.3	100.0	
Missing	9999.00	45	93.8		
Total		48	100.0		

OUTPUT 9

Which of the following methods apply to your company?

N	Valid	47
	Missing	1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Cut only	2	4.2	4.3	4.3
	Cut and manufacture	2	4.2	4.3	8.5
	Cut, manufacture & finish	27	56.3	57.4	66.0
	Manufacture and finish only	14	29.2	29.8	95.7
	Finishing only	2	4.2	4.3	100.0
	Total	47	97.9	100.0	
Missing	9999.00	1	2.1		
Total		48	100.0		

OUTPUT 10

What type of products do you produce?

N	Valid	44
	Missing	4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Variety of goods	18	37.5	40.9	40.9
	Specialised products	10	20.8	22.7	63.6
	Variety & specialised products	16	33.3	36.4	100.0
	Total	44	91.7	100.0	
Missing	9999.00	4	8.3		
Total		48	100.0		

OUTPUT 11

How many customers do you produce goods for?

N	Valid	46
	Missing	2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2	13	27.1	28.3	28.3
	3-4	17	35.4	37.0	65.2
	5-6	4	8.3	8.7	73.9
	9-10	9	18.8	19.6	93.5
	more than 10	3	6.3	6.5	100.0
	Total	46	95.8	100.0	
Missing	9999.00	2	4.2		
Total		48	100.0		

OUTPUT 12

How is your relationship with your customer?

N	Valid	45
	Missing	3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	21	43.8	46.7	46.7
	Above average	17	35.4	37.8	84.4
	Average	7	14.6	15.6	100.0
	Total	45	93.8	100.0	
Missing	9999.00	3	6.3		
Total		48	100.0		

OUTPUT 13

How would you describe the assistance that you receive from your customer?

N	Valid	44
	Missing	4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	11	22.9	25.0	25.0
	Above average	21	43.8	47.7	72.7
	Average	10	20.8	22.7	95.5
	Below average	2	4.2	4.5	100.0
	Total	44	91.7	100.0	
Missing	9999.00	4	8.3		
Total		48	100.0		

OUTPUT 14

What is the quality of the goods received from the customer?

N	Valid	39
	Missing	9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	10	20.8	25.6	25.6
	Above average	18	37.5	46.2	71.8
	Average	10	20.8	25.6	97.4
	Poor	1	2.1	2.6	100.0
	Total	39	81.3	100.0	
Missing	9999.00	9	18.8		
Total		48	100.0		

OUTPUT 15

Have any of your orders been cancelled?

N	Valid	47
	Missing	1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	7	14.6	14.9	14.9
	No	40	83.3	85.1	100.0
	Total	47	97.9	100.0	
Missing	9999.00	1	2.1		
Total		48	100.0		

OUTPUT 16

Supply reason for cancellation?

N	Valid	5
	Missing	43

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Defective fabric	1	2.1	20.0	20.0
	Poor workmanship	3	6.3	60.0	80.0
	Machine problems	1	2.1	20.0	100.0
	Total	5	10.4	100.0	
Missing	9999.00	43	89.6		
Total		48	100.0		

OUTPUT 17

Do you have pre-production meetings to discuss new styles?

N	Valid	45
	Missing	3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	32	66.7	71.1	71.1
	No	13	27.1	28.9	100.0
	Total	45	93.8	100.0	
Missing	9999.00	3	6.3		
Total		48	100.0		

OUTPUT 18

Are samples received back before production starts?

N	Valid	46
	Missing	2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	44	91.7	95.7	95.7
	No	2	4.2	4.3	100.0
	Total	46	95.8	100.0	
Missing	9999.00	2	4.2		
Total		48	100.0		

OUTPUT 19

Are the machines set up before the production starts?

N	Valid	44
	Missing	4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	38	79.2	86.4	86.4
	No	6	12.5	13.6	100.0
	Total	44	91.7	100.0	
Missing	9999.00	4	8.3		
Total		48	100.0		

OUTPUT 20

Are samples made up on the machinery used on the production floor?

N	Valid	46
	Missing	2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	46	95.8	100.0	100.0
Missing	9999.00	2	4.2		
Total		48	100.0		

OUTPUT 21

Do you receive all your components per style/per size on time?

N	Valid	37
	Missing	11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	27	56.3	73.0	73.0
	No	10	20.8	27.0	100.0
	Total	37	77.1	100.0	
Missing	9999.00	11	22.9		
Total		48	100.0		

OUTPUT 22

How long before the commencement of production is the sealed samples received?

N	Valid	40
	Missing	8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4 days	15	31.3	37.5	37.5
	3 days	2	4.2	5.0	42.5
	2 days	9	18.8	22.5	65.0
	1 day	8	16.7	20.0	85.0
	1-5 hours	3	6.3	7.5	92.5
	not sure	1	2.1	2.5	95.0
	months	2	4.2	5.0	100.0
	Total	40	83.3	100.0	
Missing	9999.00	8	16.7		
Total		48	100.0		

OUTPUT 23

How much time is allocated to the making of sealed samples?

N	Valid	37
	Missing	11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 month	3	6.3	8.1	8.1
	2 weeks	3	6.3	8.1	16.2
	1 week	11	22.9	29.7	45.9
	4-2 days	20	41.7	54.1	100.0
	Total	37	77.1	100.0	
Missing	9999.00	11	22.9		
Total		48	100.0		

OUTPUT 24

How long before the style goes onto the line is the pre-production meeting held?

N	Valid	35
	Missing	13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4 days	9	18.8	25.7	25.7
	3 days	1	2.1	2.9	28.6
	2 days	5	10.4	14.3	42.9
	1 day	11	22.9	31.4	74.3
	1-5 hrs	9	18.8	25.7	100.0
	Total	35	72.9	100.0	
Missing	9999.00	13	27.1		
Total		48	100.0		

OUTPUT 25

How long before the style is due on the line is all the components received?

N	Valid	40
	Missing	8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3 wks	3	6.3	7.5	7.5
	2-1 wks	8	16.7	20.0	27.5
	3-4 days	11	22.9	27.5	55.0
	2-1 days	8	16.7	20.0	75.0
	1-6 hrs	10	20.8	25.0	100.0
	Total	40	83.3	100.0	
Missing	9999.00	8	16.7		
Total		48	100.0		

OUTPUT 26

Do the operators take responsibility for their own Quality?

N	Valid	44
	Missing	4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	38	79.2	86.4	86.4
	No	6	12.5	13.6	100.0
	Total	44	91.7	100.0	
Missing	9999.00	4	8.3		
Total		48	100.0		

OUTPUT 27

Are in-line inspectors/examiners employed by the company?

N	Valid	46
	Missing	2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	20	41.7	43.5	43.5
	No	26	54.2	56.5	100.0
	Total	46	95.8	100.0	
Missing	9999.00	2	4.2		
Total		48	100.0		

OUTPUT 28

Is roving/in-line inspection part of the supervisor's responsibility?

N	Valid	46
	Missing	2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	42	87.5	91.3	91.3
	No	4	8.3	8.7	100.0
	Total	46	95.8	100.0	
Missing	9999.00	2	4.2		
Total		48	100.0		

OUTPUT 29

Do you have a final examination in the despatch area?

N	Valid	47
	Missing	1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	45	93.8	95.7	95.7
	No	2	4.2	4.3	100.0
	Total	47	97.9	100.0	
Missing	9999.00	1	2.1		
Total		48	100.0		

OUTPUT 30

Do you understand the specifications required by your customer?

N	Valid	45
	Missing	3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	45	93.8	100.0	100.0
Missing	9999.00	3	6.3		
Total		48	100.0		

OUTPUT 31

Are all the required details contained in the specification sheet?

N	Valid	46
	Missing	2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	45	93.8	97.8	97.8
	No	1	2.1	2.2	100.0
	Total	46	95.8	100.0	
Missing	9999.00	2	4.2		
Total		48	100.0		

OUTPUT 32

Do you have set standards and procedures in place?

N	Valid	47
	Missing	1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	43	89.6	91.5	91.5
	No	4	8.3	8.5	100.0
	Total	47	97.9	100.0	
Missing	9999.00	1	2.1		
Total		48	100.0		

OUTPUT 33

Are your operators informed of the customer requirements?

N	Valid	47
	Missing	1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	47	97.9	100.0	100.0
Missing	9999.00	1	2.1		
Total		48	100.0		

OUTPUT 34

Are you held responsible for garments produced incorrectly due to poor quality fabric?

N	Valid	45
	Missing	3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	28	58.3	62.2	62.2
	No	17	35.4	37.8	100.0
	Total	45	93.8	100.0	
Missing	9999.00	3	6.3		
Total		48	100.0		

OUTPUT 35

What specifications are omitted on the specification sheet?

N	Valid	14
	Missing	34

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	5	10.4	35.7	35.7
	Needle size and thread type/colour	2	4.2	14.3	50.0
	measurements	4	8.3	28.6	78.6
	Make up of garment & data minutes	1	2.1	7.1	85.7
	any unusual procedures	1	2.1	7.1	92.9
	As per sample	1	2.1	7.1	100.0
	Total	14	29.2	100.0	
Missing	9999.00	34	70.8		
Total		48	100.0		

OUTPUT 36

Do you have a training programme in place for examiners?

N	Valid	45
	Missing	3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	11	22.9	24.4	24.4
	No	34	70.8	75.6	100.0
	Total	45	93.8	100.0	
Missing	9999.00	3	6.3		
Total		48	100.0		

OUTPUT 37

Do you have training in place for the operators/machinists?

N	Valid	45
	Missing	3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	16	33.3	35.6	35.6
	No	29	60.4	64.4	100.0
	Total	45	93.8	100.0	
Missing	9999.00	3	6.3		
Total		48	100.0		

OUTPUT 38

Have your examiners gone through a selection process?

N	Valid	45
	Missing	3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	17	35.4	37.8	37.8
	No	28	58.3	62.2	100.0
	Total	45	93.8	100.0	
Missing	9999.00	3	6.3		
Total		48	100.0		

OUTPUT 39

Have your examiners been trained?

N	Valid	44
	Missing	4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	27	56.3	61.4	61.4
	No	17	35.4	38.6	100.0
	Total	44	91.7	100.0	
Missing	9999.00	4	8.3		
Total		48	100.0		

OUTPUT 40

Do you have a mission-statement?

N	Valid	43
	Missing	5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	22	45.8	51.2	51.2
	No	21	43.8	48.8	100.0
	Total	43	89.6	100.0	
Missing	9999.00	5	10.4		
Total		48	100.0		

OUTPUT 41

Are your goals clearly understood by everyone?

N	Valid	46
	Missing	2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	40	83.3	87.0	87.0
	No	6	12.5	13.0	100.0
	Total	46	95.8	100.0	
Missing	9999.00	2	4.2		
Total		48	100.0		

OUTPUT 42

Do you have company policies in place?

N	Valid	46
	Missing	2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	39	81.3	84.8	84.8
	No	7	14.6	15.2	100.0
	Total	46	95.8	100.0	
Missing	9999.00	2	4.2		
Total		48	100.0		

APPENDIX D: SPSS CROSSTABULATIONS

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
What is the quality of the goods received from the customer? * Are you held responsible for garments produced incorrectly due to poor quality fabric?	38	79.2%	10	20.8%	48	100.0%

What is the quality of the goods received from the customer? * Are you held responsible for garments produced incorrectly due to poor quality fabric? Cross-tabulation

What is the quality of the goods received from the customer?	Excellent	Count	8	2	10
		% within What is the quality of the goods received from the customer?	80.0%	20.0%	100.0%
	Above average	Count	7	11	18
		% within What is the quality of the goods received from the customer?	38.9%	61.1%	100.0%
	Average	Count	7	2	9
		% within What is the quality of the goods received from the customer?	77.8%	22.2%	100.0%
	Poor	Count	1	0	1
		% within What is the quality of the goods received from the customer?	100.0%	.0%	100.0%
Total		Count	23	15	38
		% within What is the quality of the goods received from the customer?	60.5%	39.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.888(a)	3	.076
Likelihood Ratio	7.383	3	.061
Linear-by-Linear Association	.091	1	.763
N of Valid Cases	38		

a 4 cells (50.0%) have expected count less than 5. The minimum expected count is .39.

APPENDIX E: PURCHASING REPORT

ADVANCED QUALITY CONTROL

PURCHASING

NAME OF VENDOR / SUPPLIER	
HAVE THEY SUPPLIED US BEFORE ?	
WHEN ?	
RELIABILITY INDEX ?	
WHAT GOODS ?	
COST PER UNIT	

SPECIFICATIONS OF GOODS :

TESTS TO BE CONDUCTED :
INTERNALLY

EXTERNALLY : AGENCY

VENDOR / SUPPLIER APPRAISAL CARRIED OUT :
DATE :
SIGNED :
COMMENTS :

APPENDIX F: STORAGE REPORT

ADVANCED QUALITY CONTROL

STORAGE

DATE OF ISSUE	
VENDOR / SUPPLIER NAME	
DESCRIPTION OF GOODS	

STORAGE	SPECIFICATIONS
TEMPERATURE RANGE	
ORIENTATION	
STACK HEIGHT	
SHELF LIFE	
LIGHT CONDITIONS	
SPECIAL POINTS	

TO BE INSPECTED	WEEKLY	MONTHLY	OTHER

INSPECTION RECORD

DATE	SIGNED

APPENDIX G: FABRIC INSPECTION

ADVANCED QUALITY CONTROL

FABRIC INSPECTION

DATE OF ARRIVAL	
DESCRIPTION	
SUPPLIER	
% EXAMINATION	
TOLERANCES	

DATE	PIECE No	DYE LOT No	LENGTH STATED	LENGTH ACTUAL	WIDTH STATED	WIDTH ACTUAL	FAULTS STATED	FAULTS ACTUAL

APPENDIX H: DESIGN 1

ADVANCED QUALITY CONTROL

DESIGN 1

SAMPLE No :.....

MADE BY :.....

DATE :.....

OPERATION SEQUENCE	MACHINE & ATTACHMENTS	NEEDLE	THREAD	COMMENTS
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

ADDITIONAL COMMENTS

SIGNED :.....

APPENDIX I: DESIGN 2

DESIGN 2

CUSTOMER LIAISON

CUSTOMER	
CONTACT	
STYLE	
VISIT DATES	LOCATION
DESIGNER / REP	

PROBLEM IDENTIFIED	REMEDIAL ACTION BY		
	WHO	WHEN	SIGNED

DESIGN CHANGES AUTHORISED	SIGNED	DATE
SPEC CHANGES AUTHORISED	SIGNED	DATE
MATERIAL CHANGES AUTHORISED	SIGNED	DATE
PATTERN CHANGES AUTHORISED	SIGNED	DATE

APPENDIX J: PRE-PRODUCTION TRAIL REPORT

ADVANCED QUALITY CONTROL

PRE PRODUCTION TRIAL REPORT

STYLE No / NAME	
CUSTOMER	
DESCRIPTION	
DATE	

MEASUREMENT SIZES	MEASURED IN FACTORY BY..... CHECKED IN DESIGN.....
	FACTORY COMMENTS ON MEASUREMENTS
	DESIGN COMMENTS
	ACTION BY MANAGEMENT

FACTORY COMMENTS ON MAKE UP

SIGNED

DESIGN COMMENTS ON MAKE UP

SIGNED

ACTION ON MAKE UP AND DECISION ON TRIAL

SIGNED

 90

APPENDIX K: SPECIFICATION

SPECIFICATION

QUALITY SPECIFICATION	SPEC BY	APPROVED BY	GARMENT STYLE	
EQUIPMENT	WORKSTUDY REF	DATE	OPERATION	OPERATOR

ITEM	DETAILS	STANDARD	VARIATION	MEASURE	
				MIN	MAX

SKETCH	QUALITY POINTS

APPENDIX L: EXAMINER'S REPORT

EXAMINER'S REPORT Examiner:				Week Ending:			
Operation	Operator No	Wed	Thurs	Fri	Mon	Tues	Total
Material faults							
Dirt on garments							
Total faults found							
Total garments examined							
QUALITY AUDIT OF PASSED GARMENTS						Returns to operator(A)	%
No Passed gmts sampled							
No faults found							
QUALITY AUDIT OF REJECTED GARMENTS						Outgoing quality(B)	%
No faulty garments sampled							
No good garments found							
Examiner's Effectiveness % A+B		100.A				**Excess rejection (C)**	%

APPENDIX M: INSPECTION SUMMARY

INSPECTION SUMMARY

DATE						
QUALITY CONTROLLER						
STYLE						
EXAMINER	1	2	3	4	5	6
TOTAL EXAMINED						
CLOTH						
DAMAGES						
SEWING						
PRESSING						
FINISHING						
SIZING						
LABEL						
% EFFECTIVE						

APPENDIX N: WAREHOUSE AUDIT

WAREHOUSE AUDIT

DATE	
STYLE NO	
DATE OF PREVIOUS AUDIT	
PRESENT	

SIZES			
NUMBER EXAMINED			
CRITICAL			
MAJOR			
MINOR			
TOTAL			
% FAULTS			

OPERATION	EXAMINER	ACTION	BY WHOM	WHEN

APPENDIX O: CUSTOMER RETURNS

ADVANCED QUALITY CONTROL

WAREHOUSE AUDIT

DATE	
STYLE NO	
DATE OF PREVIOUS AUDIT	
PRESENT	

SIZES			
NUMBER EXAMINED			
CRITICAL			
MAJOR			
MINOR			
TOTAL			
% FAULTS			

OPERATION	EXAMINER	ACTION	BY WHOM	WHEN

