An Investigation of the Factors that Account for the Effective Implementation of Team-Based Work Organisation: Case Studies of Firms in Metal Fabrication Sector in the Western Cape

A mini-thesis submitted in partial fulfillment of the requirements of the degree Magister Commercii in the Faculty of Economic and Management Sciences, University of the Western Cape.

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ABSTRACT

The use of one form or another of team based work organization (TBWO) management policies and practices by firms with the aim of improving organizational performance and employee morale is well documented in popular literature. Empirical research has however found that the implementation of TBWO management policies and practices such as TB training, TB incentive schemes, participation in decision making, work teams etc. had minimal influence on the performance of firms (Locke and Schweiger, 1979).

This research investigated the factors, which account for the effective implementation of TBWO management policies and practices with specific emphasis on three firms in the metal fabrications sector. The reason behind the choice of the three firms in the metal fabrication sector in the Western Cape was that these sites offered a rare opportunity to study the process of the implementation of TBWO. It was a rare opportunity because not many firms have embarked on implementing TBWO in South Africa. It was envisaged that the lessons that emerged from this study would be invaluable for firms that intended implementing workplace change. The level of analysis was the shop floor level at the firms as research has shown that this is the level that plays a critical role in the effectiveness of the TB management policies and practices implemented by the firms.

As a result of the review of relevant literature four theoretical models from which the research model that was developed in this study were considered. The theoretical model of effective innovation implementation by Klein and Sorra (1996) was chosen for use in this study. One of the reasons for the choice of this model was that it avoided some of the weaknesses in the research on the implementation of PDM. Klein and Sorra's model was

also more generally applicable to the implementation of any type of organisational innovation. It also encompassed both the technical and the human resource management issues inherent in introducing an innovation, which was relevant to TBWO. The research model used in this study was developed from the modification of Klein and Sorra's model to take into account the implementation of TBWO. The research model suggested that implementation effectiveness was a function of: high implementation of TBWO management practices and policies; strong climate for implementation; good TWBO-values fit and a high employee commitment to use TB shopfloor work practices.

Qualitative data was collected through face-to-face in-depth interviews with a total of 30 workers, managers and consultants at the three firms in the metal fabrication sector. Observation on the shopfloor and an evaluation of company documents were also used to gather data. Case studies of the implementation of TBWO at each of the firms were developed.

The findings that emerged from this study supported the research model in one case of a firm where there was firstly very little implementation of TBWO management practices, secondly the climate for implementation was weak, thirdly there was a bad TBWO-fit, fourthly low employee commitment and as a result low implementation effectiveness. The were however interesting findings that emerged from the other two cases which called into question the strength of the influence of the climate for implementation on employee commitment and ultimately on implementation effectiveness. The argument in this study was that the actual implementation or lack thereof of TBWO management

policies and practices had a more significant influence on implementation effectiveness that the other factors.

Keywords

- Work teams
- Performance improvement
- Employee involvement or Employee Participation in decision making
- TBWO Implementation
- Climate for implementation
- TBWO objective values
- Employees' espoused values
- Employee commitment
- TBWO management policies and practices
- TB Shop floor work practices

Declaration

I declare that: *An* in*vestigating of the factors that account for the effective implementation of TBWO: case studies of firms in the metal fabrication sector* is my own work, that has not been submitted for any degree or examination at any other University, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

Xolani Penuel Mhlongo

Signature:_____ Date_____

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Finally I would to dedicate this thesis to my late parents Mbube and Nokulunga Mhlongo and to the rest of my family for their support and motivation.

List of Abbreviations

TBWO	TEAM BASED WORK ORGANISATION
NPI	NATIONAL PRODUCTIVITY INSTITUTE
DTI	DEPARTMENT OF TRADE AND INDUSTRY
PDM	PARTICIPATION IN DECISION MAKING
W/C	WORKPLACE CHALLENGE
EE PLAN	EMPLOYMENT EQUITY
EEA	EMPLOYMENT EQUITY ACT
WIP	WORK IN PROGRESS
NEDLAC	NATIONAL ECONOMIC, DEVELOPMENT AND LABOUR COUNCIL
SLIM	SMC'S LEAN IMPROVEMENT MANUFACTURING

TABLE OF CONTENTS

Chapter One – Introduction…….1

1.1 Introduction……1

1.1.1 The Workplace Challenge…….1

1.1.2 The Metal Fabrication Sector……2

1.2 Problem Statement.……3

1.3 Aim of the Research……..…….5

1.4 Rationale……...….5

1.5 Delimitation…….……..5

1.6 Definition of Concepts…….……..6

1.6.1 Participation in Decision Making (PDM)…….6

1.6.2 Team-Based Work Organisation……...7

1.7 Research Design……8

1.8 Ethics……..8

1.9 Chapter Outline……..9

Chapter Two – Empirical Research and Models for the Implementation of Participative Forms of Work Organisation……...11

2.1 Introduction……..11

2.2 The Empirical Research on the Relationship between PDM and Individual and Organisational Outcomes……...12

2.3 Morhman and Novelli's Model on Employee Participation in Quality Circles……15

2.4 Sagie and Koslowsky's Three-Path Goal Model…….18

2.5 Klein and Sorra's Model of the Determinants and Consequences of Innovation Effectiveness……..22

2.6 A Detailed Discussion of Klein and Sorra's Model……23

2.6.1 Defining the constructs…….23

2.7 Reasons for the Choice of the Model of Innovation Implementation Effectiveness……..26

2.8 Summary……..27

Chapter Three – The Research Model of TBWO Implementation……....28

3.1 Introduction…….…….28

3.2 The Modification of Klein and Sorra's Model……29

3.3 The Relationship between Constructs…….31

3.4 Defining the Constructs……...32

3.4.1 The Implementation of Innovation Management Policies and Practices…….32

3.4.2 Climate for Implementation……..33

3.5 Innovation-Values Fit……..35

3.6 Employee commitment to innovation use……37

3.7 Implementation Effectiveness……..38

3.8 Applying the Generic Model of Innovation Implementation to TBWO Implementation……..38

3.9 Characteristics of the Constructs…….40

3.9.1 Implementation of TBWO Management Policies and Practices…….40

3.9.2 The ObjectiveValues of TBWO……44

3.9.3 The Espoused Employee Values……...45

3.9.4 Team-Based Shopfloor Work Practices……45

3.10 The Research Propositions…….47

3.11 Summary……48

Chapter Four – The Research Method……..50

4.1 Introduction……..50

4.2 The Case-Study Approach…….……..50

4.3 Reasons for Using the Case-Study Method in this Study……...…..……52

4.4 The Case-Study Research Process or Design…….….53

4.4.1 Step 1: The Definition of the Study's Research Question……54

4.4.2 Step 2: Instrument Development and Site Selection…….54

4.4.2.1 Instrument development…….……54

4.4.2.2 Operationalising the Constructs…….55

4.4 2.3 Construct Validity…….….59

4.4.2.4 External Validity……59

4.4.2 5 Reliability……...59

4.4.2.6 Site selection……..60

4.4.3 Step 3: Data Gathering……..61

4.4.4 Step 4: Analysing Data…….62

4.5 The Basic Principles of Conducting Effective Case Research.....…….…63

4.5.1 The Use of Multiple Resources……63

4.5.2 Creating a Case-Study Database……..64

4.5.3 Maintaining a Chain of Evidence……64

4.6 The Use of the Basic Principles for Conducting Effective Research in this Study……..65

4.7 Summary……..65

Chapter Five – Case Studies of the Implementation of TBWO..……..…..…67

5.1 Introduction……..67

5.2. Case Study of Firm GSM……68

5.2.1 Introduction……...68

5.2.2 Reasons for Implementing TBWO…….……..69

5.2.3 Implementation of TBWO Management Policies and Practices.....70

5.2.3.1 Training……..70

5.2.3.2 Introduction of Communication Structures……...73

5.2.3.3 Incentive Scheme……...74

5.2.3.4 Promotion Opportunities……75

5.2.3.5 Changes in the Organisational Structure……75

5.2.3.6 Changes in the Shopfloor Layout…….……76

5.2.3.7 Factory visits…….…….76

5.2.4 Climate for Implementation…….…….77

5.2.5 TBWO-Values Fit…….81

5.2.6 Implementation Effectiveness……..84

5.2.6.1 Quality Inspection……..84

5.2.6.2 Machine Setup……...…85

5.2.6.3 Preventative Maintenance……..85

5.2.6.4 Setting Production Schedules……86

5.2.6.5 Team meetings…….……..86

5.2.6.6 Generation of Suggestions…….……86

5.2.6.7 Use of Problem-Solving Techniques on the Shopfloor….87

5.2.6.8 Performance measurement and visual management……..87

5.2.7 Summary……...88

5.3 Case Study of Firm F……...90

5.3.1 Introduction……...90

5.3.2 Reasons for Implementing TBWO……...90

5.3.3 Implementation of TBWO Management Policies and Practices…..91

5.3.3.1 Training……..91

5.3.3.2 Introduction of Communication Structures……...……92

5.3.3.3 The Incentive Scheme……93

5.3.3.4 Promotion Opportunities……93

5.3.3.5 Changes in Organisational Structure…….94

5.3.3.6 Changes in Shopfloor Layout……95

5.3.3.7 Factory Visits…….…95

5.3.4 Climate for Implementation…….96

5.3.5 TBWO-Values Fit……....98

5.3.6 Implementation Effectiveness…….……100

5.3.6.1 Quality Inspection……100

5.3.6.2 Machine Setup…….100

5.3.6.3 Preventative Maintenance……101

5.3.6.4 Setting Production Schedules……..101

5.3.6.5 Team meetings……101

5.3.6.6 Generation of suggestions……102

5.3.6.7 Use of Problem-Solving Techniques on the Shopfloor...102

5.3.6.8 Performance Measurement and Visual Management…..102

5.3.7 Summary……..…103

5.4 Case Study of Firm TA……..105

5.4.1 Introduction……..…105

5.4.2 Reasons for Implementing TBWO…….105

5.4.3 Implementation of TBWO Management Policies and Practices…107

5.4.3.1 Training……107

5.4.3.2 Introduction of Communication Structures…….107

5.4.3.3 Promotion Opportunities……..108

5.4.3.4 Changes in the Organisational Structure……..109

5.4.3.5 The Incentive Scheme……..110

5.4.3.6 Changes in Shop Floor Layout…… ……..110

5.4.3.7 Factory Visits……...110

5.4.4 Climate for Implementation……111

5.4.5 TBWO-Values Fit……...112

5.4.6 Implementation Effectiveness…….113

5.4.6.1 Quality Inspection……....114

5.4.6.2 Machine setup……..115

5.4.6.3 Preventative Maintenance……....115

5.4.6.4 Setting Production Schedules……..115

5.4.6.5 Team Meetings……115

5.4.6.6 Generation of Suggestions…….……..116

5.4.6.7 Use of Problem-Solving Techniques on the Shop Floor.116

5.4.6.8 Performance Measurement and Visual Management…..116

5.4.7 Summary…….117

5.5 Conclusion…….118

Chapter Six – Interpretation and Discussion of Findings…….120

6.1 Introduction……120

6.2 Firm GSM……..120

6.3 Firm F……131

6.4 Firm TA…….140

6.5 Summary……....147

Chapter Seven – Conclusions and Recommendations……..149

7.1 Introduction……149

7.2 A Brief Summary…...……149

7.3 Limitations of the study…….154

7.4 Conclusion and recommendations…….……155

Bibliography……...157

Appendix I……..……...…….....164

Climate for implementation and employees' espoused values questionnaire…….164

Appendix II……..168

The case study database……...168

CHAPTER ONE

INTRODUCTION

1.1 Introduction

To meet the challenges of South Africa's re-entry into the global market, Nedlac, a tripartite alliance of government, labour, and business, established the Workplace Challenge (W/C), which was aimed at improving competitiveness and productivity of South African manufacturing firms in different sectors of the economy. The Workplace Challenge was also seen as a means to improve labour relations, which, due to the country's past, were to a large extent adversarial. The basic assumption was that the involvement of workers in the introduction of workplace changes would result in significant improvements in the firms' performance and competitiveness. The W/C project therefore encouraged a co-operative and participative approach to the implementation of improvement programmes.

The Workplace Challenge commissioned research to document the implementation process in the different sectors of the economy, and this study was as a result of the research conducted in the metal fabrication sector of the Western Cape between 2000 and 2001.

1.1.1 The Workplace Challenge

The Workplace Challenge was:

- A Department of Trade and Industry (DTI) supply side programme aimed at improving productivity and competitiveness through the introduction of new forms of work organisation at small and medium-sized firms in different sectors of the economy
- Managed by the National Productivity Institute (NPI)

- Run by regional consultants in different sectors.

The purpose of the Workplace Challenge was to:

- Develop joint strategies to achieve joint visions and objectives
- Improve shop-floor practices
- Develop an understanding of the big picture
- Develop a culture of working together
- Build capacity for labour to contribute meaningfully in the process of workplace change. (Nedlac, 2000)

1.1.2 The Metal Fabrication Sector

It should be noted that to address concerns with regard to confidentiality, the real names of the firms were not used. The metal fabrication sector initially consisted of five firms in 2000, namely, **Firm C, Firm F, Firm I, Firm GSM, Firm S, and Firm TA**. Firm C and Firm I, however, dropped out of the project at different points between 2000 and 2001. This meant that only three firms participated throughout the research period. The reason behind the choice of the three firms in the metal fabrication sector in the Western Cape was that these sites offered a rare opportunity to study the process of the implementation of team-based work organisation (TBWO). The lessons that will emerge from this study will be invaluable for firms intending on embarking on workplace change. The study was conducted at the following firms:

- **Firm GSM –** The firm had 86 hourly paid workers and 13 staff members, and there were between 0-20 contractors at any time. There were two trade unions at the firm, namely, Numsa and Netu. Of the firm's products, 78% were automotive components, mainly

shock absorber components and the remaining 22% are non-automotive components, such as those for the arms and mining industries. The firm's main customer was Firm Gabriel, the shock absorber manufacturer. The firm is located in Bellville.

- **Firm F** – Is a stainless-steel component manufacturer and equipment fabricator, located in Paarl. The company also manufactures food and beverage processing equipment, as well as agricultural and also snack and bakery equipment. Some of the major projects of the company were processing equipment for Pick & Pay and Simba. There were approximately 60 employees between 2000 and 2001.
- **Firm TA –** The firm designs and manufactures sophisticated equipment ranging from food processing equipment to packaging machinery and materials handling equipment. The firm had a workforce of 60 employees between 2000 and 2001. It is located in Paarl.

1.2 Problem Statement

World-class manufacturing and lean production require effective worker participation. This has forced firms to experiment with participative forms of work organisation, which, in this study, will be referred to as TBWO, as one of the means to improve performance.

The main reason cited by firms for implementing this form of work organisation is that it is believed to have a potential for exerting a strong influence on the improvement of firm performance and employee morale. According to Leong (2005), one of the benefits of participative work organisation is that many day-to-day decisions can be made without involving senior managers. Senior managers can therefore focus on strategic issues, and staff can spend less time waiting for the resolution of issues. Knicki and Williams (2006) identified three benefits of using participative forms of work organisation:

(a) employees accept decisions more readily when they are involved in making them,

(b) diverse input often leads to a high quality decisions,

(c) Development of skills, knowledge and understanding.

Cotton (1993) argued that a highly involved workforce is essential to implementing many of the new technologies, techniques, and practices used in organisations today.

Empirical research has found a strong positive relationship between the implementation of team based (TB) management practices by firms (such as participation in decision making, work teams, training and reward systems) and employee morale. It has, however, been difficult to establish the existence of a strong relationship between the implementation of the TB management practices and operational performance (Locke & Schweiger, 1979).

Cotton (1993), Locke and Schweiger (1979), and Keating, Oliva, Repenning, Rockart, and Sterman (1999) attempted to show from their studies the difficulty of linking the implementation of participative forms of work organisation to increased organisational performance. Firms are discovering that the implementation of participative forms of work organisation is far more complex than previously imagined.

Management, presented with the task of improving a firm's operational performance, therefore find themselves faced with a dilemma, which Keating et al. (1999) called the "Improvement Paradox". The "Improvement Paradox" results from the difficulty in sustaining the improvement initiatives, where sometimes, rather than improving performance, these initiatives can worsen it.

There is a need, therefore, to identify the factors that contribute to the effective implementation of TBWO initiatives.

1.3 Aim of the Research

This research seeks to establish the factors that are essential for the effective implementation of TBWO by using a case-study approach to describe the process of the implementation of TBWO at the three firms studied. The level of analysis will be the shop-floor level at the firms as research has shown that this is the level that plays a critical role in the effectiveness of the TBWO management policies and practices implemented by the firms.

The research question addressed by this study, therefore, is as follows:

- **What are the factors that account for the effective implementation of TBWO?**

1.4 Rationale

The pursuit of this study will contribute to the body of knowledge that exists in the field of TBWO from a South African perspective. Few studies have been conducted to evaluate the effective implementation of team-based work organisation in the South African context.

This study will focus on the effective implementation of TBWO and employee participation in work-related issues on the shop floor of manufacturing firms. Co-determination, employee ownership or gainsharing will be excluded.

1.5 Delimitations

This study will focus on the effective implementation of TBWO and employee participation in work related issues on the shop floor of manufacturing firms. Co-determination, employee ownership or gainsharing will be excluded.

1.6 Definition of Concepts

The use of participative forms of work organisation by firms has been widely studied by different theorists. The review of literature in this field demonstrates that different theorists have used different concepts to explain participative forms of work organisation. The different concepts that have been used include:

- Worker participation in decision making (Sagie & Koslowsky, 1993)
- Lean production (Womack & Jones, 1996)
- High involvement work practices (Osterman, 2000)
- Quality programmes (Mohrman & Novelli, 1985)
- World-class manufacturing programmes (Schonberger, 1996; O'Heher & Mahoney, 1994:30)

"At the core many of these concepts lies the issue of using integrated team-based human resource practices and policies in order to improve employee morale and firm performance" (Morita, 2001:178). This entails, among other things, the restructuring of the organisational structure from hierarchical towards a team-based structure, team-based training, incentive schemes and so on. It is for this reason that the concept of team-based work organisation will be used in this study.

1.6.1 Participation in Decision Making (PDM)

Wagner and Gooding (1987) defined participation in decision making (PDM) as an organisational process by which management shares influence on decision making between hierarchical superiors and subordinates.

Yukl (1981) defined participation as the involvement of subordinates in a manager's decision. Vroom and Jago (1988) defined participation as the amount of an individual's participation in a given decision made by a group or organisation, which is represented by the amount of influence that person has on the plans or decision agreed upon. Mitchell (1996) argued that Vroom and Jago's definition was more appropriate as it took into account the role that the actual influence on the decision plays. In this thesis, the definition of participation in decision making (PDM) by Vroom and Jago will be used.

1.6.2 Team-Based Work Organisation

In a team-based organization, the basic organisational unit is teams instead of individuals as identified in the traditional hierarchical organisation. Larger organisations are finding that flexibility and adaptability can be gained through reorganising work, flatter hierarchies, and decentralising decision making so workers can add more value in meeting customer needs. For such a system to lead to high performance, it is necessary that in addition to job-specific technical skills, workers also need to possess a broad platform of so-called soft skills such as problem solving, teamwork, communications and adaptability, often referred to as generic or employability skills.

Team-based work organisation is associated with a number of management practices, which include the following:

- Team-based training
- Team-based reward structures
- Communication structures
- Management support and commitment

- Changes in organisational structure
- Changes in shop-floor layout.

In this study, TBWO will be used to describe practices and policies where the basic organisational unit is the team and which involve the decentralisation of decision making.

1.7 Research Design

The case-study method was used to document the process of the implementation of TBWO at the firms participating in the Workplace Challenge. Qualitative data was collected through face-to-face, in-depth interviews with workers, managers, and consultants and also through observation between 2000 and 2001.

1.8 Ethics

According to Henning et al. (2004:73), the following ethical issues have to be considered:

- Informants need to give informed consent to participate and their anonymity must be guaranteed.
- They need to know that their privacy and sensitivity will be protected and what is going to happen with their information after recording.

The ethical issues that were relevant for this study were, firstly, securing consent from the respondents to participate in this study, which involved disclosing the procedures that were to be followed in the interviews. Secondly, it was important to guarantee that the responses given by the respondents were confidential. They were also made aware of their right to

privacy. Lastly, the respondents were made aware of their right to withdraw from the study should they wish to do so.

1.9 Chapter Outline

Chapter 2 examines the literature on employee participation in decision making (PDM) and innovation implementation. The findings from empirical studies on PDM are first discussed, and then the literature reviewed is narrowed down to four theoretical frameworks. The chapter ends with a detailed discussion of Klein and Sorra's (1996) theoretical framework, which was chosen for use in this study because it is a general theory for innovation implementation at organisational level.

Chapter 3 adapts Klein and Sorra's general model of innovation implementation of TBWO. This chapter will start by providing a definition of the constructs in the model as they apply to TBWO, which will be based on the review of the literature to establish how the different authors defined these constructs. The relationship between the constructs will then be discussed. Thirdly, the characteristics that make up the constructs will be provided. Fourthly, the research hypotheses for this study will be stated. Finally, a summary of the main issues that arise in this chapter will be given.

Chapter 4 presents the reasons for using the case-study research method in this study. The case-study research process will then be outlined, which will include a discussion of the four steps used in the design process of this study.

Chapter 5 presents the research findings in the form of case studies.

Chapter 6 provides an interpretation and discussion of the findings.

Chapter 7 provides a summary of the study and recommendations for future research purposes.

CHAPTER TWO

EMPIRICAL RESEARCH AND MODELS FOR THE IMPLEMENTATION OF PARTICIPATIVE FORMS OF WORK ORGANISATION

2.1 Introduction

The literature on employee participation is vast, as different researchers have tried to explain how to make the best use of employee skills to achieve increased employee morale and the improved operational performance of firms.

This chapter will first discuss the findings of empirical studies which have been conducted in the field of PDM to test the relationship between PDM and the two outcomes, namely, employee morale and operational performance of firms. The theoretical models will be then be evaluated and compared. Thirdly, a detailed discussion of Klein and Sorra's model will be provided. Finally, an overview of the main points that emerged from the literature review will then be presented.

Although a number of models have been developed by researchers to explain the relationship between PDM, employee morale, and performance, this study will consider models developed by three theorists. The reason for the choice of these models is that they use different approaches in explaining the implementation and outcomes of participative forms of work organisation. The four models are:

- Morhman and Novelli (1985) presented two competing models on participation in quality circles.

- Sagie and Koslowsky (1993) presented the three-path model explaining the effectiveness of employee participation in decision making (PDM) on work outcomes such as improved productivity and employee morale.
- Klein and Sorra (1996) presented the fourth model of the determinants and consequences of effective innovation implementation.

2.2 The Empirical Research on the Relationship between PDM and Individual and Organisational Outcomes

The research on the effectiveness of the use of PDM by firms on employee morale and firm performance has produced mixed results. Some of the studies found that PDM increases employee morale and firm performance, whilst others found that it improves employee morale more than firm performance.

Tesluk (1999) noted that a number of researchers reported positive results on the influence of participation on attitudes and performance. Some of the results of studies cited by Tesluk (1999) found that PDM:

- leads to lower levels of absenteeism and turnover
- enhances higher individual work performance
- improves work attitudes.

Sagie and Koslowsky (1993) presented the studies that were conducted by Coch and French (1948), Blumberg (1968), and Locke and Schweiger (1979) on PDM.

Coch and French (1948) conducted one of the first studies on the effectiveness of PDM at a pyjama factory in Virginia in 1948. They examined a seasonal change in a production process and evaluated its impact on behaviours that reflect resistance to change. Their basic premise was that decisions made in a participative rather than directive manner would result in more beneficial consequences. They argued that the use of PDM by management when implementing workplace change would help in overcoming worker resistance. Low performance, slow learning path of new methods, increased rate of absenteeism and turnover, mistrust in management, and verbal or even physical violence among the team workers reflected resistance.

They compared three experimental states, namely:

- Direct PDM (i.e. all employees were involved in the decision-making process)
- Indirect PDM (representatives only were involved in making the decisions)
- No PDM (or direction - meaning that employees were not involved in decision making)

The findings showed that worker resistance was highest in the no-PDM state. High performance levels and the lowest worker resistance were achieved in the direct-PDM state. The findings also showed that management practices rather than personality or situational factors could explain the variance in employee resistance to change. According to Coch and French (1948), the findings suggest that management can control job performance by varying the degree of employee involvement in decision making. The findings of this study, however, came into question, because it was difficult to replicate.

Blumberg (1968) found that employee morale increased as a result of involving employees in decision making.

Locke and Schweiger (1979) conducted a comprehensive literature review on PDM and quantitatively analysed the results of previous studies. They found, on the one hand, that 60% of the studies on PDM showed a positive and strong relationship between PDM and employee morale or job satisfaction. On the other hand, they found that only 22% of the studies on PDM showed a positive relationship between PDM and job performance. This meant that the impact of PDM on job performance was small. These findings did not concur with those of Coch and French, who had earlier found a strong positive relationship between PDM and performance. Locke and Schweiger (1979) questioned Coch and French's method of analysis. They argued that Coch and French's study was multivariate, which meant the actual effect of another factor was erroneously attributed to PDM.

The criticism against the PDM studies was that they focused narrowly on one form or the other of participation, which explains why some researchers had difficulty in finding a stronger relationship between PDM and performance as Coch and French had done.

The diversity of the findings from the various studies on PDM presented above demonstrates the difficulty that exists in the field in trying to link PDM to increased firm performance. Although the studies are not conclusive on the link between PDM and firm performance, they provide a useful foundation for further research in this field. The following section will provide a discussion of the theoretical models on the implementation and consequences of PDM used in this study.

2.3 Morhman and Novelli's Model on Employee Participation in Quality Circles

Mohrman and Novelli (1985) presented two competing models on employee participation in quality circles. The models came about from a study, which examined the implementation of a quality circle programme in a large food-retailing organisation. The programme was studied for five months prior to the beginning of circle activity and for one year after start-up. The models were developed to predict the impact of employee participation on productivity and attitude outcomes.

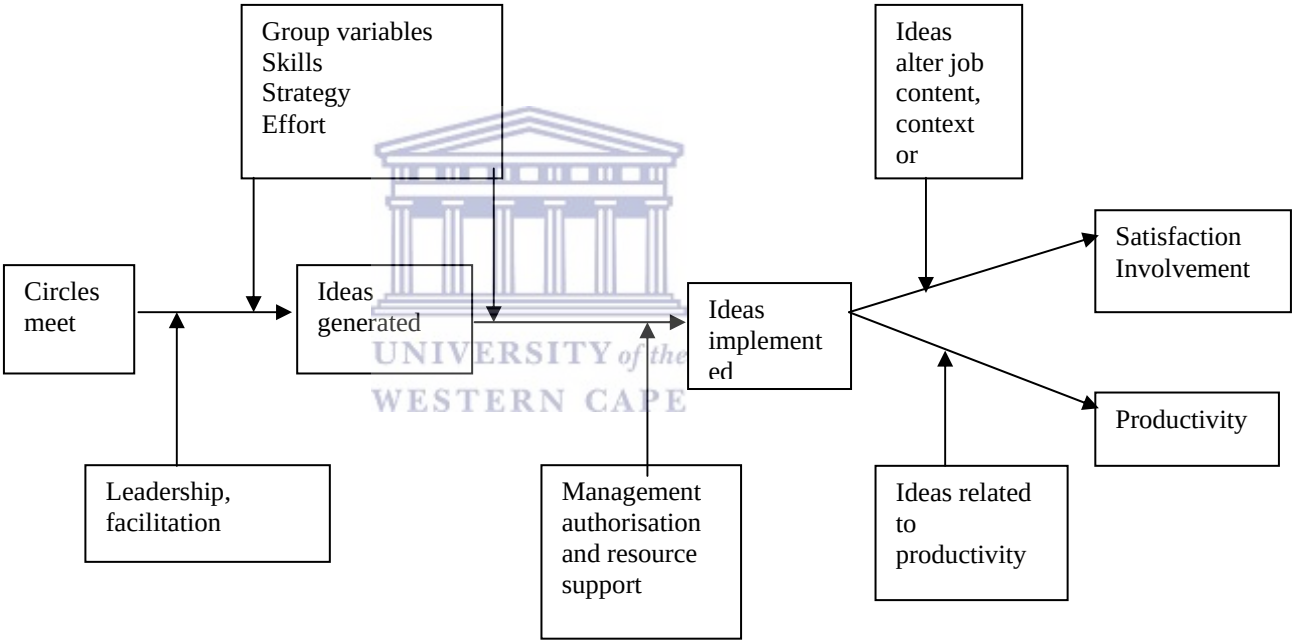


Figure 2.1. Ideas lead to productivity and satisfaction

Source: Mohrman & Novelli, 1985: 96

The first model proposes that the actual implementation of ideas generated by employees in quality circles will positively influence productivity and improve employee satisfaction and

feelings of involvement (Mohrman & Novelli, 1985:96). This suggests that for there to be improvements in productivity and employee satisfaction, the implementation of improvement ideas has to take place. There are, however, intervening variables that could interrupt or facilitate this process.

The first set of variables is referred to as “group variables” and includes skills, effort and strategy. According to Mohrman and Novelli (1985), for a group to function effectively, it needs to have sufficient skills, members have to be motivated to exert effort, and it must have an appropriate performance strategy.

The other variables include leadership, facilitation, management authorisation and resource support, productivity-related ideas, and ideas that alter job content. Mohrman and Novelli (1985) stated that the group members have to have adequate problem-solving, group-process and presentation skills, and sufficient task-related information for the generation of ideas to occur. When most members are new at group problem solving, leadership and facilitation become very important. Management support of and the provision of necessary resources to the group to implement ideas are also of great importance for successful implementation. For the ideas to have an impact on productivity, they have to provide solutions that contribute to improved performance or real cost savings (Mohrman & Novelli, 1985). Employee satisfaction will increase if the ideas that are implemented result in changes to the job content, context and/or the outcomes by the individual member.

The second model proposes that participation in quality circles leads to improved employee attitudes (i.e. satisfaction and motivation) and behaviour (i.e. increased effort and improved

task performance). The improved employee attitudes and behaviour will then lead to improved productivity and lower turnover and absences (Morhman & Novelli, 1985:97). This model, basically, suggests that the participation in a group will result in individual outcomes such as recognition, development and social rewards, which, in turn, are expected to promote job satisfaction, motivation and improved task performance (Mohrman & Novelli, 1985:97). There are intervening variables that could also facilitate or inhibit the causal chain, namely, management response, group functioning success skill, individual differences, equity, individual differences and the characteristics of the job situation.

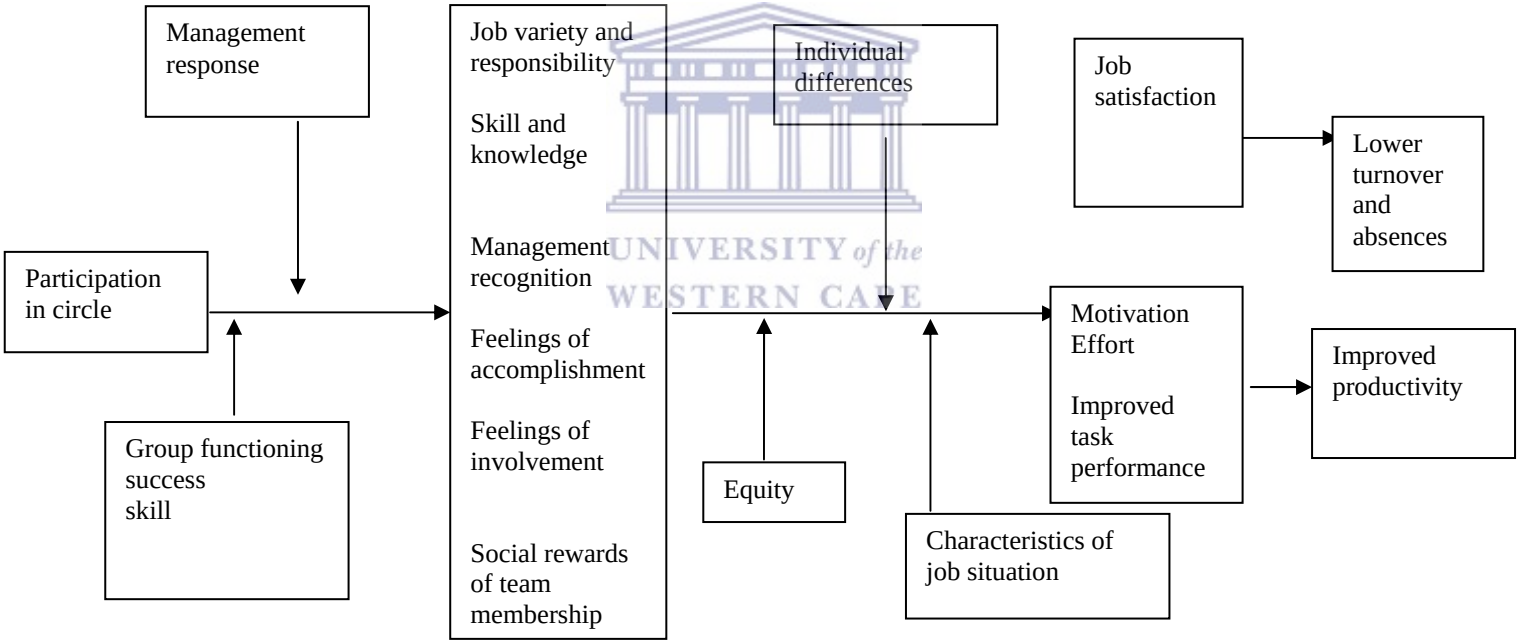


Figure 2.2. The quality process results in productivity and satisfaction.

Source: Mohrman & Novelli, 1985: 97

Mohrman and Novelli (1985) presented two competing models on employee participation in quality circles. The first model proposes that the actual implementation of ideas generated by

employees in quality circles will positively influence productivity and improve employee satisfaction and feelings of involvement. The second model proposes that participation in quality circles leads to improved employee attitudes (i.e. satisfaction and motivation) and behaviour (i.e. increased effort and improved task performance).

2.4 Sagie and Koslowsky's Three-Path Goal Model

The third model considered was the three-path model by Sagie and Koslowski (1993), which seeks to explain the effectiveness of the introduction of employee participation in decision making (PDM) on work outcomes such as improved productivity and employee morale. This model suggests that the involvement of individuals or entire teams in the making of work-related decisions, goal setting and problem solving may influence their behavioural and attitudinal outcomes through three paths. According to Sagie and Koslowski (1993), three paths are used to demonstrate the impact of PDM on work outcomes.

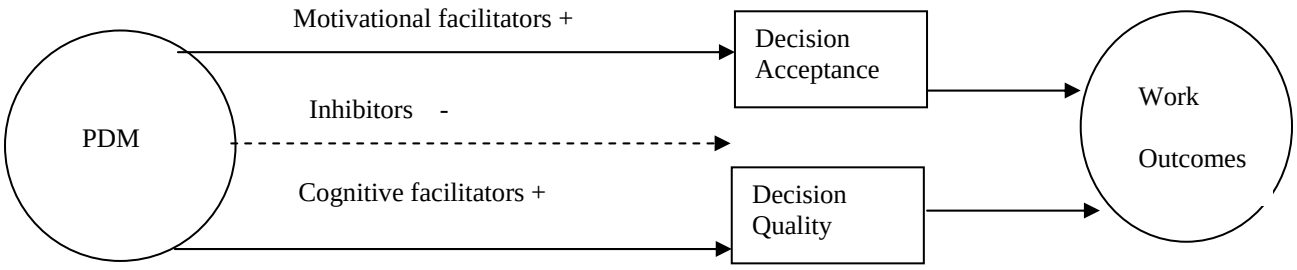


Figure 2.3. Effect of PDM on work outcomes: A three-path model. Source: Sagie and Koslowsky, 1993: 18

Two paths (i.e. motivational facilitators and cognitive facilitators) serve to facilitate the positive effect of the PDM-work outcome relationship. The motivational path, which is frequently referred to as the *human relations* formulation, enhances the acceptance of decisions by workers. Gaining employee acceptance of decisions, for example, on workplace changes, is of great importance as the success of those changes depends on how effectively employees carry out those decisions.

The degree of acceptability of decisions by workers is influenced by a variety of motivational variables. Sagie and Koslowsky (1993) identified the following variables:

(1) Recognition – the involvement of workers in organisational decisions reflects managers' recognition and trust.

(2) Work clarity – ambiguity and uncertainty at work reduces clarity. Management must attempt to clarify elements of the work environment such as goals, values, performance standards, and work procedures so that employees who are expected to make a decision will be able to do so.

(3) Sense of meaning – a fit between a person's values, beliefs and needs and his or her work role and goals.

(4) Sense of control – PDM helps in strengthening the belief that a worker's performance is under control and that he or she is able to have an impact on broader work affairs.

(5) Self efficacy – the extent to which the employee believes that he or she is capable of accomplishing work-related goals.

(6) Extended goal level – workers may set challenging goals for themselves. Higher work goals are associated with higher performance.

(7) Commitment to joint decisions – to increase the chances of worker commitment to joint decisions, various alternatives have to be clear and the final decision should be perceived as challenging but feasible and attainable.

(8) Shared work values – for goal setting to be effective, workers have to fully accept organisational goals and become committed to them.

These mediating variables are important for participatory management practices to have a positive influence on work outcomes. These mediators allow objective PDM to transform into psychological (or subjective) PDM by allowing the individual to have the sense that he or she is actually having an effect on work issues (Sagie & Koslowsky, 1993:23).

Gaining the acceptance of decisions by employees is not enough; the quality of the decisions taken also plays an important role in influencing work outcomes.

The second path (i.e. cognitive path), which is also known as the *human resources* formulation, helps to improve the quality of decisions. According to Sagie and Koslowsky (1993), the quality of decisions is enhanced when there is a sharing of expertise, knowledge, vision, and experience of many people rather than having the manager or leader dictating the decisions.

Latham, Winters and Locke (1994) raised an interesting argument that the cognitive facilitators by themselves in the absence of motivational facilitators can influence workers' productivity and satisfaction. Wagner, Leana, Locke and Schweiger (1997) further argued

that the cognitive facilitators are solely responsible for influencing work outcomes and that the motivational facilitators are less important.

The third path consists of mediators that inhibit the positive effect of the motivational and cognitive facilitators, which may, in turn, result in inferior outcomes of PDM. It is difficult to classify the inhibitors as cognitive or motivational because they normally contain motivational and cognitive processes, which act to impair or inhibit decision quality and acceptance.

The mediating variables that Sagie & Koslowsy (1993) identified as inhibitors included:

(1) Individual domination – when some of the participants in joint decision making have less influence to determine decisions. In this case, the majority often ignores the minority's relevant information and thoughtful ideas.

(2) Conflicts and power plays - a shared aim among decision makers is not usually achieved, which makes conflicts and power plays among participants quite common.

(3) Disruptive communication – overt and covert conflicts reflected in misunderstanding, making unreasonable assumptions concerning the positions of each other, and the filtering of information may lead to disruptive communication processes within a group.

(4) Social loafing – is also referred to as *free riding*, meaning that some workers exert less effort when acting within a group than when acting separately.

(5) Diffusion of responsibility – the responsibility for goal accomplishment is diffused within the group, reducing the share of responsibility of each individual member.

(6) Pressures toward conformity – in order to achieve group cohesion, divergent views are suppressed.

(7) Groupthink – results when members involved in decision making become under pressure to protect group harmony and cohesiveness at all cost. Groupthink is considered to be a dysfunctional process because members share illusions of invulnerability, and they overestimate their own power to override obstacles.

(8) Undertaking excessive risks – as group members perceive the group as less vulnerable than the individual, they believe it can take risks at less expense.

The three-path model proposed that PDM affects work outcomes through three paths. The first two paths (motivational and cognitive) act as facilitators and have a positive influence on work outcomes. The two paths impact on the acceptance and quality of decisions. The third path involves mediators that inhibit the positive influence of the motivational and cognitive facilitators.

2.5 Klein and Sorra's Model of the Determinants and Consequences of Innovation Effectiveness

Klein and Sorra (1996) presented the fourth model on the determinants and consequences of effective innovation implementation. This model suggests that the effectiveness of the implementation of an innovation is dependent upon the strength of the organisational climate for implementation and the fit that the innovation has to the values of targeted users (Klein & Sorra, 1996). Implementation effectiveness, it is then suggested, results in innovation effectiveness (i.e. the increase in productivity, profitability, customer service and employee morale).

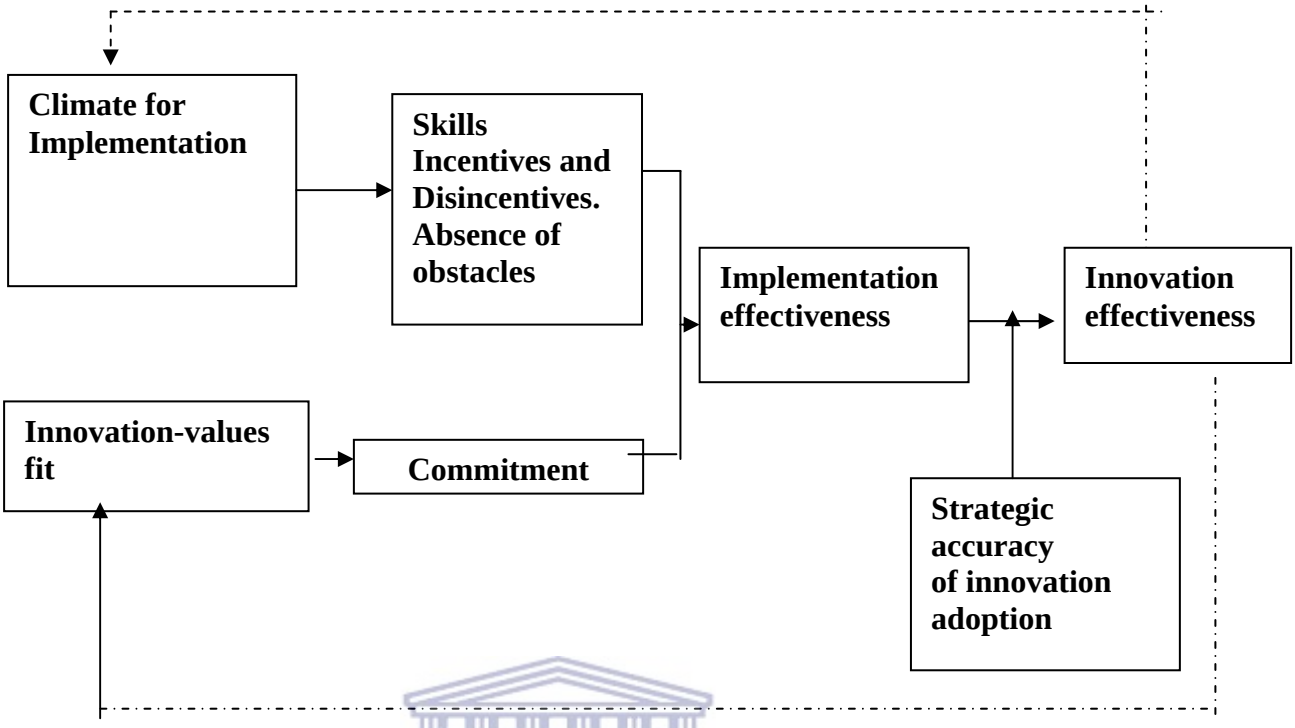


Figure 2.4. The determinants and consequences of innovation implementation.

Source: Klein and Sorra, 1996: 1056

2.6 A Detailed Discussion of Klein and Sorra's Model

2.6.1 Defining the constructs

Innovation implementation is defined as the process of gaining targeted organisational members' appropriate and committed use of an innovation (Klein & Sorra, 1996:1055). Innovation implementation is dependent on innovation adoption, where senior-level management formally decides that employees will use a particular innovation in their work. Implementation can be explained as the period between when a decision is taken to adopt an innovation and when it is frequently used by the targeted organisational members. Klein and Sorra (1996) argued that the failure of an organisation to achieve the intended benefits of

innovation implementation was as a result of poor implementation and not the failure of the innovation.

An innovation is a technology or a practice “being used for the first time by members of an organisation whether or not other organisations have used it previously” (Nord & Tucker, 1987:6).

The organisational climate for implementation refers to the targeted employees’ shared perceptions of the extent to which their use of a specific innovation is rewarded, supported and expected within their organisation (Klein & Sorra, 1996:1060). The perceptions of employees of their organisation’s climate for implementation are the result of employees’ shared experiences and observations of, and their information and discussions about, their organisation’s implementation policies and practices (Klein & Sorra, 1996: 1060). Klein and Sorra emphasise that the climate for implementation does not refer to employees’ satisfaction with the innovation, the organisation, or their jobs; it also does not refer to employees’ perceptions of their organisation’s openness to change or general innovativeness. A strong climate for implementation fosters innovation use by:

a) Ensuring employee skill in innovation use
b) Providing incentives for innovation use and disincentives for innovation avoidance
c) Removing obstacles to innovation use.

Having a strong climate for implementation is not enough on its own; there also needs to be a fit between the values that employees hold and the innovation. Klein and Sorra (1996) defined innovation-values fit as “the extent to which targeted users perceive that the use of

the innovation will foster (or inhibit) the fulfilment of their values." Values are generalised, enduring beliefs about the personal and social desirability of modes of conduct or 'end states' of existence" (Waldersee & Cohen, 1995:1076). Workers will accept and use an innovation such as employee involvement if, as a result of its implementation, employees become more involved in decisions about their jobs and if their values (in this case more authority and responsibility) fit with the new innovation (EI practices). If, on the other hand, employees do not want their jobs to include more authority and responsibilities, they will resist involvement in decision making because it does not fit with their values.

One of the limits on the climate for implementation is that there has to be a commitment on the part of the targeted organisational members to use the innovation. This means that even if the climate for implementation could be strong, if employees are not committed to the use the innovation frequently and correctly, the implementation of the innovation will not be effective (Klein & Sorra, 1996).

The model then suggests that if there is a fit between the innovation and the values of the employees, the employees will be more committed to the use of the innovation.

Klein and Sorra (1996:4) defined implementation effectiveness as the consistency and quality of the targeted organisational members' use of a specific innovation. If all employees in an organisation use an innovation consistently and correctly, the implementation of such an innovation is more effective than that of an organisation in which only some of the employees use an innovation consistently and correctly (Klein & Sorra, 1996: 4).

The model suggests that implementation effectiveness influences innovation effectiveness, the latter being the benefits that accrue to the organisation as a result of implementing a technology. Improvements in profitability, productivity, customer service and employee morale are some of the benefits that an organisation can achieve as a result of innovation implementation. Klein and Sorra (1996) argued that implementation effectiveness on its own is not enough to achieve innovation effectiveness. This means that there are no guarantees that an organisation implementing an innovation will be able to achieve the desired benefits. Strategic accuracy of innovation adoption, which is an intervening variable between implementation effectiveness and innovation effectiveness, means that the adoption of the innovation has to be aligned to the organisational strategy in order to achieve the desired benefits of implementation.

2.7 Reasons for the Choice of the Model of Innovation Implementation Effectiveness

The models presented above provide a very useful framework to explain the effects of the implementation of participative forms of work organisation, on employee morale and firm performance or productivity causal chain. Mohrman and Novelli (1985:108) noted that the causal links between the establishment of quality circle activity and the ultimate outcomes are tenuous and dynamic. One of the reasons for the choice of Klein and Sorra' s model is that it avoids some of the weaknesses in the research on the implementation of PDM. The literature focuses narrowly on one management practice (Tesluk, 1999; Vandenberg, Richardson, & Eastman, 1999). The specific implementation policies and practices that facilitate innovation use may vary tremendously from organisation to organisation. It is therefore important for research in this area to consider the cumulative impact of all of the policies and practices rather than focussing on one specific practice. Klein and Sorra's model is also more generally

applicable to the implementation of any type of organisational innovation. It also encompasses both the technical and the human resource management issues inherent in introducing an innovation, which is relevant to TBWO. According to the Sociotechnial Systems Theory (which emphasises the interrelationship of the social (human) and technical systems within an organisation), the most effective organisations are those organisations where the social and technological systems are integrated and supportive of one another (Yeatts & Hyten, 1998).

2.8 Summary

This chapter reviewed the literature on participative forms of work organisation and the theoretical frameworks used by the different authors in explaining the relationship between the implementation of these forms of work organisation and organisational performance.

The theoretical framework that was chosen for use in this study was that of Klein and Sorra (1996), which looks at the determinants and consequences of innovation implementation effectiveness. The reasons for the choice of the model were also given and the model was discussed in detail.

CHAPTER THREE

THE RESEARCH MODEL OF TBWO IMPLEMENTATION

3.1 Introduction

The objective of this chapter is to provide a detailed discussion of the development of a research model that is applicable to the implementation of TBWO. Having reviewed the three theoretical models on PDM and innovation implementation in chapter two, the model that was considered appropriate for the purpose of this study was that of Klein and Sorra on the determinants and consequences of innovation implementation. The evaluation of Klein and Sorra's model resulted in the identification of some inconsistencies in the way that the relationship between some of the constructs were presented, which therefore necessitated some modification of this model.

The development of the model of TBWO implementation included:

a. Modifying Klein and Sorra's generic model, which included the re-arrangement of the relationship between constructs
b. Adapting the modified generic model to be applicable to TBWO implementation. Since the focus of this study is the implementation of TBWO *instead* of any other innovation, it was necessary to adapt the generic model accordingly.

This chapter will first explain the modification of Klein and Sorra's model, which includes the adaptation and the re-arrangement of some of the constructs. Secondly, the relationship between the constructs will be discussed. The constructs will then be defined, based on the review of the literature. Fourthly, the characteristics that make up the constructs that are specifically related to TBWO will be provided. Fifthly, the research

hypotheses generated from the model of TBWO implementation will be stated. Finally, a summary of the main issues that arise in this chapter will be provided.

3.2 The Modification of Klein and Sorra's Model

The modified generic model of innovation implementation consists of the following constructs, which will be discussed in detail later in the definition of constructs section.

- The "organisational climate for implementation" construct was moved to follow the "implementation of innovation management policies and practices." Klein and Sorra's definition of the climate for implementation and the relationship thereof to actual implementation raises the important issue of the direction of causality. Klein and Sorra's model suggests a strong climate for implementation will lead to the implementation. The question this statement raises is how can a strong climate, which they define as employees' shared perceptions, precede actual implementation? This question is central to the modification of Klein and Sorra's model because the relationship as originally suggested is quite problematic. Klein and Sorra's use of the construct of climate for implementation seems to suggest anticipation rather than perceptions. If, for example, managers make a conscious decision to adopt an innovation and they inform the employees of this decision, employees will most likely have anticipation of the implementation of that innovation. However, employees can only perceive the innovation as either positive or negative after it has been implemented. The argument that is presented here is that perception of the implementation by employees should follow the implementation of an innovation.

- The construct “implementation of innovation management policies and practices” at a firm was adapted from the construct of skills, incentives and disincentives and the removal of obstacles.
- The “innovation-values fit” construct was used in a similar manner to that used by Klein and Sorra. However the “objective innovation values” and “espoused employee values” constructs were introduced as antecedents to the “innovation-values fit” construct.
- The “commitment to innovation use” construct remained the same as the commitment construct used in Klein and Sorra’s model.
- An additional relationship between “management policies and practices to implement an innovation” and “commitment to innovation” was introduced.
- The “implementation effectiveness” construct was used in a similar way to that used in Klein and Sorra’s model.

In addition to dealing with implementation effectiveness, Klein and Sorra’s original model suggests innovation effectiveness (which is the benefits that an organisation can derive from innovation implementation) as the final outcome. The accuracy of the alignment of the adopted innovation to the organisation’s strategic focus acts as an intervening variable in the effectiveness of the innovation. The importance of evaluating whether the effective implementation of an innovation results in innovation effectiveness is acknowledged in this study. However, due to the extended scope of such an investigation, this study will confine itself to evaluating the implementation effectiveness of TBWO.

The following figure presents the modified generic model of the determinants of effective innovation implementation.

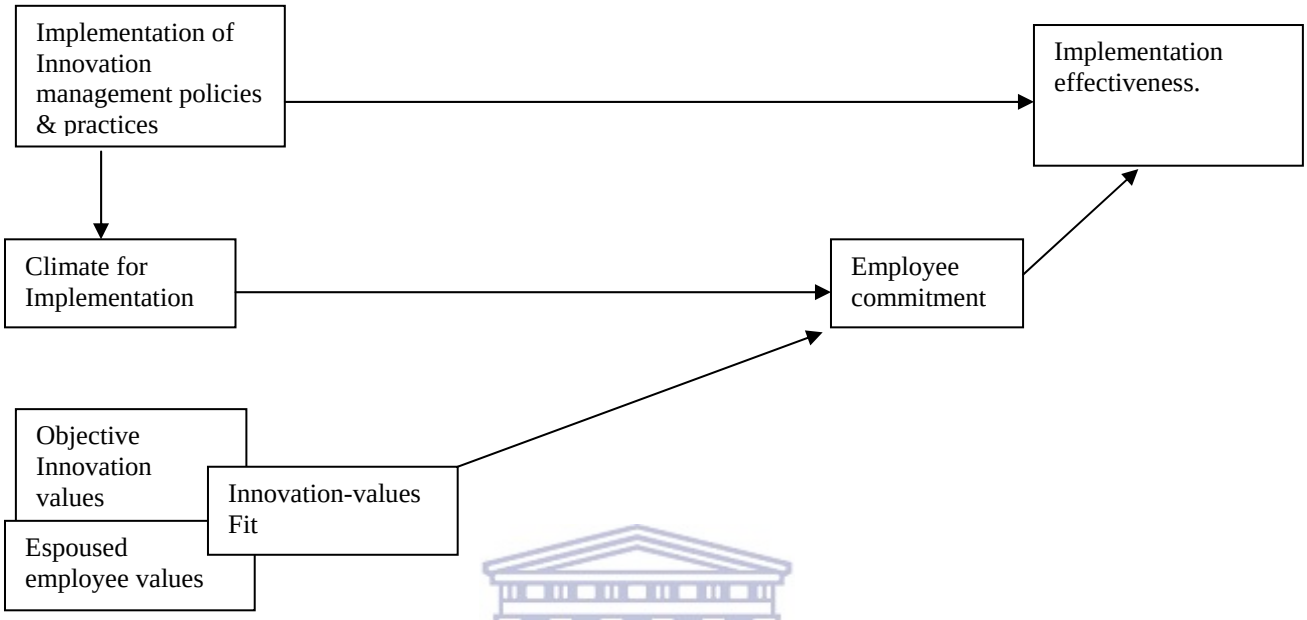


Figure 3.1 The determinants and consequences of innovation implementation.

3.3 The Relationship between Constructs

Klein and Sorra's model suggests that a strong climate for implementation and a good fit of the innovation to the targeted users' values is necessary for implementation effectiveness. There, however, needs to be commitment, (which is a function of the climate for implementation and innovation-values fit) on the part of the workers to use the innovation.

The modified generic model suggests a different relationship between the constructs. The first relationship suggests that the implementation of innovation management policies and practices (what the firm's management does) influences implementation effectiveness (what the workers do) directly. The second relationship suggests that the organisational climate for

implementation (employees' shared perception of implementation) influences implementation effectiveness indirectly through employee commitment. The relationship between employee perceptions, commitment and performance is also supported by Neubert and Cady (2001), who found that employee perceptions are positively associated with programme commitment, which is further positively associated with programme-related performance. The third relationship suggests that the innovation-values fit influences implementation effectiveness indirectly through employee commitment. Neubert and Cady (2001) also support the relationship between innovation-values fit, commitment and programme-related performance. They argue that commitment to a programme may stem from an individual's assessment of the congruence between what he or she prefers and the values and principles or behaviours espoused in the programme. The relationship between innovation-values fit, commitment and performance is also supported in Sagie and Koslowsky 's three-path goal model, which evaluates how the three paths influence the effect of PDM on work outcomes. One of the paths is called the motivational path, where sense of meaning (which implies a fit between a person's values, beliefs and needs and his or her work role and goals) and commitment to joint decisions or shared work goals are important.

3.4 Defining the Constructs

3.4.1 The Implementation of Innovation Management Policies and Practices

Klein and Sorra (1996:1) defined implementation as "the process of gaining targeted organisational members' appropriate and committed use of an innovation". They further argue that management has to make a conscious decision to adopt the innovation that will be used by employees in their work. Klein and Knight (2005: 243) defined innovation implementation as "the transition period during which [individuals] ideally become

increasingly skillfull, consistent, and committed in their use of an innovation." The management of a firm can easily adopt (decide to use) an innovation but the implementation thereof could prove to be more difficult, which explains the failure of an innovation to achieve gains expected by those adopting it. The decision to use a particular innovation is therefore not enough on its own, actual implementation has to take place for effectiveness to be achieved.

The literature suggests that the implementation of an innovation has to be accompanied by a set of complementary implementation policies and practices (e.g., training, promotions, rewards etc) to enhance effectiveness (Klein & Knight, 2005; Ahmad & Schroeder, 2003; MacDuffie 1995). The implication of this view is that for a firm to effectively implement an innovation it has to implement "bundles" of policies and practices comprehensively.

The construct of the implementation of innovation management policies and practices means that management has to make a conscious decision to implement policies and practices. These policies and practices are objective in that they are independently verifiable events and a firm that implements them can be placed on a continuum from "no implementation" to "high implementation". Therefore, it is only after the implementation or non-implementation thereof that employees can have perceptions of the implementation (climate for implementation).

3.4.2 Climate for Implemetation

Schneider (1990:384) defined climate as the "perceptions of the events, practices and procedures and the kinds of behaviours that are rewarded, supported and expected in a

setting". Lussier (2003:269) defined perception as the process of selecting, organising, and interpreting environmental information. He further argued that no two people experience anything exactly the same, meaning that the way an individual selects, organises and interprets information is based on "internal" individual factors which include personality, self-esteem, attitudes, intelligence, needs, values, and so on.

The construct of the climate for implementation is adapted from Klein and Sorra's construct of the organisational climate for implementation. Hofstede's (1998:484) definition of climate as "a set of measurable properties of the work environment, perceived directly or indirectly by the people who live and work in this environment" was considered appropriate for use in this study. The reason for adopting this definition is that the objective TBWO management policies and practices, whose characteristics can be assessed to determine whether the firm has implemented TBWO or not and also how much it has implemented, are used. The perceptions by employees of the implementation of the TBWO management policies and practices are then evaluated to determine whether employees have a positive or a negative perception of implementation. Toulson and Smith (1994: 454) also defined organisational climate as the employees' perceptions of the objective characteristics of an organisation. The number of managers employed by an organisation is objective, but employees' feelings about these managers are subjective (Toulson & Smith, 1994). This definition supports the view taken in this study.

Moran and Volkwein (1992) provided three approaches to the formation of organisational climate. These were the structural, perceptual and interactive approaches. The structural approach proposes that climate arises in response to identifiable features of the organisation's

structure (it is a characteristic or attribute belonging to an organisation) and it is based on objective description of structural attributes. The perceptual approach, on the other hand, incorporates the understanding that individuals interpret and respond to situational variables in a manner that is psychologically meaningful to them. The interactive approach builds on, but is distinct from, the two previous approaches. It argues that the interaction of individuals in responding to their situation brings forth a shared agreement, which is the source of organisational climate, that is, "the combined effects of personality characteristics in interaction with structural elements of the organisation" (Moran & Volkwein, 1992:25). The perceptual approach provides evidence to support the argument made in this study that perceptions follow practice. The interactive approach was thus selected for this study because it links the objective organisational attributes with the personality characteristics of the individuals.

3.5 Innovation-Values Fit

Values are defined as "generalised, enduring beliefs about the personal and social desirability of modes of conduct or 'end states' of existence" (Kabanofff, Waldersee, & Cohen, 1995:1076). Hofstede (1980:19) defined a value as "a broad tendency to prefer certain states of affairs over others". He further stated that values are abstract preferences, which by definition are evaluative, in that they have a positive and a negative pole. According to Schwartz, Surkiss and Ros (1999), *work values* are beliefs pertaining to desirable end-states (e.g. high pay) or behaviour (e.g. working with people).

The construct of the innovation-values fit is used in the same way as it is used in Klein and Sorra's model. In order to demonstrate the innovation-values fit more clearly and to ensure

measurability, this construct was broken down into two subsidiary constructs, namely, the values associated with the innovation (objective) as opposed to employee values (espoused).

The innovation values are implicit in the sense that the desired end state(s) is (are) often not explicitly articulated when the innovation is implemented. These values are also objective in that the innovation values are derived from the generic model of what the innovation is and the normative prescriptions of how the innovation should be implemented, independently of how it is conceived and implemented at a particular firm.

Employee values, on the other hand, are derived from the employees' espoused values as reported by them individually and then aggregated for the group making up the employees at a particular firm. By comparing the innovation with employee values, a fit can then be determined depending on the degree of correspondence between the two constructs.

The reason behind the modification of the innovation-values fit construct in this manner is derived from Klein and Sorra's (1996:7) argument that "targeted users assess the objective characteristics of an innovation and its socially constructed meaning to judge the fit of the innovation to their values". Sagie and Koslowsky (1993) also argued that by clarifying an employee's role, goals and relevant environmental elements, a sense of meaning can be achieved. A sense of meaning implies a fit between a person's values, beliefs and his or her work role and goals, which was shown to be an antecedent of work satisfaction

Chatman (1989) defined individual work values as "those things that an individual prefers in an organisation such as team-orientation or innovation". An example would be that of an

employee whose values are teamwork-oriented who will be more inclined to accept a team-based work organisation. On the other hand, if an employee is more individualistic, he or she might find it difficult to operate in a team-oriented environment, which, as a result, could give rise to resistance. If an employee values the acquisition of more skills to function in a team-based work environment, he or she will be more willing to participate in TB training initiatives. The fit between an employee's espoused values and the objective innovation values is referred to as a good innovation-values fit.

Klein and Sorra (1996) noted that the employee commitment to the use of an innovation is a function of their perceptions of the fit between the innovation and their values. Neubert and Cady (2001) also stated that commitment to a programme might stem from an individual's assessment of the congruence between what he or she prefers or values and the principles or behaviours espoused in the programme. Organisations with programmes emphasising a consistent set of specific core values are likely to attract and retain employees with similar values (Neubert & Cady, 2001:14). These statements support the view presented in this study that the innovation-values fit construct is linked to employee commitment to innovation use.

3.6 Employee commitment to innovation use

Nubert and Cady (2001:2) defined programme commitment as a measure of attachment to a specific programme or initiative of planned scope within the organisation. They made a distinction between programme commitment and the traditional conceptualization of goal commitment in that programme commitment is a psychological attachment to the overall goals of a programme rather than commitment to individual performance goals. This will be the definition that will be used in this study to define commitment to the use of TB shop-floor

work practices. According to Ahmad and Schroeder (2003:26), employee commitment is an intangible outcome of a HRM system and is important in retaining employees and exploiting their potential to the fullest extent over time. They further found that HRM practices impact on operational performance indirectly through organisational commitment, which suggests that a manager who intends to enhance operational performance should create a conducive organisational climate that fosters employees' commitment to the organisation.

3.7 Implementation Effectiveness

Klein and Sorra (1996:1057) defined implementation effectiveness as "the consistency and quality of the targeted organisational members' use of a specific innovation". This definition implies that employees have to use the innovation more frequently and correctly.

3.8 Applying the Generic Model of Innovation Implementation to TBWO Implementation

The generic model of innovation implementation has to be adapted to fit with the implementation of a specific innovation, in this case, TBWO. The model of TBWO implementation therefore consists of the following constructs:

- Implementation of TBWO
- Climate for implementation of TBWO
- Objective TBWO values
- Espoused employee values
- TBWO-values fit
- Commitment to the use of TB shopfloor work practices
- Implementation effectiveness.

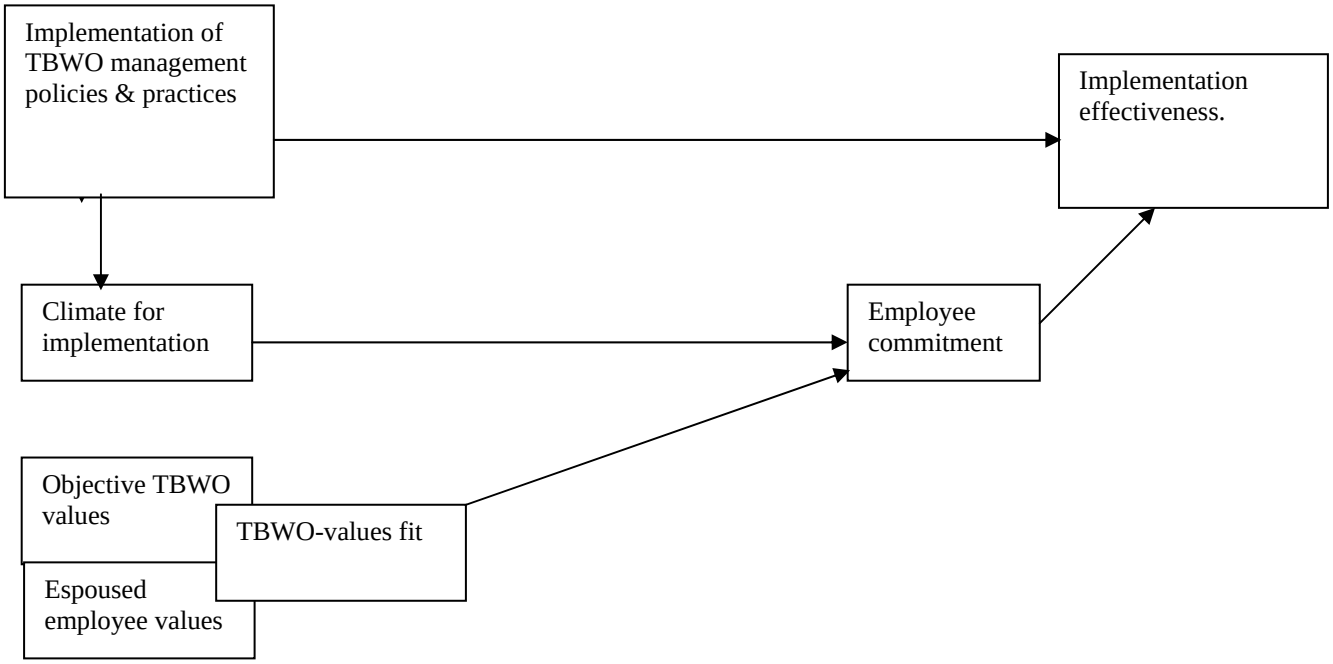


Figure3.2. The model of the determinants of effective TBWO implementation

The model of TBWO implementation distinguishes between the TBWO management policies and practices and TB shopfloor work practices. TBWO management policies and practices are those policies and practices that are implemented by the organisation such as TB training, TB incentive scheme, career development, changes in the organisational structure and so forth. TB shopfloor work practices, on the other hand, are the actual practices that employees use on the shopfloor. An example would be that when the organisation trains employees in problem-solving techniques, it can be expected that employees will use these techniques to solve production-related problems on the shopfloor.

3.9 Characteristics of the Constructs

3.9.1 Implementation of TBWO Management Policies and Practices

A number of management policies and practices that are related to TBWO, and which implementing firms have to consider, have been identified by different authors. Yeatts and Hyten (1998) identified the following TB management policies and practices:

(1) TB training – training provides team members with multiple skills that are needed to accomplish the team's tasks. The four major skill areas where training is important include technical, interpersonal, management and decision making/problem solving.

(2) TB reward systems – when firms implement TBWO, they must realign rewards to promote teamwork and team accomplishment. Even though TB reward systems are important, there should be some mechanism for rewarding individual efforts and contribution.

(3) Management support and commitment – emotional support, for example, recognition and positive feedback from management, is very important in the functioning of the teams. Managers also have to act as resources and coaches to the team. This means that managers have to help the team obtain whatever resources are necessary for the team to perform its task. Coaching the teams on technical and management skills is also important.

(4) Communication – communication within the team and between teams and management or other teams is important for effectiveness. Training in communication skills plays an important role in ensuring effective communication

Thibodeaux and Faden (1994) identified

(1) Training – in a team-based work environment, training prepares employees to deal with a high level of autonomy. Teams also require a great deal of cross-training because members not only learn each other's skills, but they must also learn how to work as a team.

(2) Management support and commitment – organisations that support TBWO value co-operation over competition. They support training for interpersonal skills, sharing of information and knowledge, reducing the hierarchical levels, scheduling of frequent meetings and striving for equal treatment.

(3) Communication – open communication between management and workers is important in a team-based environment. Individual team members must also have the ability to work on teams and to communicate effectively with people who may not share their perceptions or values.

(4) Changes in organisational structure – the team environment tends to create organisational structures that are flatter and more informal. Organisational changes that support the implementation of participative work designs include flexibility among work units, few formal rules, decentralization of authority, and trust between workers and managers.

The table below summarizes some of the management policies and practices that were identified by different authors as essential. The explanation of the summarized practices is similar to those explained above.

Author	TB Training	TB Reward Systems	Management support & commitment	Communication	Performance review systems	Organisational structure
Yeatts & Hyten (1998)	*	*	*	*		
Meyer, J. & Smith, C. (2000)	*	*			*	
Sexton, C. (1994)	*	*	*		*	
Thibodeaux, M. & Faden, S. (1994)	*		*	*		*
Osterman, P. (2000)	*	*				

Table 3.1 Summary of TBWO management policies and practices

The review of literature as demonstrated above showed that there are a number of policies and practices that are important for effective implementation. For the purpose of this study, the following management policies and practices were selected as indicators of management policies and practices to implement TBWO:

- Training – teams have to be trained in a number of areas due to the different roles that the team performs. The four major skill areas which Yeatts and Hyten (1998:173) identified were: technical, interpersonal, management and decision making or problem solving.
- Rewards systems and recognition programs – appropriate team-based reward systems have to be put in place. The types of rewards that need consideration include recognition, tangible rewards, and monetary rewards.
- Promotion and career development – promotion and career development should be in line with TBWO.

- Communication practices – communication plays an important role in team environment, and the appropriate structures that will enhance communication have to be established.
- Management support and commitment – management support through recognition; provision of positive feedback and resources (financial or otherwise) is essential. A manager has to play the role of a "Champion" to increase employee commitment and therefore effective implementation of TBWO.
- Performance review systems – a performance measurement system that emphasizes the performance of the team rather than the individual.
- Change in the organisational structure – from hierarchical to team-based structure. Participatory decision-making approaches are less likely to be successful under an autocratic or hierarchical structure.
- Introduction of work teams – teams become responsible for and have more authority for performing jobs than in the traditional hierarchical structure, where the supervisor has the authority.
- Job security – employment insecurity is negatively related to many of the management practices, which means that a plant with a high employee layoff rate is less likely to foster growth in other HRM practices.
- Factory visits – it is important for employees to have an understanding of how their work is related to that of their customers and suppliers.

Ahmad and Schroeder (2003:22) argue that if these practices are internally consistent with one another, then they qualify as a synergistic set. They further argue that a bundle of

internally consistent practices is more effective than the sum of the effects of the individual practices, due to their mutually reinforcing support.

3.9.2 The Objective Values of TBWO

The objective values of TBWO included the following:

- Improved performance – some areas of increased performance include greater employee satisfaction, reduced costs, faster and better decision making, increased productivity and so on. (Elmuti, 1997).
- Greater employee development – employees have to be capable of working in a team-based environment as they are given increased responsibility and authority. They therefore require the necessary skills in order to perform effectively.
- Greater devolvement of responsibility and authority – decentralized organisations are able to respond quickly because the decision-making power is distributed at all levels of the organization, according to the type of decision and the location of expertise.
- Increased co-operation (teamwork) – co-operation among team members and between teams is more important than competition.
- Job security – job security is not guaranteed as there might be other factors such as slow demand growth and weak economic conditions, which are out of the firm's control that might contribute to layoffs. Keating et al. (1999) called this the "Iron Law of Layoffs", which means that the more successful the firm is in improving its manufacturing operations, the more intense the pressure for layoffs if the firm is unable to grow its sales.

3.9.3 The Espoused Employee Values

These are the values held by employees in response to the objective TBWO values. The espoused values are assessed using the same list of values as those identified for TBWO. The espoused employee values are compared to the objective TBWO values to determine a fit.

3.9.4 Team-Based Shopfloor Work Practices

This section discusses some of the TB shopfloor work practices identified by the different authors. Most of the studies investigated the impact of using work teams on firm performance. For example, Fuxman (1999) examined the use of teamwork in the automotive industry, whilst Banker, Field, Schroeder, and Sinha (1996) examined the impact of work teams on manufacturing performance

Fuxman (1999) identified the following TB shopfloor practices as being important:

- Quality inspection – team members must undergo training since they eventually accept responsibility for quality control.
- Preventative maintenance – responsibilities delegated to the team include light maintenance of machinery to detect possible problems.
- Statistical process control – team members are responsible for the quality of the product and post-statistical process control data

Kirkman and Rosen (1999) identified the following TB shopfloor work practices:

- Quality inspection
- Setting production schedules.

Banker et al. (1996) identified the following TB shopfloor work practices:

- Quality inspection
- Preventative maintenance
- Team meetings
- Training
- Problem-solving techniques
- Safety and ergonomics.

Finally, Suzaki (1987) identified the following TB work practices relevant to the shopfloor:

- Team meetings
- Housekeeping
- Number of suggestions.

In this study, the following TB shopfloor work practices were used because the literature suggests that these are essential shopfloor work practices:

- Quality inspection – the teams take responsibility for quality inspection rather than have the supervisor do quality control.
- Machine setup – it is the responsibility of the operators to change machine tools and set up the machine to continue with production.
- Preventative maintenance – it has to be done frequently by team members to prevent major breakdowns in machines, which might have an impact on productivity.
- Attending team meetings – team meetings have to take place frequently; for example, every day before a shift starts, to discuss production-related issues.

- Generating suggestions – suggestions for performance improvements can be generated in team meetings or through a suggestion box. Employees have to see that some of their suggestions are being implemented for them to be motivated to generate more suggestions.
- Performance data collection – performance data, such as the number of rejects, customer complaints, late deliveries and so on, should be collected and be updated frequently and used by shopfloor employees to assess their performance.
- Visual management – using graphs and charts to present performance data makes it easier for team members to understand. As the performance data is collected, the visual displays should also be updated to portray the correct information.
- Use of improvement tools – problem-solving tools such as fishbone diagrams, Pareto and Gantt charts and so on, should be used more frequently and correctly to solve production-related problems on the shop floor.

3.10 The Research Hypotheses

The following research hypotheses were generated from the TBWO implementation effectiveness model:

- **Hypothesis 1**: If firms implement TBWO management policies practices more comprehensively and thoroughly, then the consistency and quality of use of shopfloor work practices by employees will increase.
- **Hypothesis 2**: If firms implement TBWO management policies practices more comprehensively and thoroughly, the climate for implementation will be positive based on employees' positive perceptions.

- **Hypothesis 3**: If there is a good fit between the objective values of TBWO and the espoused values of employees, it will be positively associated with increased commitment to the use of shopfloor work practices by employees.
- **Hypothesis 4**: A positive organisational climate will be positively associated with improved commitment to the use of TB shopfloor work practices by employees.
- **Hypothesis 5**: Higher commitment by employees to the use of TB shopfloor work practices will lead to better quality and consistency of use of these shopfloor work practices by employees.

In conjunction, these hypotheses suggest that at firms where there has been poor implementation of the management policies and practices associated with TBWO and where there is a poor fit between the objective values of TBWO and those of the shopfloor employees, the use of the work practices associated with TBWO will be low or non-existent.

3.11 Summary

This chapter provided a detailed discussion of the development of a research model that is applicable to the implementation of TBWO.

The Klein and Sorra model, which is a generic model of innovation implementation, was chosen for use in this study. A careful evaluation of this model, however, revealed some incoherence in the presentation of the constructs and the relationship between the constructs, which therefore warranted a modification of this model. One of the constructs, which raised questions, was that of the organisational climate for implementation. The modification

entailed the re-arranging of some of the constructs and the relationship between those constructs, supported by several references to the literature on organisational climate.

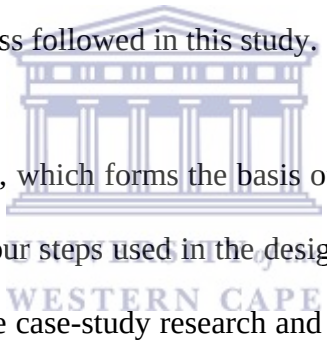
The generic model was then adapted to fit the implementation of TBWO, and a model of the determinants of effective TBWO implementation was developed. The research hypotheses for this study were finally developed from the model of effective TBWO implementation.

CHAPTER 4

THE RESEARCH METHOD

4.1 Introduction

"Research design provides the glue that holds the research project together. A design is used to structure the research, to show how all of the major parts of the research project – the samples or groups, measures, treatments or programs, and methods of assignment, – work together to try to address the central research questions" (Trochim, 2004:1). This statement is of particular relevance in that it highlights the importance of clearly outlining the research method in order to produce quality research. The aim of this chapter, therefore, is to outline in detail the research design process followed in this study.



The case-study research approach, which forms the basis of this study, will be outlined. This will include a discussion of the four steps used in the design process of this study. The basic principles for conducting effective case-study research and their application in this study will then be discussed.

4.2 The Case-Study Approach

The choice to use the qualitative case-study approach in this study is based on the arguments that have been made by various researchers for the use of a case-study method in studying phenomena such as the implementation of TBWO.

Yin (1994) defined a case study as “an empirical inquiry that investigates contemporary phenomenon within a real life context where the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used”.

Yin (1994) noted that there were some prejudices against the case-study method in business and management research. The main criticism of the case-study approach is that it lacks precision, objectivity and rigour, which are normally associated with the quantitative approach to research. This criticism, however, does not take into account the fact that bias can creep into any other research tactic, including experiments and surveys (Yin, 1994:168).

Remenyi, Williams, Money, and Swartz (1998) stated that case studies allow the student or researcher to retain a more holistic perspective than can be easily achieved through other approaches to cross-sectional and longitudinal studies. Furthermore, case studies allow for the meaningful exploration of the characteristics of real-life events, such as the managerial process, maturation of industries or power struggles in organisations. Mohrman and Novelli (1985:95) noted that qualitative case-analytic techniques are appropriate for understanding what went on during the intervention (e.g. a quality circles programme), while quantitative and quasi-experimental techniques can be used to measure impact.

Meredith (1998:443) identified the following advantages of case research:

- The phenomenon can be studied in its natural setting and meaningful, relevant theory generated from the understanding gained through observing actual practice.

- The case method allows the much more meaningful question of *why*, rather than just *what* and *how*, to be answered with a relatively full understanding of the nature and complexity of the complete phenomenon.
- The case method lends itself to exploratory investigations where the variables are still unknown and the phenomenon not at all understood.

According to Remenyi et al. (1998), a case study has two distinct features; firstly, it can be used in establishing valid and reliable evidence. Secondly, the case study can be used as a vehicle for creating a narrative description of the situation being studied (Remenyi et al., 1998:164). The preceding statement means that the narrative resulting from the description of a situation being studied represents a research finding in its own right and thus can be said to have added something of value to the body of knowledge.

4.3 Reasons for Using the Case-Study Method in this Study

One of the reasons for choosing to use the case-study method in this study is that it will allow for a better understanding of the process of TBWO implementation, which is a real-life event as it will be studied within a real-life context (within an organization).

Due to the fact that the process of TBWO implementation took place over a period of two years and it involved understanding a number of complex issues related to implementation, the narrative case study was more appropriate.

4.4 The Case-Study Research Process or Design

The design of the case-study research process for this study is in line with those processes suggested by Stuart, McCutcheon, Handfield, McLachlin, and Samson (2002) and Yin (1994) and will be discussed in this section.

Stuart et al. (2002:420) suggested that a case-study research process should consist of five stages, namely:

I. Definition of the research question

II. Instrument development

III. Data gathering

IV. Analysis of data

V. Dissemination.

Yin (1994) suggested that the five important components of case-study research design are as follows:

I. A study's question

II. Its proposition, if any

III. Its unit(s) of analysis

IV. The logic linking the data to the propositions, and

V. The criteria for interpreting the findings.

For the purposes of this study, four steps that integrate both the steps suggested by Yin (1994) and Stuart et al. (2002) were used. The four steps consist of the following:

4.4.1 Step 1: The Definition of the Study's Research Question

- Yin (1994) stated that the form of the research question provides an important clue regarding the most relevant research strategy to be used. He further suggested that the case-study method is most likely to be appropriate for *how* and *what* questions. The research question for this study, as stated in chapter one, was: "*What are the factors that account for the effective implementation of TBWO*?" The research model is premised on the following constructs:
- The implementation of TBWO management practices and policies
- The employees' perception of the implementation of these practices and policies
- The fit between the objective values of TBWO and employees' espoused values.

The definitions of these constructs were provided in preceding chapters and will therefore not be dealt with in this section.

4.4.2 Step 2: Instrument Development and Site Selection

Instrument development and site selection will be discussed in the following sections.

4.4.2.1 Instrument Development

Having defined the research question in the preceding section, it is then important to develop an instrument to be used in data collection. Stuart et al. (2002) state that the study protocol is the appropriate instrument for case-study research. According to Yin (1994), the protocol is more than an instrument as it not only contains the instrument but also contains procedures and general rules that should be followed in using the instrument. He further states that the case-study protocol is a major tactic in increasing the reliability of case-study research and is intended to guide the investigator in carrying out the case study.

The protocol of this study included:

(a) An overview of the case-study project (the objectives, issues and topics being investigated)

(b) Field procedures, which included access to the firms and the interviewees

(c) Questions that were to be posed during the interviews

(d) The structure of the case studies (outline and format for the narrative) (Yin 1994:64).

Due to the fact that the interviews were semi-structured and face-to-face, the questions served as reminders for the interviewer about the information that needed to be collected and also allowed for flexibility during the interviews. Open-ended questions were used to elicit a more qualitative and detailed response. The questions were structured in such a way as to collect data based on the constructs of the research model. Questions were posed to management on the construct of the implementation of TBWO management practices and policies and the use of TB shopfloor work practices by employees. Employees had to respond to questions about their perceptions of implementation, their values (in order to establish a fit) and their use of TB shopfloor work practices.

4.4.2.2 Operationalising the Constructs

Each construct was assessed as follows:

1. The implementation of TBWO management practices by firms was assessed through the analysis of company documents, observation and semi-structured interviews with management. A qualitative method to assess the extent of implementation at each firm, which ranged from high/strong to moderate to low/weak to no implementation at all was used. It should be noted that the assessment of each firm is two-fold, firstly, assessing the

implementation of all the TBWO practices and secondly, the implementation of each TBWO policy or practice. These assessments can be explained as follows:

- High implementation – Firstly, means that most or all (e.g. training, communication structures, management support, resources, organisational structure) of the TBWO management policies and practices were implemented at the firm. Secondly, it means that each policy or practice has been extensively implemented. An example could be that when assessing training, the firm that implements TB training (i.e. problem solving and decision making, facilitation skills, preventative maintenance, machine setup, quality inspection, etc) to most of the employees would be assessed as having a high implementation on this particular practice.
- Moderate implementation – Firstly, means that fewer of the TBWO management policies and practices (e.g. training, communication structures, and management support) were implemented at the firm. Secondly, it means that each policy or practice was moderately implemented.
- Low implementation – Firstly, means that very few TBWO policies and practices were implemented at the firm. Secondly, it means that for each management policy and practice the implementation is low if, for example, TB training has focused on one area and very few employees have been trained.
- No implementation – means that the firm did not implement any of the TBWO management policies and practices.

2. The 'climate for implementation' construct, which is the employees' perceptions of implementation by the firm, was assessed using semi-structured interviews with the

employees. The climate for TBWO implementation by the firm was assessed as strong, moderate or weak. These assessments can be explained as follows:

- Strong climate – means that employees have a positive perception of or they view the implementation of TBWO management policies and practices as encouraging, cultivating and rewarding the use of TBWO shopfloor work practices.
- Moderate climate – means that employees have neither positive nor negative perception or they have a neutral view about the implementation of TBWO management policies and practices.
- Weak climate – means that employees have a negative perception or they view the implementation of TBWO management policies and practices as not encouraging, cultivating and rewarding the use of TBWO shop-floor work practices

3. The objective values of TBWO were drawn from the literature.

4. Employees' espoused values, with regard to the implementation of TBWO, were assessed using semi-structured interviews.

5. The TBWO-values fit construct is the fit between the objective TBWO values and the employees' espoused values. Klein and Sorra's (1996) assessment of the extent to which there is TBWO-values fit (either good, neutral or poor) will be used. These assessments can be explained as follows:

- Good fit – is when the workers regard TBWO values as highly congruent with their espoused values.

- Neutral fit – is when the employees regard TBWO values as either moderately congruent or moderately incongruent with their espoused values.
- Poor fit – is when employees regard TBWO values as highly incongruent with their espoused values.

6. Implementation effectiveness, which is defined as the quality and consistency of the use of TBWO shopfloor work practices by employees, was assessed through observation. A qualitative method to assess the quality and consistency of the use of TBWO shopfloor work practices at each firm, which ranged from high to moderate to low to no implementation effectiveness at all was used. These assessments can be explained as follows:

- High implementation effectiveness – means that most or all the of the TBWO shopfloor work practices were correctly (quality) and frequently (consistency) used by employees on the shopfloor.
- Moderate implementation effectiveness – means that fewer TBWO shopfloor work practices were correctly (quality) and frequently (consistency) used by employees on the shopfloor.
- Low implementation effectiveness – means that very few TBWO shopfloor work practices were correctly (quality) and frequently (consistency) used by employees on the shopfloor.
- No implementation effectiveness – means that not any of the TBWO shopfloor work practices were correctly (quality) and frequently (consistency) used by employees on the shopfloor.

4.4 2.3 Construct Validity

Refers to establishing correct operational measures for the concepts, ideas and relationships being studied. Triangulation, which involves the use of multiple sources of information, was applied to introduce construct validity. Mohrman and Novelli (1985:95) also used the strategy of collecting a variety of data using multiple methods, in order to increase the likelihood of tracking events of the intervention as they unfolded and detecting multiple outcomes. The sources of information that were used for triangulation in this study included semi-structured, face-to-face interviews with management and employees, observation, and an evaluation of company documents.

4.4.2.4 External Validity

External validity relates to knowing whether the researcher's findings are generalisable to a wider universe beyond the immediate research environment. Due to the limited nature of this study in terms of the sample size and the fact that only manufacturing firms were studied, it is difficult to generalise the findings to the wider population. The study's findings will be confined to environments similar to that of the research.

4.4.2 5 Reliability

Reliability refers to the issue of whether the evidence and the measures used are consistent and stable (Yin, 1994:181). The constructs were operationalised in this study and the assessment of each construct was stated.

4.4.2.6 Site selection

Five medium-sized firms in the metal fabrication sector around Cape Town, which were introduced in chapter one, initially participated in the Workplace Challenge in 2000 and thus served as data collection sites.

The choice of these sites was based on the fact that these firms were introducing changes to their participation in the Workplace Challenge, the primary phenomenon of interest in this research. There was also an element of convenience as the researcher was collecting data for the Workplace Challenge project management. These sites were easily accessible due to their proximity to Cape Town.

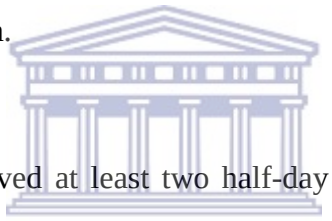
The firms that were selected to participate in the W/C were grouped into what was called the "stainless steel sector", although "metal fabrication" would be more appropriate by conventional categorisation.

As has been mentioned elsewhere in this thesis, three firms participated for the entire research process as two firms dropped out at different points between 2000 and 2001. The importance of investigating the factors that contributed to the failure of the two firms that dropped out of the W/C in effectively implementing TBWO is acknowledged in this study, but was not done due to the limited scope of this study The remaining three firms, however, served as important sites due to the fact that they were accessible and information was readily available.

4.4.3 Step 3: Data Gathering

The process of data collection took place over a two-year period (2000–2001) at the five firms. Towards the end of 2000, one of the firms (Firm I) dropped out of the process due to financial difficulties, thus leaving four firms. The research process involved gathering data through observation and semi-structured, face-to-face interviews with management and shopfloor employees regarding the implementation of workplace changes.

The interviews were conducted with a senior-level manager (e.g. the production manager or the general manager.) who were actively involved in the Workplace Challenge. Ten employees from the shopfloor, who included operators, a team leader, and a representative, were also interviewed at each firm.



The data-gathering process involved at least two half-day visits per month (10 months) to each firm. This culminated in the compilation of monthly reports to the W/C. The aim of the research at that stage was to collect qualitative data to document narrative case studies of the process of implementation at each firm. As the firms were at different levels of implementation when they joined the W/C, data was more readily available at some firms than others, which had some impact on the data-gathering process.

Progress of the research was slow during the initial stages due to the difficulty in gaining access to selected sites and also some delays in implementation.

In 2001, the visits to the firms took place at least once each quarter, and this was supplemented by telephonic interviews with management on the progress of implementation.

Firm C was the second company that dropped out of the W/C, in mid-2001, due to financial difficulties and adverse market conditions, which left only three firms participating in the process.

The data that was gathered included written and taped records of the interviews, company documents, and observations on the shopfloor and at milestone workshops.

The Milestone workshops took place every three months during 2000 and 2001, in which the participating firms in the Workplace Challenge shared the problems, successes and challenges in the process of implementation. These workshops were very useful as a source of information.

A fair degree of trust between the researcher and the respondents was developed early on in the research process as objectives of the research and the role of the researcher were explained upfront to the participants. This enabled the researcher to obtain more information from both managers and employees. The researcher was aware of the dangers of becoming involved in the companies' internal politics and misunderstandings, which could compromise the quality of the research. It was for this reason that the objectives of the research and the position of the researcher as a neutral party were clarified right at the beginning of the research process.

4.4.4 Step 4: Analysing Data

"The problem of analyzing the data, determining what has been learned and how to present it, are integral to a researcher's task and may take a great deal of time and effort (Stuart et al.,

2002: 427). Yin (1994) suggested three approaches to the analysis of case studies. The first approach consisted of using the theoretical hypotheses of the study and then the analysis of the evidence based on these hypotheses. The second approach was to develop a case description, which would be a framework for organising the case study. The third approach to analysing case studies is pattern-matching, which involves a comparison of an empirical pattern with a predicted one. He further stated that if a study is descriptive, the predicted pattern must be defined prior to data collection.

This study will use a combination of two approaches: using the study's proposition and also pattern-matching. The reason for the use of these approaches is that the study's propositions, which also define the predicted pattern, were developed prior to data collection as a result of the literature survey.

4.5 The Basic Principles of Conducting Effective Case Research

Yin (1994) identified three principles that are important for effective case-study research, which are: (a) the use of multiple sources, (b) the creation of a case-study database, and (c) the maintenance of a chain of evidence.

4.5.1 The Use of Multiple Resources

Six sources of data were identified by Yin (1994): documentation, archival records, interviews, direct observation, and physical artifacts. Any of these sources can be used in the collection of evidence. One advantage of case studies is that they need not be limited to a single source of evidence. Yin (1994) notes that most of the better case studies rely on a

variety of sources. He therefore suggests triangulation, which is the use of multiple sources of evidence.

4.5.2 Creating a Case-Study Database

This has to do with the way of organizing and documenting the data collected for case studies. Yin (1994) argues that there should be a separation between the case-study data and the evidence presented in the case-study report as this will allow the reader to inspect the database that led to the case-study conclusions if he or she wants to.

According to Yin (1994) case-study notes can be written, typed, or on audiotapes and, as such, may be organized in the form of a diary, index cards or in some less organized fashion. Any classificatory system will do as long as it is stored in such a manner that other persons, including the investigator, can retrieve information efficiently at some later date. In this study, field notes were compiled during the interviews, which were refined into monthly reports. Field notes were also compiled for the observations made during the Milestone workshops and also for observations on the shopfloor. The monthly reports had to be submitted to the W/C, but they were also useful in keeping an updated record of the process of implementation. Audiotapes were also used during the interviews to enhance the quality of data collected.

4.5.3 Maintaining a Chain of Evidence

This principle allows for increased reliability of the information of the case study; the external observer or the reader of the case study can follow the derivation of any evidence from initial research questions to the ultimate case-study conclusions (Yin 1994:98).

4.6 The Use of the Basic Principles for Conducting Effective Research in this Study

This study used the first principle of collecting evidence, which is collecting from different sources. The sources of evidence that were used included open-ended and semi-structured interviews, observation on the shopfloor and at meetings and, finally, company documents. The sources of evidence enhanced the quality of data generated.

The database for this study was created, where data from different sources which included semi-structured, face-to-face, managers and consultants; site visits (observation) and company documents were classified. In addition to these interviews, semi-structured face-to-face interviews with ten employees per firm were conducted, to determine the climate for implementation and TBWO values fit. All of the interviews were taped. The thirty interviews with employees were numbered from one to thirty and the dates of the interviews were included. Company documents and site visits were also numbered. The process of classification and creation of the database was to allow for more efficient retrieval of information. The database has been added as an appendix (Appendix B) at the end of this study.

4.7 Summary

The importance of clearly outlining the research method to be used in this study in order to produce quality research is the focus of this chapter.

This chapter first discussed the case-study approach, which included the discussion of the benefits of using this approach. Based on the discussion of the case-study approach, the reasons for using the case-study approach in this study were presented. One of the main

reasons for the using this approach was that it would allow for better understanding of the process of TBWO implementation as it is a real-life event studied within a real-life context.

The case-study research design process was then outlined. This involved the discussion of the four steps in the design process used in this study, namely. (a) the definition of the study's research question, (b) instrument development and site selection, (c) data gathering, and (d) data analysis.

The basic principles for conducting case-study research, which included (a) the use of multiple sources, (b) the creation of a case-study database, and (c) the maintenance of a chain of evidence, were also outlined in this chapter.

CHAPTER 5

CASE STUDIES OF THE IMPLEMENTATION OF TBWO

5.1 Introduction

The aim of this chapter is to present the case studies of the process of the implementation of TBWO at the three firms studied. The case studies were as a result of face-to-face, semi-structured interviews with management, workers and consultants and also through on-site observation in 2000 and 2001.

The presentation of the case studies will be based on the research model, where each construct in the model will be assessed. The assessment criteria explained in chapter four will be used to assess the constructs and their variables. An assessment will be made of each variable, and then an overall assessment for the particular construct will be provided.

A diagrammatic representation of the findings will be provided at the end of each case study to summarise the key findings.

The structure of the case studies will be as follows:

- Introduction
- Reasons for implementing TBWO
- Implementation of TBWO management policies and practices
- The climate for implementation
- TBWO-values fit
- Implementation effectiveness
- Summary.

The firms will be discussed in the following order:

- Firm GSM
- Firm TA
- Firm F

5.2. CASE STUDY OF FIRM GSM

5.2.1 Introduction

Firm GSM, is a 100%-owned subsidiary of a large industrial conglomerate. The automotive components, mainly shock absorber components, form 78% of the firm's production, and the remaining 22% are non-automotive components, such as those for the arms and mining industries.

The firm's largest customer was Gabriel, the manufacturer of shock absorbers. The other major customers were Toyota, VW, Armstrong and 42 other customers, some of whom were involved in the arms and mining industries.

The firm had 86 hourly paid workers and 13 staff members and there were between 0-20 contractors at any time. There were two trade unions in the company, namely, NUMSA and NETU, and a harmonious relationship existed between these unions. The shop stewards were actively involved in the process of change as they took part in the Transformation Committee (Transcom), which oversaw the process of workplace change.

With the appointment of the new general manager in 1998, the company embarked on a transformation plan that was known as SLIM (Smc's Lean Improvement Manufacturing). A

SLIM committee, which consisted of three managers and four foremen, responsible for driving the change process, was formed. The introduction of SLIM resulted in the implementation of some lean manufacturing principles such as changes in the production process from line to cell manufacturing, the introduction of teams, the Kanban system, training, continuous improvement and problem solving.

5.2.2 Reasons for Implementing TBWO

The company joined the Workplace Challenge in May 1999. The production manager cited one of the reasons for joining the W/C and implementing TBWO as the need to revive the enthusiasm about workplace change that had existed when the SLIM programme was implemented but which had subsequently decreased throughout the firm. Another reason was that the W/C, with its emphasis on employee involvement and development, could help address the problem encountered with the SLIM programme, where the emphasis was more on the technical issues and less on the human issues (e.g. team leader empowerment, problem solving, group dynamics, etc.).

The W/C required that firms develop measures against which performance was to be measured. Due to the fact that Firm GSM had already started with the process of TBWO implementation when they joined the Workplace Challenge, the performance measures were already developed. The following were the performance measures that were identified:

- Absenteeism
- Customer complaints
- Number of rejected items (cost of quality)
- Number of rejected items (parts per million)

- Overall cell efficiency and accident injury rate.

5.2.3 Implementation of TBWO Management Policies and Practices

In this section, the extent of the implementation of TBWO management policies and practices will be assessed as either none, low, moderate or high. Seven variables will be assessed in order to determine the overall assessment for the construct of the implementation of TBWO management policies and practices. The following variables will be assessed:

- Training
- Introduction of communication structures
- Incentive scheme
- Promotion opportunities
- Changes in organisational structure
- Changes in shopfloor layout
- Factory visits.

5.2.3.1 Training

Firm GSM embarked upon a number of training programmes to address various issues on the shopfloor. The following training programmes were pursued:

- 8-D Tops training in problem solving
- Facilitator training
- Training in technical skills
- Machine setup training.

The first training programme was the 8-D Tops training in problem-solving techniques, which took place in 2000. Approximately 38 employees from the shopfloor attended this training. The purpose of the 8-D Tops training was to assist employees develop skills to identify job-related problems on the shopfloor and to find solutions to these problems. Some improvements were noted in the number of defective parts that were returned by customers.

In September 2000, interviews with management indicated that the rate of returns, which was normally between 6000 and 7000 parts per million, was reduced to 135 parts per million. This reduction in the rate of returns was seen as an important achievement by both management and workers. One explanation for this improvement given by employees on the shopfloor was that, as a result of the training in problem solving, they were more aware of the quality problems when they arose.

Management and workers, however, held the view that the 8-D Tops training was too theoretical. It was easy for workers to forget what they had learned. One worker said, “Problem-solving techniques are sometimes time consuming when decisions have to be made quickly.” Another worker said, “Training is effective in class but few people apply what is learnt in actual situations on the shopfloor.” A greater number of workers, however, indicated that they did use problem-solving techniques when they were faced with a problem related to their jobs. In order to deal with this problem of the training being too theoretical, employee involvement (EI) or problem-solving sessions (PS) were introduced. These sessions were aimed at enabling employees to apply the problem-solving skills acquired through the 8-D Tops training to their jobs. As a support measure, each cell was provided with resources such

as time to meet and money to apply the problem-solving techniques on the shopfloor. Each cell was allocated approximately R1500 and time to pursue quality improvement initiatives.

The PS sessions entailed the identification of a certain part, which often required reworking as a result of poor quality. Each cell identified a part that had quality problem(s), to which they applied the eight steps of problem solving. The cells used brainstorming and the cause-and-effect (fishbone) diagrams to classify all the causes of the problems. They were then to move on to the next stage of eliminating those that did not apply so that they could focus on the real causes.

One of the problems identified at the PS sessions was the size of the parts, which were either too big or too small. Other problems were chips on parts, blowholes and unproductive setup time. Some cells felt that the process of cell certification was more important than focussing on problem-solving techniques. The certification of cells resulted in an increase in wages. This could have been one of the reasons why some of the cells felt that issues relating to certification should be dealt with first before discussing problem-solving techniques.

Team facilitator training was the second programme that took place in 2000 to assist the newly selected facilitators to improve their facilitation skills. The facilitators were selected and trained to drive the process from within the company rather than relying solely on the consultant.

The third programme involved the enhancement of the workers' technical skills. Workers were trained to understand technical drawings and, specifically, how to measure and interpret drawings.

Training in machine setup was the fourth training programme that was embarked upon. Suggestions were made at team PS sessions that training cell members (operators) to perform their own setup would enhance productivity. The training was initially aimed at a few operators from each cell with the understanding that these people would go back and train the rest of the cell members.

The training variable was therefore assessed as high on implementation of management practices because training was conducted thoroughly on problem-solving techniques, machine setup, technical skills, and so on.

5.2.3.2 Introduction of Communication Structures

A joint labour-management consultation and decision-making structure, known as the Transcom (Transformation Committee), was formed in 1995 at Firm GSM in anticipation of the new Labour Relations Act (1995), which stipulated the need for the formation of workplace forums. The forum consisted of two shop stewards, five elected members from the shopfloor and five managers.

A W/C steering committee was also formed in 2000 to deal with issues related to the implementation of workplace change. This committee consisted of seven people, namely, three managers, two shop stewards and two Transcom members.

The W/C steering committee had to make decisions on a number of issues. One of these issues was the appointment of a consultant to initially drive the process of change. Management stated that the process had been an open one and the decision to appoint the consultant was taken jointly by the Transcom. One shop steward, however, said, “There is a lack of trust between the workers and management as workers sometimes feel that their participation on the Transcom is to rubber-stamp management decisions. The appointment of the consultant is one example where management took the decision to select the consultant and then went to the Transcom for its approval of the decision. We really did not have much of a choice, as we were presented with only one option.” There were other issues which were also contentious in these committees, such as employment equity and outsourcing of maintenance.

Company-wide meetings were also held at which workers received feedback on work-related and company-wide issues and where they could provide their inputs.

The ‘implementation of communication structures’ variable was assessed as high implementation because there was a joint management-labour steering committee and company-wide meetings.

5.2.3.3 Incentive Scheme

The incentive scheme initially paid out after every three months, depending on performance on the shopfloor. Workers, however, became unhappy with the scheme because they felt that even though they worked hard to meet targets, after three months, no payment was made as management sometimes argued that the performance targets were not met during that period.

Some shop stewards indicated that this scheme demotivated the workers. A new scheme was put in place in September 2001, which was to pay bonuses monthly if targets were met. Workers were happier with this scheme.

The implementation of the incentive scheme was assessed as high because an incentive scheme was in place and it was paying out workers for their performance.

5.2.3.4 Promotion Opportunities

During the period of the research, no promotions took place. The workers, however, mentioned that promotions were possible, depending on the person's skills and performance. Management indicated that some employees had joined the firm as apprentices and later became artisans and supervisors or team leaders. Some workers, however, indicated that the opportunities for promotion were very limited as only a few people were promoted.

This variable was therefore assessed as 'low implementation' because, during the period of the research, very few promotions took place.

5.2.3.5 Changes in the Organisational Structure

Changes in the organisational structure took place before the firm joined the W/C. With the change towards TBWO, the organisational structure had to be decentralised, which is a basic requirement of implementation of TBWO. Project teams, which included management and employees, were introduced to deal with issues relating to the improvement of the quality of products. On the shopfloor, cells (teams) were also introduced to promote decentralisation.

This variable was therefore assessed as high.

5.2.3.6 Changes in the Shopfloor Layout

Changes in the shopfloor layout at Firm GSM took place before the firm joined the W/C. The layout was changed from the traditional line to cellular layout. The new layout consisted of five cells, which were identified by using different colours. Each cell has its own meeting (green) area, where their daily meetings took place every morning.

The repetitive nature of the production process favoured the introduction of the changes in the layout. Gabriel, the firm's main customer, played an important role in facilitating the change by assisting with setting up the new layout and also with training.

This variable was assessed as 'high implementation' because changes towards a cellular layout had taken place.

5.2.3.7 Factory visits

Management and workers who were interviewed acknowledged the importance of visiting the firm's customers and suppliers as this enabled workers on the shopfloor to gain an understanding of how what they did fitted into the bigger picture. One employee said, "It would be good to go to the supplier or the customers to see what they do and how what we do relates to what they do." Only one factory visit to Gabriel, the firm's main customer, however, took place.

This variable was assessed as 'low implementation' because, even though respondents had acknowledged its importance, only one factory visit had taken place.

The overall assessment for the construct of the implementation of TBWO management policies and practices was therefore high because most of the TBWO management policies and practices were implemented thoroughly.

The construct of the implementation of the TBWO management policies and practices is closely linked to the 'climate for implementation' and 'implementation effectiveness' constructs. It is hypothesized that the higher the assessment of the implementation of TBWO management policies and practices, the higher the implementation effectiveness. It is also hypothesized that the higher the assessment of the implementation of TBWO management policies and practices, the stronger the climate for implementation. The climate for implementation at the firm, which was based on employees' perceptions of the implementation of TBWO management policies and practices, will be discussed next.

5.2.4 Climate for Implementation

This construct was defined as the employees' perceptions of the implementation of TBWO management policies and practices to determine whether the climate was strong or weak. If employees had a positive perception of implementation, then the climate was assessed as strong, and if employees had a negative perception of the implementation, then the climate was assessed as weak. If the employees had neither positive nor negative perceptions or they had a neutral view about the implementation of TBWO management policies and practices, then the climate was assessed as moderate. Interviews with employees on the shopfloor were conducted to establish their perceptions of implementation.

Interviews with the employees indicated that a large number of them viewed the process of change positively, as a process that would help in improving the company's productivity and also secure their jobs. They saw the Workplace Challenge as a reinforcement of the change programme (SLIM) that had already taken place. These workers indicated that the levels of communication had improved and that the adversarial relationships were giving way to co-operative relationships since the firm joined the Workplace Challenge. A smaller number of workers viewed the change process as negative in that the benefits (training, improved communication, promotion, etc.) that workers had anticipated as a result of the changes had not materialised.

Some employees raised concerns about employees' representation on the joint management structures in that sometimes management used these committees as rubber stamps for decisions that they had unilaterally adopted. A typical example cited was the selection of the firm's consultant, where shop stewards alleged that management unilaterally decided who the consultant was and then went to the Transcom to obtain its approval.

The shop stewards interviewed were also unhappy because workers had not been adequately consulted before the decision to outsource the maintenance function was taken by management. They indicated that some workers who were interested in being subcontractors for maintenance were not considered. This resulted in conflict between the shopfloor operators and the new maintenance team, associated with the alleged poor performance of the new team.

Some employees also raised concerns that changes were not taking place fast enough, specifically related to the representativity of the workforce, as there were very few African workers on the shopfloor. They also raised concern about the absence of black people at management levels.

A large number of the workers interviewed had positive perceptions of the implementation of TB training. One employee commented that “It is good to have training because it gives one an opportunity to learn about things which one did not know”. Another employee commented that “The company and the people benefited from training, as there have been improvements in performance as a result of training”. However, a smaller number of employees had negative perceptions of the implementation of TB training. One employee commented that “Training was not helpful for someone who already has matric”. Another employee commented that “Training is more relevant for the company but not for the workers”.

Workers also expressed mixed perceptions with regard to the implementation of communication structures. A smaller number of employees saw the introduction of communication structures as negative in that their interests were not taken into account. One employee’s comment about the communication structures was that “They are not really representing workers’ interests, as there is nothing positive that comes from these committees”. Another employee commented that “There is poor communication between Transcom representatives and people on the shopfloor; they only consult us when there are big issues”. A greater number of employees, however, had a positive perception of the implementation of communication structures in that it had improved communication at the firm. One employee said that “The committees are functioning well and they provide us

frequently with feedback". Another employee commented that "It is good that people are involved, communication has improved and some of the suggestions have been implemented; the minutes of the meetings are also provided".

Most of the workers expressed the need for an incentive scheme that paid more regularly, which would, as a result, motivate workers to work toward improving productivity. As has been mentioned previously, there was an incentive scheme at the firm when it joined the W/C. but both management and workers conceded that it did not meet expectations and, as a result, a new scheme was introduced. One worker, in his response about his perceptions of the old incentive scheme, commented that "it was motivational in the beginning; there was an incentive scheme that discouraged absenteeism. The motivational influence is waning and the people actually doing the work are not benefiting". Another worker was more positive about the new scheme, and he said, "it encouraged people to put in more. Workers can benefit because if they produce more, they get more money". Another worker also expressed similar positive sentiments about the scheme and said, "It is good; it gives workers something to strive for". The perceptions of a large number of employees about the implementation of an incentive scheme were positive as this scheme was seen to hold more benefits for the workers as well as for the firm.

Concerns were raised by some workers with regard to promotion opportunities, which were viewed as not benefitting most workers. The comment by one employee was that "there is a lot of favouritism; the chances of promotion are slim". Similarly, another employee noted that "certain people get promoted here". Another employee commented, "Here I have to wait for someone to die."

This construct was assessed as moderate because although a large number of employees had expressed positive perceptions of the implementation of TBWO management policies and practices, a significant number of employees also expressed some negative perceptions. It should, however, be pointed out that most of the negative perceptions were mainly related to the communication process between the employees and their representatives and management. Most of the employees did not have negative perceptions of the implementation of TBWO management policies and practices per se.

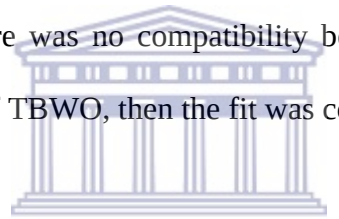
5.2.5 TBWO-Values Fit

A comparison of the objective values of TBWO and the employees' espoused values in order to determine a fit was assessed. As has been previously mentioned, the objective values of TBWO were derived from the review of the literature and are suggested to be the following:

- **Improved performance –** Some areas of increased performance include greater employee satisfaction, reduced costs, faster and better decision-making, and increased productivity (Elmuti, 1997).
- **Greater employee development –** employees have to be capable of working in a team-based environment as they are given increased responsibility and authority. They, therefore, require the necessary skills in order to perform effectively.
- **Greater devolvement of responsibility and authority –** decentralized organizations are able to respond quickly because the decision-making power is distributed at all levels of the organisation according to the type of decision and the location of expertise.
- **Increased co-operation (teamwork)** – co-operation among team members and between teams is more important than competition.

- **Job security –** job security is not guaranteed as there might be other factors such as slow demand growth and weak economic conditions, which are out of the firm's control that might contribute to layoffs. Keating et al. (1999) called this the "Iron Law of Layoffs," which means that the more successful the firm is in improving its manufacturing operations, the more intense the pressure for layoffs if the firm is unable to grow their sales.

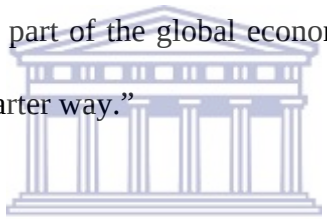
The espoused values of the employees were assessed from the interviews with employees using the same list of values as those identified for TBWO. If the employees' espoused values were compatible with the objective values of TBWO, then the fit was assessed as good. On the other hand, if there was no compatibility between the employees' espoused values and the objective values of TBWO, then the fit was considered to be poor.



Most of the workers interviewed stated that job security was very important to them. They believed that due to the adverse economic conditions, which resulted in a large number of jobs being lost and high levels of unemployment, it was important for one to keep his or her job. One employee said, "Although job security is important, it won't be the end of the world if I am retrenched. I will go overseas; I'm still young." The issue of job security has a significant influence on the overall assessment of the construct of the values fit. At the heart of the issue is the imminence or the risk of the job losses, meaning that if the imminence or the risk for job losses is high, then this variable will have a greater influence on the overall assessment of the construct. This variable was assessed as a poor fit because there was incongruence between the objective TBWO values and employees' espoused values.

Most employees indicated that it was very important for them to acquire more skills to perform different tasks. A large number of the workers interviewed also indicated that it was very important for each employee to take personal responsibility for his or her job. The objective value of TBWO was that each person in the team had to take responsibility for his or her work as this would reduce the number of rejects and increase the quality of the output.

Most employees indicated that teamwork was very important to them. Most of the employees interviewed also indicated that quality was very important to them. One employee, in response to the question of the importance of quality, said that "It is very important because good quality parts makes the job easier and also maintain the cell's reputation." Another employee said, "To be a part of the global economy, it is important to make fewer defects and produce more in a smarter way."



The 'TBWO-values fit' construct was assessed as good because there was a good fit in most of the variables even though there was poor fit in the job security variable. The following table will provide a summary of the findings for this construct.

	Level of Importance Objective TBWO values	Level of Importance Employees' espoused values	FIT
Job Security	**Low**	**High**	**Poor**
Acquisition of Skills	**High**	**High**	**Good**
Personal Responsibility	**High**	**High**	**Good**
Teamwork	**High**	**High**	**Good**
Quality	**High**	**High**	**Good**

Table 5.1.TBWO-values fit at Firm GSM

5.2.6 Implementation Effectiveness

Implementation effectiveness, which is the quality and consistency of use of TB shopfloor work practices by workers, was assessed using eight variables. As was mentioned in chapter four, the assessment of implementation effectiveness as either high, moderate, low, or none depended on the degree of use of the shopfloor work practices by the employees. According to the model, the more the firm implements TBWO management practices such as training in TB problem-solving techniques, the more frequently and correctly the employees will use problem-solving techniques on the shopfloor. The model also suggests that the strength of the climate for implementation and the TBWO-values fit influence employees' commitment to use the shopfloor work practices, which, in turn, influences implementation effectiveness. The assessments were made through observation on the shopfloor and through interviews with employees and management. The variables that were assessed are the following:

- Quality inspection
- Machine setup
- Preventative maintenance
- Setting production schedules
- Team meetings
- Generation of suggestions
- Use of problem-solving techniques on the shopfloor
- Performance measurement and visual management.

5.2.6.1 Quality Inspection

As there was no quality control department to do the final inspection on the products before they went to the customer, each worker and the cell as a whole was responsible for quality

checks. Parts were checked hourly throughout the day depending on the nature of the job. There was an indication that some workers did not do quality inspection frequently and correctly, which could be the reason for the fluctuations in the rate of returns.

This variable was assessed as ‘high implementation effectiveness’ because each person was responsible for conducting quality inspection before the product reached the final stage.

5.2.6.2 Machine Setup

The team leaders were responsible for the machine setup every day. Although there were some problems in setup, these were done correctly in most cases. Workers indicated during cell training sessions that operators needed to be trained in machine setup. Training in setup was subsequently conducted.

This variable was assessed as ‘high implementation effectiveness’ because the team leaders in each cell were setting up the machines correctly and frequently and training of individual operators within the cell on how to set up machines had taken place.

5.2.6.3 Preventative Maintenance

Each cell was responsible for checking and recording the state of the machines every day, at the beginning of each shift and at the end of the week. Greasing and oiling took place once a week.

This variable was assessed as ‘high implementation effectiveness’ because the operators in each cell did maintenance of machines and it was done frequently and correctly.

5.2.6.4 Setting Production Schedules

The team leaders were responsible for setting the production schedules. The cells were sometimes involved in the planning.

This variable was assessed as 'high implementation effectiveness' because the cell team leaders and their members were involved in setting up the production schedules and these were done frequently and correctly.

5.2.6.5 Team meetings

Team meetings took place every morning in the green areas, where the night-shift workers handed over to the day-shift workers. Problems and other issues that might have arisen the previous day were discussed and the day's work was also discussed. Cell members took these meetings seriously, and they participated actively by generating suggestions on how to deal with problems that might have been encountered.

This variable was assessed as 'high implementation effectiveness' because the cell team meetings took place every morning and the employees were using these to address production-related problems.

5.2.6.6 Generation of Suggestions

At the beginning of the project, a suggestion system was put into place whereby a suggestion box was placed on the shopfloor for workers to place their suggestions. The suggestions that were generated mostly related to improvements in the work itself. The enthusiasm on the shopfloor was great, initially, but as time went on, it dissipated, and the number of

suggestions decreased as a result. The explanation for the decrease in suggestions was that workers felt that some of their suggestions were not implemented and it took time for them to get feedback on their suggestions. Another reason for the decrease in enthusiasm was that workers saw the team meetings as a more appropriate channel in which to raise their suggestions because there was face-to-face interaction and the response was more prompt.

This variable was assessed as ‘high implementation effectiveness' because the cells were making suggestions frequently at the cell training sessions on how to improve the quality of products.

5.2.6.7 Use of Problem-Solving Techniques on the Shopfloor

As has been mentioned, the workers were given training in problem-solving techniques, and to make it more practical, each cell had to identify a problem in their work area and apply the problem-solving techniques to address that problem. It was observed that some of the workers did use the problem-solving techniques sometimes, but others considered this to be a waste of time when pressing problems had to be addressed immediately.

This variable was assessed as ‘high implementation effectiveness’ because the cells were using the problem-solving techniques regularly to come up with creative solutions to solve quality problems.

5.2.6.8 Performance measurement and visual management

Each cell kept an updated record of the performance measures, which were identified at the beginning of the chapter, for the purposes of reporting to W/C. These measures were updated

every morning and were presented visually in the form of graphs for everyone in each cell to see. Company-wide performance measures were also posted on the main notice board. The mission statement and the vision were also posted on the notice board.

This variable was assessed as 'high implementation effectiveness' because the cells kept updated information on performance and this was presented visually for everyone to see. The performance data was updated regularly.

The 'implementation effectiveness' construct, which was defined as the quality and consistency of use of shopfloor work practices, was therefore assessed as high. The assessment of the eight variables of shopfloor work practices indicated that the employees used them frequently and correctly.

5.2.7 Summary

The diagram below provides a summary of the key findings in this section with regard to the implementation of TBWO at Firm GSM. The implementation of TBWO management policies and practices was assessed as high. The climate for implementation was assessed as moderate, based on the employees' perceptions of the implementation of TBWO management policies and practices. The 'TBWO-values fit' construct was assessed as good because there was a high compatibility between the objective values of TBWO and the employees' espoused values. Employee commitment to use the shopfloor work practices was therefore inferred to be high, which, as a result, contributed to high implementation effectiveness. The inference of the commitment construct raised an important question, which was "Why was commitment high when the climate for implementation was moderate?" since

the climate for implementation had such a significant influence on commitment. As it has been previously explained, although the climate for implementation was assessed as moderate, the employees did not have negative perceptions of the TBWO management policies and practices. This meant that they were committed to use the shopfloor work practices frequently and correctly.

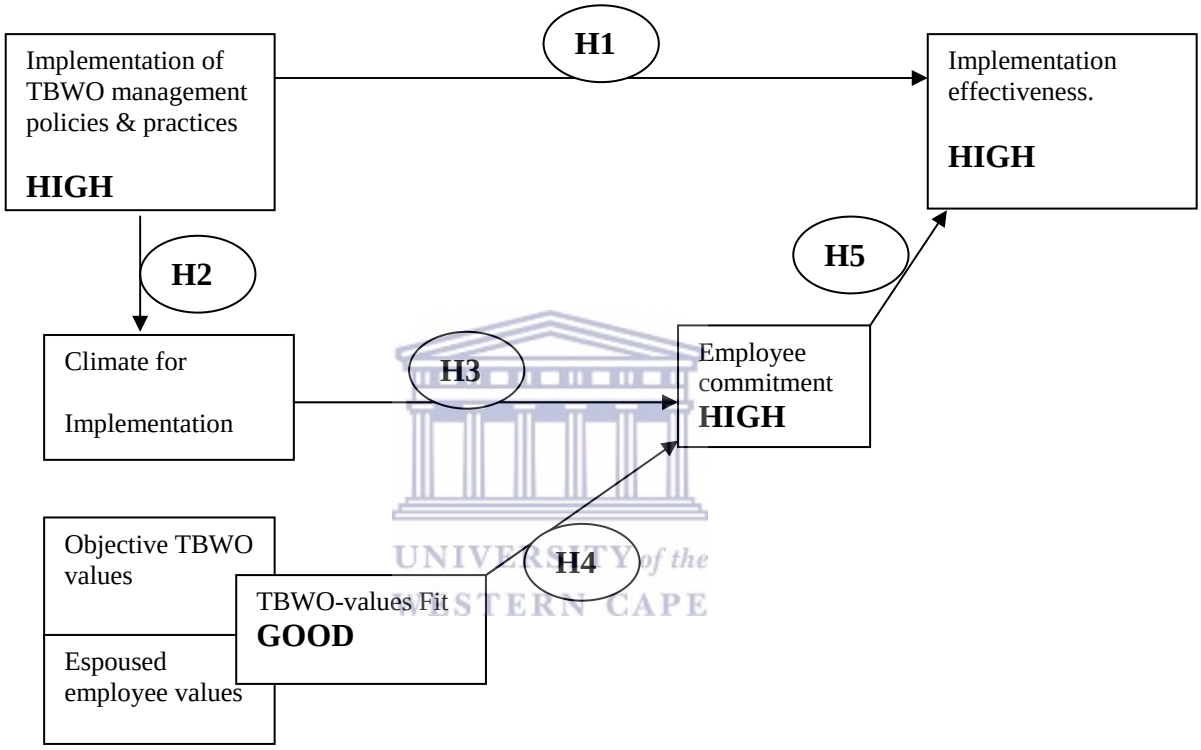


Figure 5.1. TBWO Implementation at Firm GSM

5.3 CASE STUDY OF FIRM F

5.3.1 Introduction

Company reports indicate that this firm was established in 1993 as a stainless steel component manufacturer (sheetmetal products). These products are used to manufacture large equipment. Firm F is part of the Firm FMC group, which is one of the company's main customers. It grew to be a fabricator of various products in the stainless steel industry. The company manufactures food- and beverage-processing equipment and agricultural as well as snack and bakery equipment. One of the major projects of the company was the manufacturing of processing equipment for Largo Foods (Ireland); Willards, Frimax and Simba.

When Firm F was started in 1987, it had a workforce of only three employees. In 2001 there were approximately 80 employees. Twelve of the artisans at the company were black and ten were white. The company's workforce did not belong to a union.

5.3.2 Reasons for Implementing TBWO

The lack of trust between management and employees was one of the main reasons cited by management for implementing TBWO and joining the Workplace Challenge in 1999. Workers felt that management did not value them as an important part of the business. Management also saw workers as lazy people who did not want to work.

The following were also reasons the company decided to implement TBWO:

- Communication between stores and the shopfloor was poor.

- Structures for worker participation in decision making did not exist and workers felt excluded from decision making on important issues that affected their jobs.
- There was no HR function within the company to deal with employees' issues as the company was sharing this function with Firm FMC.

The Workplace Challenge and the implementation of TBWO were therefore seen as a means to address the problems stated above and to further improve the company's performance.

A number of measures used to report to the W/C were identified at the firm to evaluate performance, and they were the following:

- Labour as a percentage of sales
- Machine efficiency
- Absenteeism
- Injury rate
- Consumables
- On-time delivery
- Reject rate.

5.3.3 Implementation of TBWO Management Policies and Practices

In this section, seven variables will be assessed to determine the extent of the implementation.

5.3.3.1 Training

No training took place at Firm F in 2000. In 2001 a skills audit was conducted and a number of areas where training was needed were identified. Team-based training was identified as

one of the important areas where training was needed. There was, however, a delay in the introduction of team-based training as some issues related to the organisational structure still had to be resolved.

One of the key weaknesses that emerged from the strategic review session in 2001 acknowledged that the training of workers was not adequate and coherent.

The training variable was therefore assessed as 'no implementation' since no training had taken place between 2000 and 2001.

5.3.3.2 Introduction of Communication Structures

When the company joined the W/C, there were no communication structures. A steering committee, which consisted of both management and workers, was formed to oversee the implementation of TBWO at the firm.

Shopfloor workers elected their representatives to represent them on the steering committee. These representatives were responsible for taking issues that workers raised during their meetings to the steering committee meetings and also for reporting back to the workers on what transpired at these meetings. One employee said, "This represents a major change for me. Now we have representatives who can carry our problems or concerns to management and who can participate in making decisions on our part. In the old days we did not have a say in what happens here. We had to accept what management told us. I think that these changes have helped to improve communication."

This variable was assessed as high because the communication structures (employees' committees and joint management-employee steering committee) were in place and were functioning effectively.

5.3.3.3 The Incentive Scheme

An incentive scheme was introduced at the beginning of August in 2001 on a trial basis. The different sections in the firm made inputs on what to measure and when to pay out. The incentive scheme was based on team performance, and it was designed to pay out monthly. Management pointed out that the incentive scheme was aimed at motivating people on the shopfloor.

This variable was assessed as 'low implementation' because the incentive scheme had been introduced, but at the end of the research period, it had not actually paid out.

5.3.3.4 Promotion Opportunities

The main achievements of restructuring cited at Firm F were the opportunities for career development and upward mobility for the workers on the shopfloor. An example was that of the promotion of the laser-cutting machine operator to being a programmer of the laser-cutting machine. The person who, in turn, filled the position of the laser-cutting machine operator started at the company as a general worker.

Another important example of promotion opportunities was the appointment of the workshop manager. The person who was selected as the workshop manager had been with the company since its inception in 1997. He therefore knew a lot about the work of the company and had

the respect of people on both the shopfloor and in management. The significance of this process was that it was an open process in that positions were advertised internally and six applicants were short-listed. After a series of interviews and psychometric tests, the person who qualified for the position was selected. Both management and workers commented that the process was seen to be more open because an external recruitment consultant was responsible for the whole process, thus reducing the chances of allegations of favoritism arising.

This variable was assessed as 'high implementation' because promotions did take place.

5.3.3.5 Changes in Organisational Structure

In May 2000, the organisational structure (both production and management) was analysed to assess whether it was adding value to the company in its form at the time. A decision was taken to restructure, since the existing organisational structure was seen as the main cause of productivity and communication problems within the company. Project teams were formed to work on a new organisational structure, with constant meetings taking place between the leaders and the workers to provide their input and to provide feedback. The job titles were restructured to support teamwork and new job descriptions were completed.

A human resources (HR) person was appointed to deal with the various HR issues including the matter of employment equity (EE). An employment equity team was also introduced to communicate with the employees and to provide feedback on the process of the formulation of the EE plan and other issues relating to the implementation of the EEA. This team

consisted of worker representatives and other people who were nominated on the shopfloor, including the only woman welder in the company.

This variable was assessed as ‘high implementation’ because a number of changes took place in the organisational structure.

5.3.3.6 Changes in Shopfloor Layout

The shopfloor layout was not changed to a cellular layout. Similar activities such cutting, polishing and so forth were, however, grouped together, and people in these different areas were regarded as teams.

A trolley was also installed on the shopfloor to alleviate the problem of manually transporting heavy materials and finished products from one point to the other.

This variable was assessed as moderate because, even though no significant changes towards cellular layout had taken place due to nature of the production process of the firm, layout changes that improved work in progress (WIP) flow were made.

5.3.3.7 Factory Visits

At Firm F, no factory visits were conducted during the period of the research. Management acknowledged the fact that factory visits were important for the workers to understand how their work affects others but mentioned that, due to time constraints, no factory visits had been conducted.

This variable was assessed as ‘no implementation’ because no factory visits took place during the period of the research.

The construct of the ‘implementation of TBWO management practices’ was assessed as moderate because, although the introduction of some variables (e.g. communication structures, changes in organisational structure and promotion opportunities) was high, the other variables such as training, factory visits and changes in shopfloor layout were not introduced or implementation was low. According to the research model, the extent of the implementation of TBWO management policies and practices influences the climate for implementation, which is defined as the employees’ perception of the implementation. The implementation of TBWO management policies and practices also has an influence on the implementation effectiveness, which is defined as the quality and consistency of use of shopfloor work practices. The assessment of the climate for implementation will be discussed next.

5.3.4 Climate for Implementation.

In March 2000, a meeting was held at the company during which workers were given an opportunity to express their views on whether they had experienced any improvements in their working conditions or in the quality of work life since the inception of the Workplace Challenge.

According to company reports, the workers’ perceptions of implementation were positive at that stage, with workers citing communication between them and management as having significantly improved. The fact that they played a role in decisions on the implementation of

changes and also on how things were done was a significant break from the past, where the workers were only supposed to do what they were told. They also expressed their expectations of the move towards TBWO: that it would mean more training and better working conditions.

A strategic review session was held in 2001 in which, according to company reports, workers raised concerns that the benefits of moving towards TBWO were not visible enough for them. The concerns were related especially to training and also to monetary benefits as a result of the implementation of TBWO. Some workers also expressed their concerns about the slow pace of implementation.

A large number of employees also expressed negative perceptions about the implementation of training because no training had taken place since the company started with the changes. One employee commented about the lack of training and said, “Management could have done more to train unskilled workers.” Another employee commented, “More training is needed.” These comments by the employees reinforce the concern that was raised in the strategic review session in 2001 about the changes not meeting their expectations, especially with regard to training.

Employees’ perception of the introduction of the communication structures was, to a large degree, positive, although a small number of employees raised concerns. One employee said , “Management comes to the meetings already decided and the committee rubber stamps.” Another employee, however, expressed a different view and said, “When I started working here, workers had no say, and even though we had ideas on how to do things differently to

improve quality, we did not tell management. Now I can say that communication is better; we have representatives who take our problems to management and also tell us what management said." The latter comment represented the view of a large number of employees.

Most employees had positive perceptions of the promotion opportunities at the firm. One employee stated, "I think the company is serious about giving workers a chance to prove themselves. It only depends on the person's hard work." Another employee stated, "There have been a few promotions; for example, the new factory manager was here for 14 years as an operator; now he is in management. This shows us that it is possible to move up to a higher position, that's if one works hard." Another employee said, "The process of appointing the workshop manager and the project team leaders was open. Everyone had to go through the process of interviews and tests and the best candidate was chosen. This is a big change from the past where all the people appointed to positions here were from outside. It is the first time that people from within the company have been appointed."

This construct was assessed as strong because most employees had a positive perception of the implementation of TBWO management policies and practices, even though some workers expressed some negative perceptions of the implementation.

5.3.5 TBWO-Values Fit

Most of the employees interviewed responded that job security was very important to them. One employee said, "Job security is very important because it influences other parts of one's life." The fit was considered to be poor with regard to this variable because there was no compatibility between the employees' espoused values and the objective values of TBWO.

Since there was no imminence or risk of job losses at the firm at that stage, this variable did not have a major influence on the overall assessment of the construct.

A large number of employees also indicated that it was very important for each employee to take personal responsibility for his or her job. The workers also believed that teamwork was very important because the work gets done quicker, it improves the quality of the products and it also improves communication. Workers also said that it was very important to produce quality products the first time and also to deliver on time.

The overall assessment of the 'TBWO-values fit' construct was good because there was a good fit on most of the variables, that is, skill acquisition, personal responsibility for one's job, teamwork, and quality. As has been previously mentioned, although there was poor fit with regard to the job security variable, it did not have a major influence on the overall assessment of the construct. The workers' responses are in line with the objective values of TBWO. The table below will give a summary of the findings for this construct:

	Level of Importance Objective TBWO values	Level of Importance Employees' espoused values	FIT
Job Security	**Low**	**High**	**Poor**
Acquisition of Skills	**High**	**High**	**Good**
Personal Responsibility	**High**	**High**	**Good**
Teamwork	**High**	**High**	**Good**
Quality	**High**	**High**	**Good**

Table 5.2.TBWO-Values Fit at Firm F

5.3.6 Implementation Effectiveness

Seven variables were assessed to determine the implementation effectiveness.

5.3.6.1 Quality Inspection

The operators were responsible for checking the quality of their work rather than leaving it to the final stage for quality inspection. There was an indication that most of the workers did quality inspection properly, which explained the drop in the reject rate from 10% in previous years to 3% in 2001.

In the spirit of improving customer relations and reducing customer complaints by improving the quality of products, the ordering process was changed. Customers had to place an order before quotations and designs were done. This meant that the customer had to first approve the job before it was done. This was to ensure that the jobs were completed according to customer specifications and also to reduce the need to re-work parts/products which otherwise would not have met customer standards. The firm also set itself a target that every job that came in had to be finished within three days

This variable was assessed as high because operators performed quality inspections during the production process.

5.3.6.2 Machine Setup

The operators did machine setup depending on the product that had to be produced. This variable was assessed as moderate because even though the operators did do machine setups, they were not frequent.

5.3.6.3 Preventative Maintenance

The operators were responsible for checking and maintaining the machines. This variable was assessed as high because the operators checked and maintained the machines frequently and correctly.

5.3.6.4 Setting Production Schedules

The production schedules were set centrally by the production manager and were then communicated to the shopfloor during meetings.

This construct was assessed as 'no implementation effectiveness' because the production schedules were set centrally and not by the teams on the shopfloor.

5.3.6.5 Team meetings

The team meetings took place every morning. The teams from the different sections met in the cafeteria to discuss the day's work and also the performance measures of the previous day.

An interesting point raised by both management and workers was that representatives no longer required the facilitation of the consultant or management to organize and conduct the meetings. They were running the meetings independently, and they drew up their own agendas and took and kept their own minutes. The people on the shopfloor were more willing to express their views to the representatives, which was not the case before due to the lack of trust. Trust had since developed between the shopfloor and the representatives.

This variable was assessed as ‘high implementation effectiveness’ because team meetings took place frequently and production-related issues were discussed.

5.3.6.6 Generation of suggestions

The system of using the suggestion box proved to be ineffective as the number of suggestions was very low. The morning meetings were an important platform at which employees generated suggestions. During these meetings, workers got feedback on the suggestions they had previously submitted and those that they generated at these meetings were discussed in the steering committee meetings. The suggestions were generated frequently at the morning team meetings.

This variable was assessed as high because quality suggestions were generated frequently.

5.3.6.7 Use of Problem-Solving Techniques on the Shopfloor

No formal training in problem-solving techniques had taken place at Firm F and the workers therefore did not use these techniques.

This construct was assessed as ‘no implementation effectiveness’ because the employees did not use problem-solving techniques on the shopfloor.

5.3.6.8 Performance Measurement and Visual Management

The performance measures were updated every day, and these were presented in the morning meetings and also posted in the form of graphs on the notice board in the cafeteria for everyone to see. Other issues were also posted on the notice board, such as birthdays of

workers. This was aimed at showing employees they were part of the company. The production schedule was posted on the notice board in the cafeteria ensuring that everyone knew which jobs were important and when they should be completed.

This construct was assessed as high because the performance measurement and visual management were performed frequently and correctly.

The ‘implementation effectiveness’ construct was therefore assessed as moderate. The assessment of the eight variables of shopfloor work practices indicated that although the employees used some of them frequently and correctly, the use of others was either low or non-existent.

5.3.7 Summary

The diagram below summarises the key findings in this section on the implementation of TBWO at Firm F. The implementation of TBWO management policies and practices was assessed as moderate. The climate for implementation was assessed as strong, based on the employees’ positive perceptions of the implementation of TBWO management policies and practices. The TBWO-values fit construct was assessed as good because there was a high compatibility between the objective values of TBWO and the employees’ espoused values. Employee commitment to use the shopfloor work practices was therefore assumed to be high, but this did not necessarily translate into high implementation effectiveness, which was assessed as moderate. These findings will be further discussed in chapter six.

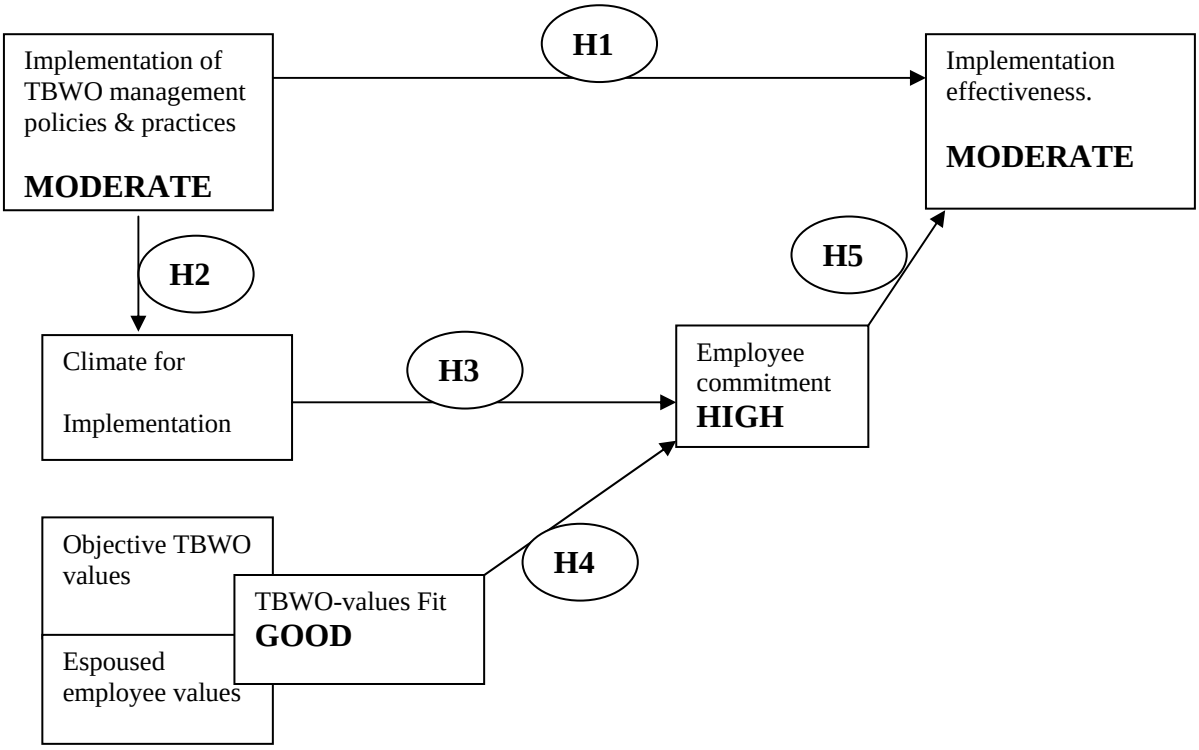


Figure 5.2. TBWO Implementation at Firm F

5.4 CASE STUDY OF FIRM TA

5.4.1 Introduction

The owner established this company in 1990 with three employees. The business grew from doing basic repairs and reconditioning work to the design and manufacture of sophisticated equipment ranging from food-processing equipment to packaging machinery and materials handling. At the time of the study, the firm had a workforce of 60 people, who were not unionised

5.4.2 Reasons for Implementing TBWO

The company decided to join the W/C and to implement TBWO in 1999, mainly to improve the production systems and processes, the management structures, and the functional areas such as marketing, finance, and so forth. In short, the company had to get its internal processes functioning properly before attempting to enter the export market. One of the problems cited by management was the bottlenecks in the production process and late deliveries from suppliers. Another problem was the lack of trust between management and workers. Worker participation structures did not exist.

Workers interviewed on the shopfloor expressed their concerns with regard to access to tools in the stores. A token system used to obtain tools from the stores was at the heart of the problem, since few workers had the tokens. This made it difficult to get the required tools in time, thus affecting productivity levels. The suggestions made by the workers were that personal toolboxes be supplied closer to their workstations, to ensure that the tools were readily available when needed.

Other issues that were also identified during interviews with both management and employees were the following:

- Little progress was made in the change process, and management therefore needed to take the responsibility for driving the process to gain momentum.
- Artisans complained about the late arrival of materials, and a suggestion was made to restructure the stores.
- Some machines were old and needed to be replaced.
- The resistance of middle-level management to the process of change was also a problem. This was due to the fact that some of them felt threatened by the increased participation of workers in decision making on issues that were previously their responsibility. A suggestion made by the steering committee was that training of middle-level managers was required to address this problem.
- The confusion on the part of the workers as to whom they should report, as a result of having to report to two managers, was the other problem cited. One worker said, "It is very difficult to report to two bosses because, whilst you are busy with one job, the other manager will want you to do another job which needs to be completed sooner. This means that you have to leave what you are doing and do the other job, and that causes trouble for you with the other boss. It also causes delays in deliveries." Project leaders who would be responsible for the whole project from beginning to the end were then appointed.

The measures of performance identified at the firm for reporting purposes to the W/C were:

- Absenteeism
- Injuries (hours lost)
- Performance (% of labour cost of turnover)

- Percentage rejects
- Customer complaints.

Information about these measures was supposed to be collected every month and displayed on the notice board for all the workers to see. Management, however, acknowledged that the collection, analysis and display of information was erratic.

5.4.3 Implementation of TBWO Management Policies and Practices

Seven variables will be assessed in this section to determine the extent of the implementation of TBWO management policies and practices at Firm TA.

5.4.3.1 Training

No team-related training took place at Firm TA. The need to restructure took centre stage and, as a result, training was not pursued. Another reason given for not training was that a skills audit needed to be completed before training could start.

This variable was assessed as ‘no implementation’ since no training took place for the duration of the research period.

5.4.3.2 Introduction of Communication Structures

Two communication structures existed at Firm TA in 2000: the one was the management structure, which was predominantly white, and the other one was the workers’ representative committee, consisting of worker representatives, which was predominantly black. The

workers' representative committee played a liaison role between management and workers. The project manager of the W/C questioned the practice of having two separate committees as it went against one of the objectives of the W/C, which was the participation of employees in decision making. The issue was addressed, and a steering committee that included management and employees was formed. At first, some of the workers felt intimidated at expressing their views in front of management. The situation improved as these representatives became more assertive in expressing their views.

Project teams, which consisted of management and workers, were also formed to deal with issues of change in specific areas such as human resources; production; IT; finance and marketing. These teams were very effective in the beginning but soon lost enthusiasm and eventually ended up not meeting. The function of these teams was eventually incorporated into the steering committee.

This variable was assessed as moderate because, although a steering committee had been formed, other communication structures had failed.

5.4.3.3 Promotion Opportunities

There were no promotion opportunities as most people who filled positions after restructuring were from outside the company.

This variable was assessed as 'low implementation' because very few promotions had taken place as most of the people who filled the posts were from outside the company.

5.4.3.4 Changes in the Organisational Structure

Quite significant changes took place in the organisational structure. Two positions were made redundant, one of which was the health and safety position and the other, the human resources (HR) training position, which was taken over by the administration department. The company did not have an HR function as it was small. Having considered the cost implications of having an HR person, the company decided to rather use the services of an HR consultant.

The restructuring programme was actively pursued, resulting in the merging of some positions. Other positions in middle-level management also became vacant as a result of people being retrenched and needed to be filled. The reason given for the retrenchments was that there was some resistance on the part of the people concerned (mainly middle-level management) to the process of change.

The stores and the buying functions in the workshop were merged and a new position, that of procurement officer, was created. This position was filled by 1 September 2000. The position of production manager, which was a new position, was filled at the beginning of August 2000. The two positions, that of project manager and sales manager, became vacant as the two people who had been in these positions resigned. These positions were also filled by 1 September 2000. A new position, that of senior draughtsman/design engineer, was filled by 1 October 2000.

The process of developing job descriptions and measures of performance for all the positions at the firm took place in October 2000. The general manager (GM) noted that the lack of

documented information about the job descriptions and measures of performance resulted in confusion and frustration and, as a result, had an impact on performance. The review of job descriptions was seen as important as it would enable people in new positions and throughout the factory to know exactly what was expected of them.

This variable was assessed as high because a number of changes took place in the structure of the firm, where some positions were merged, others eliminated, and new ones created.

5.4.3.5 The Incentive Scheme

No incentive scheme was implemented at the firm. Management was considering the introduction of an incentive scheme after it had dealt with the issues relating to restructuring.

This variable was assessed as 'no implementation' because no incentive scheme was implemented for the duration of the research.

5.4.3.6 Changes in Shopfloor Layout

There were no changes towards a TB or cellular layout at the firm. This variable was assessed as 'no implementation' since no changes in the layout of the firm towards cellular layout were made.

5.4.3.7 Factory Visits

Both management and workers acknowledged the importance of visiting suppliers and customers to enable workers on the shopfloor to gain an understanding of how what they do

fits into the bigger picture. There were, however, no visits to suppliers or customers during the period of the research.

This variable was therefore assessed as 'no implementation' because no visits took place.

The overall assessment of the implementation of 'TBWO management policies and practices' construct was low since the implementation of most of the practices and policies was either low or none at all. The research model suggests that the implementation of the TBWO management policies and practices influences the climate for implementation (i.e. employees' perception of implementation) and implementation effectiveness, which is the quality and consistency of use of TB shopfloor work practices. The climate for implementation will be discussed in the following section.

5.4.4 Climate for Implementation

Interviews with people on the shopfloor, especially with workers' representatives and operators, were conducted in 2000. The people interviewed expressed how the introduction of the Workplace Challenge and the participation structures had improved the communication levels between management and workers at the firm.

Interviews conducted in 2001 showed a significant change in workers' perceptions of the implementation process. A worker representative mentioned that with the restructuring that was taking place, people were not well informed and were thus feeling negative. The representative also felt that the workers' role in the management meetings was to rubber-stamp management's views and that management was not taking the concerns or opinions of

the workers seriously. He said, “I did not attend a project meeting recently because my views do not count in any case. At the end of the day, we sit there (in meetings) but they (management) take the final decisions; what’s the point then?”

A large number of workers were also disillusioned with the whole process of change (which resulted in retrenchments and resignations) and some mentioned that there was a tense atmosphere as they were unsure of what was going to happen next. One worker said, “With all the things that are happening here, one is not sure who is going to go next, and this affects our productivity. At the beginning, we were told about all the benefits that we would get when the company joined the Workplace Challenge, but nothing has changed; we haven’t seen any benefits. I was hoping that I would get training, and they promised us that we would get training, but that has not happened.” Another employee said, **“**Management is planning to do training, but this has not been implemented because there is not enough time for training.”

This construct was assessed as weak because employees had expressed negative perceptions of the implementation of the TBWO management policies and practices.

5.4.5 TBWO-Values Fit

Job security was very important to most workers. The workers said that the implementation of TBWO resulted in job losses. One worker said, “Although job security is important to me, here there is no job security; you can go at any time.” The fit with regard to this variable was assessed to be poor since there was incompatibility between the employees’ espoused values and the objective values of TBWO. Due to the fact that job losses were taking place at the

time, the influence of this variable on the overall assessment of the construct was considered to be high.

Most workers also indicated that it was very important for each employee to take personal responsibility for his or her job. The objective value of TBWO is that each person in the team has to take responsibility for his or her work as this will reduce the number of rejects and increase the quality of the output. Most of the workers also believed that teamwork is very important because the work gets done quicker and the quality of the products is improved.

This construct was assessed as poor because even though there was a fit between the objective TBWO values and the employees' espoused values, the job security variable had a bigger influence on the overall assessment of the construct. The table below will give a summary of the findings on this construct:

	Level of Importance objective TBWO values	Level of Importance Employees' espoused values	Fit
Job Security	**Low**	**High**	**Poor**
Acquisition of Skills	**High**	**High**	**Good**
Personal Responsibility	**High**	**High**	**Good**
Teamwork	**High**	**High**	**Good**
Quality	**High**	**High**	**Good**

Table 5.3.TBWO-values fit at Firm TA

5.4.6 Implementation Effectiveness

Implementation effectiveness, which is the quality and consistency of use of TB shopfloor work practices by workers, was assessed using eight variables. As was mentioned in chapter

four, the assessment of implementation effectiveness as either high, moderate, low, or none will depend on the degree of use of the shopfloor work practices by the employees. According to the model, the more the firm implements TBWO management practices and policies, such as training in TB problem-solving techniques, the more frequently and correctly the employees will use problem-solving techniques on the shopfloor. The model also suggests that the strength of the climate for implementation and the TBWO-values fit influence employees' commitment to using the shopfloor work practices, which, in turn, influences implementation effectiveness. The assessments were made through observation on the shopfloor and through interviews with employees and management. The variables that were assessed are the following:

- Quality inspection
- Machine setup
- Preventative maintenance
- Setting production schedules
- Team meetings
- Generation of suggestions
- Use of problem-solving techniques on the shopfloor
- Performance measurement and visual management.

5.4.6.1 Quality Inspection

Quality control was the responsibility of each individual worker, and the project team leaders were ultimately responsible for ensuring that the products were of the right quality.

This variable was assessed as ‘high implementation effectiveness’ because quality inspections were the function of the individuals within teams and were also performed frequently and correctly.

5.4.6.2 Machine setup

The technicians were responsible for the setup of the machines. This variable was assessed as ‘no implementation effectiveness’ as employees on the shopfloor did not do the machine setup as the technicians did.

5.4.6.3 Preventative Maintenance

The operators did not perform preventative maintenance as the maintenance of the machines was the responsibility of the technicians. This variable was assessed as ‘no implementation effectiveness’ as employees on the shopfloor did not do preventative maintenance on machines as the technicians did.

5.4.6.4 Setting Production Schedules

The production schedules were set centrally by the production manager and the shopfloor supervisor. This variable was assessed as ‘no implementation effectiveness’ as the responsibility for setting the production schedules was located centrally and not with employees on the shopfloor.

5.4.6.5 Team Meetings

The daily morning team meetings were stopped. The reason cited by management for stopping these meetings was that they were time-consuming and, as a result, impacted on

productivity. This construct was assessed as ‘low implementation effectiveness’ because team meetings no longer took place.

5.4.6.6 Generation of Suggestions

Few suggestions were generated from the workers because the operation of the suggestion box was discontinued and the morning team meetings had also ceased to exist. This construct was assessed as ‘low implementation effectiveness’ due to the fact that the generation of suggestions did not take place frequently.

5.4.6.7 Use of Problem-Solving Techniques on the Shopfloor

No formal training in problem-solving techniques had taken place at Firm TA, and the workers, therefore, did not use these techniques frequently and correctly. This variable was assessed as ‘no implementation effectiveness’ because employees were not using the problem-solving techniques.

5.4.6.8 Performance Measurement and Visual Management

The performance data was tracked but was not documented. At one of the Workplace Challenge Milestone workshops, the General Manager of Firm TA questioned the relevance of the performance measures, which had been identified for the purpose of the W/C. His argument was that it was difficult for workers to understand the information about the measures of performance. The GM said there was thus a need to review these measures and to refine them and present them in a way that people could understand. The other point was that there was a need to add financial information so that people would understand the financial position of the company.

This variable was assessed as low because the performance measurement and visual management were not used frequently and correctly.

The overall assessment of this construct is low because the consistency and quality of the use of shopfloor work practices was either low or non-existent due to the fact that little implementation of TBWO management policies and practices took place.

5.4.7 Summary

The diagram below summarises the key findings in this section on the implementation of TBWO at Firm TA. The implementation of TBWO management policies and practices was assessed as low. The climate for implementation was assessed as weak, based on the negative employees' perceptions of the implementation of TBWO management policies and practices. The 'TBWO-values fit' construct was assessed as bad because there was a bad fit on the job security variable, which was considered to have a greater influence on the overall construct of TBWO-values fit. Employees' commitment to use the shopfloor work practices was therefore assessed to be low, which, in turn, had an influence on implementation effectiveness, which was assessed as low.

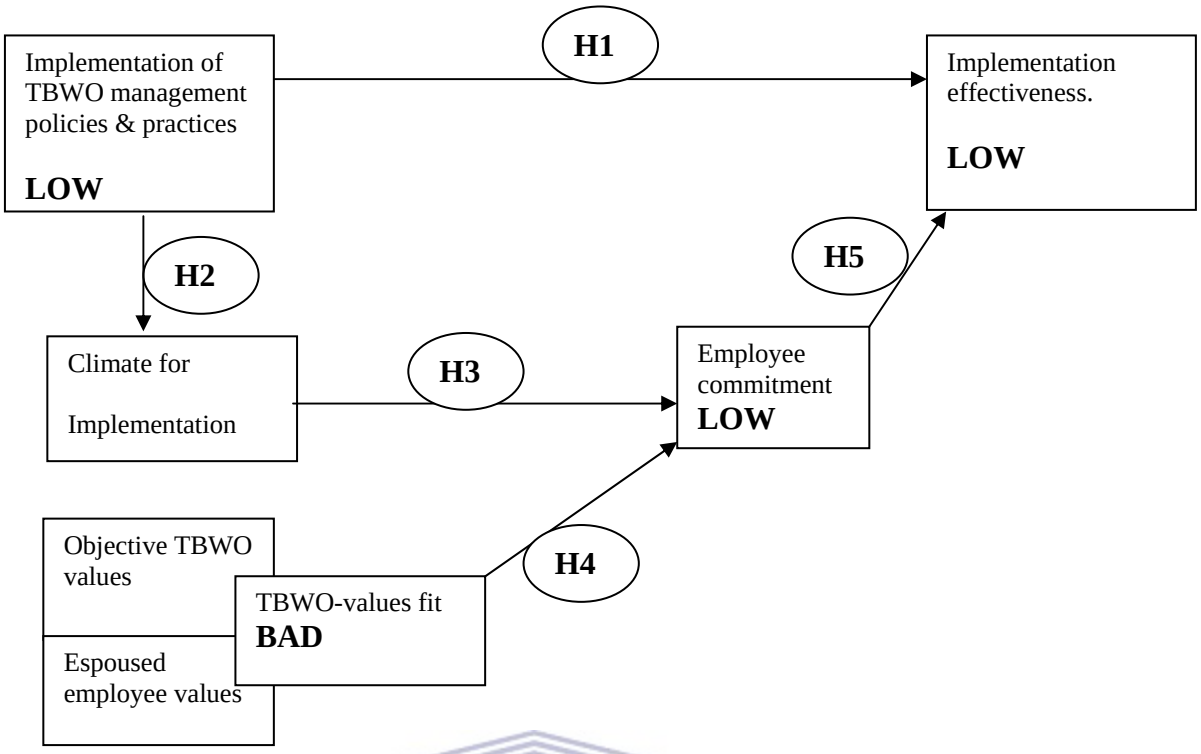


Figure 5.3. TBWO Implementation at Firm TA

5.5 Conclusion

This chapter set out to present the findings in the form of case studies. The case studies were as a result of (1) face-to-face, semi-structured interviews with management workers and consultants, (2) observation, and (3) company reports. Case studies of each firm were presented and each case was structured according to the constructs of the research model used in this study. The variables of each construct were individually assessed according to the assessment criteria outlined in chapter four, and then an overall assessment of each construct was made using the same criteria. The assessment of the constructs presented a pattern, which was in line with the assumptions made in the model. There were, however, issues which arose from the presentation of the findings, such as the implementation of TBWO, climate for implementation, commitment- and implementation-effectiveness relationship and the issue of

job security. The other issue related to changes in the shopfloor layout, as it was more suitable for some firms than for others. These issues will be discussed further in the following chapter.

CHAPTER 6

INTERPRETATION AND DISCUSSION OF FINDINGS

6.1 Introduction

This chapter will provide an interpretation and discussion of the findings presented in chapter five, paying special attention to whether the research hypotheses presented in chapter three were supported or not. The interpretation and discussion will be conducted for each case. A summary of the key findings will be provided at the end of the chapter.

6.2 Firm GSM

Hypothesis 1 states that if firms implement TBWO management policies and practices more comprehensively and thoroughly, then the consistency and quality of use of TB shopfloor work practices by employees will increase.

The literature on the implementation of new forms of work organisation (TBWO) suggests that firms adopting sophisticated technologies and manufacturing practices should also adopt all of the accompanying HRM practices and policies for implementation to be effective (Osterman, 2000; MacDuffie; 1995; Pun, 2001; Vrakking, 1995). In fact, MacDuffie (1995) found that the implementation of "bundles" of HR management policies and practices was linked to improved performance. Some of the HRM practices that are considered to be important for the success of TBWO are the following: TB training, TB reward systems, promotion management support; information sharing, and so forth.

The findings suggest that the implementation of TBWO policies and practices is associated with implementation effectiveness and a firm that implements more comprehensively and

thoroughly obtains higher implementation effectiveness but the opposite is true for the firm that implements less. At Firm GSM, where most TBWO management policies and practices were implemented, employees used TB shopfloor work practices more frequently and more correctly (high implementation effectiveness).

The fact that the move towards TBWO started before the firm joined the W/C meant that it could then focus more on implementation of TBWO practices such as TB training, TB incentive, communication structures, provision of resources for team performance and so on.

The provision of training at Firm GSM played an important role in influencing implementation effectiveness. Training was provided in problem solving, machine setup and other issues related to operating in a TBWO environment, and the findings showed that employees' use of TB shopfloor work practices such as problem-solving techniques, team meetings, machine setup, quality inspections and so on, increased. Blackburn and Rosen (1993) assessed the implementation of total quality management (TQM) and HR policies at Baldridge Award-winning firms and they found that firms which invested in training their employees in quality management experienced significant improvements in employee performance. They also found that firms that had created HR policies and practices that permitted employees to apply their quality skills assumed ownership for solving quality problems and, as a result, receive appropriate rewards and recognition for their accomplishment. Training at Firm GSM was supported by an incentive scheme, which paid employees on the basis of performance (the application of their skills on the shopfloor to improve quality), management support and commitment, proper communication structures, the provision of resources and so on to increase the effectiveness of the implementation.

Resources (time and money) were also provided for each cell to apply shopfloor work practices to improve quality. Each cell was allocated approximately R1500 and time to pursue quality improvement initiatives. The provision of resources could also be an important explanation for the high implementation effectiveness. The thorough implementation of communication structures served as influence on implementation effectiveness in that it allowed for the sharing of information, which is important for firms implementing TBWO. One of the reasons the firm joined the W/C was the need to improve communication between managers. The steering committee (TRANSCOM), comprising management and employees, therefore became an important tool in improving communication at the firm and it also ensured employees' buy-in into the process of change. In addition to the firm-level steering committee, there were also company-wide communication sessions, which also improved information sharing and communication between management and employees at the firm.

The high level of management support of and commitment to the implementation of TBWO was important in enhancing implementation effectiveness. Neubert and Cady (2001) argued that where managers or supervisors are active in involving employees, developing a shared vision, fostering consensus, developing competence and changing formal systems and structures, employees are more likely to be committed to a programme. The manufacturing manager took on the role of "champion", which is someone who plays an important role in driving the process of implementation.

Changes in the organisational structure took place before the firm joined the W/C. With the change towards TBWO, the organisational structure had to be decentralised, which is a basic requirement of implementation of TBWO. Project teams, which included management and

employees, were introduced to deal with issues relating to the improvement of the quality of products. On the shopfloor, cells (teams) were also introduced to promote decentralisation.

The shopfloor layout was changed from a traditional line to cellular layout. Due to the repetitive nature of the production process because of the type of products produced, it was easier to introduce the cellular layout

The findings showed that the assessment of the 'factory visits' variable was low. Although management and employees acknowledged the importance of factory visits to suppliers and customers, it was, however, quite low on the priority list compared to other variables such as TB training, TB incentive scheme, and communication structures. This suggests that although the visits to suppliers' and customers' premises is important for employees to appreciate the significance of their role in the value chain, this variable has a minimal influence on the overall construct of the implementation of TBWO management policies and practices and also on implementation effectiveness.

An important factor in explaining the high implementation rate at Firm GSM could be the fact that the firm was a subsidiary of Firm G Plc. Being part of the bigger international organisation meant that the firm had the support to experiment with new forms of work organisation in line with global trends. The firm's relationship to Firm Gabriel, its major customer, also enabled it to implement TBWO. Firm GSM received support in the form of training on the implementation of cellular manufacturing from Firm Gabriel. Hirschsohn (1997) argued that the diffusion of world-class practices was most likely first, in firms that

are integrated into global commodity chains or compete directly in international markets or second, in subsidiaries of multinationals, rather than in independent domestic firms.

This section discussed and explained the findings with relation to the hypotheses as stated above, and it emerged that the implementation of bundles of HR practices that support TBWO implementation is a very important factor that influences performance, which in this study was defined as implementation effectiveness.

The hypothesis that states that if firms implement TBWO management policies and practices more comprehensively and thoroughly, then the consistency and quality of use of TB shopfloor work practices by employees will increase was therefore strongly supported.

Hypothesis 2: If firms implement TBWO management policies and practices more comprehensively and thoroughly, the climate for implementation will be positive.

The 'climate for implementation' construct was assessed as moderate, which meant that even though a large group of employees had a positive perception of implementation, a significant number also had negative perceptions of implementation.

An interesting aspect of the findings is that although the implementation of TBWO policies and practices was assessed as high, the climate for implementation or the employees' perception of the implementation of TBWO management policies and practices was assessed as moderate, which is contrary to what has been suggested in the literature on implementation.

One of the explanations for the moderate climate for implementation was that when the firm joined the W/C, it had already introduced a TBWO programme called SLIM. As was mentioned in chapter five, the enthusiasm and commitment to the implementation of the SLIM programme disappeared and management therefore envisaged the revival of the enthusiasm and commitment by joining the W/C. The employees saw the participation in the W/C as just another SLIM programme that will come and go away without benefiting them, which could have led to skepticism regarding the implementation of TBWO management policies and practices.

Another explanation for the moderate climate was that since employees were members of a union, they could express their opinions more freely. The participation of some shop stewards in the implementation process meant that there was prolonged and sometimes heated debate about issues relating to implementation. The issue of trust came up frequently where the shop stewards or the worker representatives expressed a lack of trust in management, which could, as a result, have contributed to the negative perceptions of implementation.

The hypothesis which states that if firms implement TBWO management policies and practices more comprehensively and thoroughly, the climate for implementation will be positive was therefore not supported.

Hypothesis 3 states that if there is a strong climate for implementation, which is defined as employees having a positive perception of the implementation of TB policies and practices, then it will be positively associated with increased commitment to the use of TB shopfloor work practices by employees.

Meyer and Smith (2000) argued that organisations could influence the commitment of employees through their human resources management (HRM) practices. They found that the strength of the influence could be determined by how employees perceived the HRM practices. Gaertner and Nollen (1989) found that employee commitment was related to both actual and perceived HRM practices, including internal promotion, training opportunities, and employment security. Neubert and Cady (2001) also found that employees' affective perceptions of the work environment was positively associated with program commitment

According to the hypothesis, the strength of the climate influences commitment, which means that, in this case, it can be inferred that the influence of the climate for implementation on commitment was moderate. In the discussion of the climate for implementation in chapter three, it was established that the climate for implementation is but one factor influencing employee commitment. Having identified that the climate for implementation was moderate from the discussion of hypothesis two in this section, the main question is how much influence the climate for implementation construct had on the 'employee commitment' construct. The other factor, which is the TBWO- values fit, will be discussed later. The 'employee commitment' construct was not measured, but it was inferred from the assessment of the combination of the climate for implementation and the TBWO-values fit. The question of whether the commitment will translate into actual use of TB shopfloor work practices will be examined when hypothesis four is discussed

The hypothesis which states that if there is a strong climate for implementation, which is defined as employees having a positive perception of the implementation of TB policies and practices, it will be positively associated with increased commitment to the use of TB

shopfloor work practices by employees was supported. The reason for this assessment is that even though the climate for implementation was assessed as moderate, its influence on the commitment construct was considered to be less, considering the fact that the employees did not have negative perceptions of the TBWO management policies and practices per se but rather with their representatives and management. This meant that the employees were committed to use the TB shopfloor work practices such as problem- solving techniques, team meetings, machine setups, and so forth.

Hypothesis 4 states that if there is a good fit between the objective values of TBWO and the espoused values of employees, it will be positively associated with increased commitment to the use of shopfloor work practices by employees.

Neubert and Steven (2001:8) argued that "commitment to a programme may also stem from an individual's assessment of the congruence between what he or she prefers or values or the values espoused in a programme". One of the objective TBWO values was that workers increase their skills levels, and most employees across the three firms reported that they believed it was very important to acquire new skills (employee's espoused value) to function effectively in a TBWO environment. The comparison of the objective TBWO values and the employee's espoused values on the training or 'acquisition of skills' variable showed whether there was compatibility or a good fit.

The analysis of the findings shows that there was a poor or no fit on the 'job security' variable. The literature on the implementation of TBWO suggests that job security is a very important element in the implementation of TBWO. Osterman (2000) found that during a

period of extensive restructuring and layoffs, the spread of high-performance work organisations (HPWOs) will stop and perhaps even reverse. The objective value of TBWO was that, with the implementation of TBWO, job security cannot be guaranteed as some jobs might be lost (Keating et al., 1999). The workers at Firm GSM viewed job security as very important to them, which was not compatible with the objective values of TBWO. The managers found themselves in a dilemma because even if they did not want to shed some jobs, sometimes the market conditions forced them to do so.

Creative thinking was applied at Firm GSM when the firm experienced difficult financial conditions as a result of the changes in the market, which meant that some employees had to be laid off. The joint management-labour steering committee decided that rather than laying off workers, only casual workers would be laid off and that permanent or core employees would work short time. This increased the morale of the permanent employees.

The logic would therefore be that, taking into account the impact that the 'job security' variable has on the effective implementation of TBWO, proper communication to all relevant stakeholders should take place at the beginning of the implementation process to explain the implications of implementation for job security. Osterman (2000), however, found that it was possible to successfully introduce innovations in work practices without reassuring employees that their jobs are not at risk

The analysis of the other espoused employee values such as personal responsibility for one's work, teamwork, and quality showed that these were compatible with objective TBWO values. This means that there was a good fit.

Although there was a poor fit on the variable of job security, the overall assessment of the TBWO-values fit was good. The impact of the mismatch between the objective TBWO and espoused employee values on job security appears to have been minimal because, at the time, there was a low risk of job losses at Firm GSM as their primary customer markets were growing. The inference was that the TBWO-values fit, which was good, was positively associated with increased commitment influence on employee commitment.

The hypothesis that states that if there is a good fit between the objective values of TBWO and the espoused values of employees, it will be positively associated with increased commitment to the use of shopfloor work practices by employees was supported.

Hypothesis 5 states that a higher commitment by employees to the use of TB shopfloor work practices will lead to better quality and consistency of actual use of these shopfloor work practices by employees.

Neubert and Cady (2001) argued that program commitment was positively associated with participation, which they defined as the degree to which a person participates or continually engages in organisational activities, which, in turn, will be positively associated with performance, which they define as the measurable outcome associated with participation. Vandenberg et al. (1999:3) argued that the strength of the subjective beliefs about events exerts a much more powerful influence over individuals' and organisational effectiveness than do objective assessments of those same events, which means that employees' perceptions of implementation, which is linked to commitment, is more important than the actual implementation.

The examination of the findings on the relationship between climate for implementation, commitment and implementation effectiveness suggests that the climate for implementation had moderate influence on commitment. The combination of the moderate climate for implementation and the good TBWO-values fit led to the inference of high commitment. The expectation from these findings was that since commitment was moderate, implementation effectiveness would also be moderate. This is in accord with the literature, which suggests that climate influences commitment, which, in turn, influences performance (Meyer & Smith, 2000; Neubert & Cady, 2001; Klein & Sorra, 1996). At Firm GSM, implementation effectiveness was high, even though the climate for implementation was moderate. The findings show that employees at Firm GSM were using the TB shopfloor work practices, which included using problem-solving techniques, team meetings, housekeeping, machine setup, preventative maintenance and so on frequently and correctly

The discussion above highlights the fact that although literature on implementation suggests that a strong climate for implementation and high employee commitment are crucial for high implementation effectiveness, the findings suggest that the strength of this relationship could be overstated. An alternative explanation could be that the implementation of TBWO management practices and policies plays a bigger role in explaining high implementation effectiveness.

The hypothesis that states that a higher commitment by employees to the use of TB shopfloor work practices will lead to better quality and consistency of actual use of these shopfloor work practices by employees was therefore supported.

The discussion of the Firm GSM case study has shown that the findings presented in chapter five do support hypotheses one, three, four and five in this study, but hypothesis two does not seem to adequately describe the relationship between the implementation of TBWO management policies and practices and the climate for implementation constructs. The main point that emerged is that if a firm implements TBWO management practices and policies thoroughly and extensively, implementation effectiveness will be high. One question that emerged related to the strength of the climate for implementation was the employee commitment relationship to implementation effectiveness. It was discovered that despite the climate for implementation being moderate, commitment and effectiveness were high.

6.3 Firm F

Hypothesis 1 states that if firms implement TBWO management policies and practices more comprehensively and thoroughly, then the consistency and quality of use of TB shopfloor work practices by employees will increase.

The implementation of TBWO at Firm F was assessed as moderate because, although the implementation of some policies and practices was high, the implementation of others was moderate, low, or there was no implementation at all. The implementation construct was assessed as moderate.

The implementation of TBWO management policies and practices at Firm F concentrated mostly on creating an organisational structure that will facilitate the sustainable implementation of the TBWO management policies and practices. The organisational structure in the form that it was then was seen as an impediment to the proper and sustainable

implementation of TBWO. The focus was on decentralisation, which meant the creation of a structure that allowed for the involvement of employees in decision making about the implementation process. Thibodeaux and Faden (1994) supported this approach and argued that organisations that run smoothly have an alignment of values between the organisational structure and management strategies. This variable was assessed as high.

The findings show that at Firm F, the implementation of TB training did not take place for the duration of the research. This variable was therefore assessed as 'no implementation'. The literature in the field of TBWO implementation places a lot of importance on the provision of training for the effective implementation of TBWO (Thibodeaux & Faden, 1994; Osterman, 2000; Blackburn & Rosen, 1993). The lack of training, for example, in problem solving or machine setup could be the reason why employees did not use TB work practices such as problem solving and machine setup on the shopfloor.

The implementation of communication structures was assessed as high as a joint management-labour steering committee was established and it was functioning well. The employees had a chance to elect their own representatives on this committee.

The promotion opportunities (as presented in chapter five) were created at Firm F as some workers were promoted to higher positions. This variable was assessed as high.

There were no changes in the shopfloor layout towards a team-based (cellular) layout. One of the explanations is that, taking into account the nature of the products produced, which involve high variety as they are produced according to the customer's specifications (job

shop), it was difficult to implement this kind of layout. Li and Barnes (2000:1) found that "the adoption of a cellular layout in a job shop with the Kanban system should only be considered if the amount of setup achievable through cellular manufacturing is medium to large; otherwise functional layout should be adopted". They further found that moving parts in batches within cells was more advantageous than moving parts one piece at a time.

The findings in chapter five also show that the 'factory visits' variable was assessed as 'no implementation' since no factory visits had taken place. It was interesting to note that although management and employees noted the importance of factory visits, the main reason cited for the implementation of this variable was that there was no time. This meant that the other variables, which were more important to the improvement of performance, were given more attention.

At Firm F there was also a high level of management involvement in the implementation of TBWO, which can also explain the rate of implementation. The managing director played an important role in driving the process of change, and other managers were also actively involved.

The other explanation for the moderate implementation was that Firm F was part of the Filmatic group, which meant that it had the support and backing of a bigger group. Firm F, moreover, also competes in international markets as it exports to Africa, Australia, Asia USA and Europe. Hirschsohn (1997) argued that the diffusion of world-class practices was most likely, firstly, in firms that are integrated into global commodity chains or compete directly in international markets or, secondly, in subsidiaries of multinationals rather than in

independent domestic firms. This was the case for Firm F as it is competes directly in international markets and is part of a multinational company.

The assessment of the implementation of TBWO management practices and policies was moderate at Firm F, and this meant that the implementation effectiveness was also moderate. Since employees had not been formally trained in problem solving or machine setup, they did not use any problem-solving techniques or machine setup skills on the shopfloor. The other practices, such as the generation of suggestions, team meetings, quality inspections and so on, were, however, used, even though moderately.

The hypothesis which states that if firms implement TBWO management policies and practices more comprehensively and thoroughly, then the consistency and quality of use of TB shopfloor work practices by employees will increase, was thus supported.

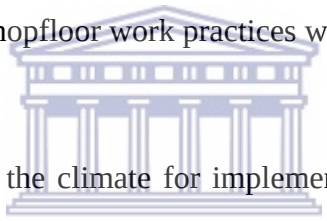
Hypothesis 2: If firms implement TBWO management policies and practices more comprehensively and thoroughly, the climate for implementation will be positive.

The findings show that the climate for implementation was strong at Firm F as the majority of employees perceived the process of the implementation of TBWO management policies and practices positively. It should, however, be mentioned that a relatively small number of employees had negative perceptions of the implementation.

That the majority of employees expressed positive perceptions of the implementation of communication structures was shown by their acknowledgement of improvements in

communication that took place. A major factor was that employees could elect representatives of their choice to represent them on the steering committee and, as a result, they were more willing to volunteer their ideas in improving quality. Some employees, however, complained that the representatives were not representing their interests and they saw them as tokens to rubber-stamp management decisions. It would be interesting to establish how the fact that the employees were not members of a union influenced their perceptions of the communication structures.

A large number of employees, however, had negative perceptions of training, as no training had taken place since the introduction of TBWO, although they had been promised training, which explains why their use of shopfloor work practices was also moderate.



The findings therefore show that the climate for implementation was high even though the implementation of TBWO management policies and practices was found to be moderate. This finding is also contrary to the literature (Klein & Sorra, 1996), which states that there is a positive correlation between the implementation of TBWO management policies and practices and the climate for implementation.

One of the reasons that can be advanced for the positive perceptions of the employees is that since the move towards TBWO, which involved employee participation in decision making, was a new phenomenon at the firm, employees were more enthusiastic about these changes. Getting employees to buy into the change process played a very important role in ensuring this enthusiasm because employees considered the changes as a move away from the way things had been done in the past when management took decisions unilaterally without any

input from the employees. The findings show that the employees saw the implementation of TBWO management practices and policies such as TB training, incentive scheme, and communication structures as providing tools for empowerment.

The hypothesis which states that if firms implement TBWO management policies and practices more comprehensively and thoroughly, the climate for implementation will be positive was not supported.

Hypothesis 3 states that if there is a strong climate for implementation, which is defined as employees having a positive perception of the implementation of TB policies and practices, it will be positively associated with increased commitment to the use of TB shopfloor work practices by employees

According to Klein and Sorra (1996), a strong climate for implementation will increase employee commitment. In this study, employee commitment was inferred to be high, based on the positive perceptions of the employees of the implementation of TBWO management policies and practices. These findings were in line with the literature (Klein & Sorra 1996), which suggests that the strength of the climate will influence commitment. The question, however, was whether the high commitment would result in high implementation effectiveness, which will be dealt with in the following sections.

The hypothesis that states that if there is a strong climate for implementation, which is defined as employees having a positive perception of the implementation of TB policies and

practices, it will be positively associated with increased commitment to the use of TB shopfloor work practices by employees was therefore supported.

Hypothesis 4 states that if there is a good fit between the objective values of TBWO and the espoused values of employees, it will be positively associated with increased commitment to the use of shopfloor work practices by employees.

There was a good fit between the objective TBWO values, which says that for employees to function effectively in a TBWO environment, they have to acquire the necessary skills, and the employees' espoused value, which rated the acquisition of TB skills as very important.

There was a poor fit between the objective value of TBWO, which says that job security cannot be guaranteed when TBWO is implemented, and the employees' espoused value, which rated job security as very important.

There was, however, compatibility or a good fit between the objective TBWO values and the espoused values of employees of personal responsibility for one's work, teamwork and quality.

Although there was a poor fit on the variable of job security, the overall assessment of the TBWO-values fit was good. The inference was that the TBWO-values fit, which was good, was positively associated with the increased commitment.

The hypothesis that states that if there is a good fit between the objective values of TBWO and the espoused values of employees, it will be positively associated with increased commitment to the use of shopfloor work practices by employees was therefore supported.

Hypothesis 5 states that a higher commitment by employees to the use of TB shopfloor work practices will lead to better quality and consistency of actual use of these shopfloor work practices by employees.

The combination of the positive climate for implementation and the good TBWO-values fit led to the inference of high commitment to use shopfloor work practices.

The literature on implementation suggests that increased commitment is positively associated with improved performance (Meyer & Smith, 2000; Neubert & Cady, 2001).

The findings for Firm F showed that although commitment to use of TB shopfloor work practices such as quality inspections, problem-solving techniques, machine setup and so on was inferred to be high, but implementation effectiveness, which is the quality and consistency of use of TB shopfloor work practices, was moderate. These findings raise the question of the strength of influence of commitment on implementation effectiveness.

An explanation that can be advanced here for the inconsistency is that although commitment plays an important role in influencing improved performance, the actual implementation of TBWO management policies and practices plays an even bigger role. The discussion of hypothesis one showed that the implementation of TBWO management policies and practices

was moderate and that it was positively associated with moderate implementation effectiveness.

The hypothesis which states that a higher commitment by employees to the use of TB shopfloor work practices will lead to better quality and consistency of actual use of these shopfloor work practices by employees was therefore not supported.

The discussion of the findings for the case of Firm F provided support for hypothesis one, three, and four, which were advanced in this study. Hypotheses two and five were not supported because the findings were not in line with arguments made in the literature. The relationships between implementation of TBWO and the climate for implementation and also between commitment and implementation effectiveness raised some questions about the arguments made in the literature about the importance of the climate for implementation and employee commitment. Some of the questions that emerged were, firstly, why was the implementation effectiveness moderate when the climate for implementation was strong and commitment was high? Secondly, could it be that the influence of the climate for implementation and employee commitment was overstated in the literature? Thirdly, could it be that the 'implementation of TBWO management policies and practices construct' was more important in influencing the implementation effectiveness construct? The evidence supports the argument made in this study that the implementation of TBWO management policies and practices played a greater role in influencing implementation effectiveness than did the climate for implementation and employee commitment.

An important issue that also emerged from the discussion related to the changes in the shopfloor layout from a functional to a TB layout, where it was established that the nature of the products and the production process had an influence. The job-shop nature of the production process did not easily lend itself to the TB (cellular) layout. The findings showed that although commitment was high, implementation effectiveness was moderate.

6.4 Firm TA

Hypothesis 1 states that if firms implement TBWO management policies and practices more comprehensively and thoroughly, then the consistency and quality of use of TB shopfloor work practices by employees will increase.

The findings for the implementation of management practices at Firm TA showed that it was low.

The starting point for the implementation of TBWO was changing the organisational structure to one that supports a TBWO environment. The old structure was not suitable in that there was a lot of duplication of activities and no clear job descriptions, which resulted in confusion and failure of workers to meet deadlines. From the findings, it can be suggested that the change process focussed too heavily on getting the organisational structure right, to the exclusion of the other TBWO management policies and practices.

TB training was not implemented at all, and the reason for this was that changes in the organsational structure had to be completed first before training could be pursued. The other reason was that a skills audit had to be done before training could begin, and this did not take

place. Due to the fact that employees were not trained in, for example, problem-solving techniques, machine setup, quality inspection, performance measurement and so on, they could not use these practices on the shopfloor, which explains the low implementation effectiveness.

Improving communication between management and employees was stated as one of the main reasons why the firm decided to implement TBWO. The literature on implementation emphasises the importance of communication and information sharing in effective implementation (Blackburn & Rosen, 1993; Thibodeaux & Faden, 1994). The analysis of the findings, however, shows that the introduction of the communication structures, which included the forming of a steering committee, was a problem from the beginning. The steering or management committee that was formed in the beginning consisted of management and office employees to the exclusion of the shopfloor employees, who had a separate committee. Decisions were taken at the steering committee and then filtered down to the employees' representative committee. This defeated the objective of the firm of improving communication.

The other management practices and polices, such as changes in shopfloor layout, introduction of an incentive scheme, promotion opportunities, and factory visits, were not implemented.

One of the main reasons for the low implementation of TBWO management policies and practices at Firm TA was that they focused too much on one practice, which was changing the organisational structure, to the detriment of the other policies and practices. MacDuffie (1995) found that the implementation of "bundles" of HR management policies and practices

was linked to improved performance. Although changing the organisational structure was important, the other policies and practices should have also been considered.

The other reason was that, unlike the other firms in the study, Firm TA was an independent firm in which the founder and owner was also the manager, which meant that it did not enjoy the support of being part of a bigger organization.

The resistance to change by a number of middle-level managers also had an impact on the implementation of TBWO management policies and practices and on implementation effectiveness. Yeatts and Hyten (1998) argued that management support is important in the effective implementation of TBWO. Since there was little management support, there was no incentive for the employees to use TB shopfloor work practices.

The findings therefore showed that the low implementation of TBWO management policies and practices was positively associated with low implementation effectiveness.

The hypothesis which states that if firms implement TBWO management policies and practices more comprehensively and thoroughly, the consistency and quality of use of TB shopfloor work practices by employees will increase was therefore supported.

Hypothesis 2: If firms implement TBWO management policies and practices more comprehensively and thoroughly, the climate for implementation will be positive.

At Firm TA, the climate for implementation was weak, which means that employees had a negative perception of the implementation of TBWO management policies and practices. Two reasons for the weak climate (negative perceptions) will be provided in this section.

The first reason for the weak climate for implementation was that employees' perceptions changed from being positive at the beginning of the project to being negative later on, due to expectations, which had not been met. The workers were made to believe that the implementation of TBWO would mean TB training, an incentive scheme, improved communication and so forth, but this was not the case as the process of implementation had slowed down. One of the reasons for the slowdown was that the implementation of TBWO policies and practices was put on hold because management saw the need to meet production targets as a more pressing issue.

The second reason for the weak climate for implementation was the retrenchments and the resignations that took place, which created a lot of uncertainty. Most people saw the move towards TBWO as a threat in that it meant a loss of some jobs and also meant having to learn ways to function in a TBWO environment. Osterman (2000) found that during a period of extensive restructuring and layoffs, the spread of high performance work organisations (HPWOs) will stop and perhaps even reverse. This was the case at the firm, where employees' morale was low and their perceptions of the implementation of TBWO management policies and practices were negative.

The hypothesis which states that if firms implement TBWO management policies and practices more comprehensively and thoroughly, the climate for implementation will be positive was supported.

Hypothesis 3 states that if there is a strong climate for implementation, which is defined as employees having a positive perception of the implementation of TB policies and practices, then it will be positively associated with increased commitment to the use of TB shopfloor work practices by employees.

The commitment construct was inferred to be low because the climate for implementation was weak.

The hypothesis which states that if there is a strong climate for implementation, which is defined as employees having a positive perception of the implementation of TB policies and practices, then it will be positively associated with increased commitment to the use of TB shopfloor work practices by employees was therefore supported.

Hypothesis 4 states that if there is a good fit between the objective values of TBWO and the espoused values of employees, it will be positively associated with increased commitment to the use of shopfloor work practices by employees.

There was a good fit between the objective TBWO value, which says that for employees to function effectively in a TBWO environment, they have to acquire the necessary skills, and the employees' espoused values, which rated the acquisition of TB skills as very important.

There was poor fit between the objective value of TBWO, which says that job security cannot be guaranteed when TBWO is implemented, and the employees' espoused value, which rated job security as very important. At Firm TA, a number of employees had been retrenched and some had resigned, which added a degree of job uncertainty for those who were left behind. This meant that the job security variable had a greater weight on the overall TBWO-values fit construct.

There was, however, compatibility or good fit between the objective TBWO values and the espoused employee values of personal responsibility for one's work, teamwork and quality.

Given the fact that there was a poor fit on the variable of job security due to the job losses that had taken place and its weight on the overall assessment of the TBWO-values fit construct, this construct was assessed as poor. The inference was that the TBWO-values fit, which was poor, was negatively associated with increased commitment influence on employee commitment.

The hypothesis that states that if there is a good fit between the objective values of TBWO and the espoused values of employees, it will be positively associated with increased commitment to the use of shopfloor work practices by employees was therefore supported.

Hypothesis 5 states that a higher commitment by employees to the use of TB shopfloor work practices will lead to better quality and consistency of actual use of these shopfloor work practices by employees

The combination of the negative climate for implementation and the poor TBWO-values fit was associated with low commitment. At Firm TA, low commitment to use the shopfloor work practices was positively associated with low implementation effectiveness. The literature on implementation suggests that increased commitment is positively associated with improved performance (Meyer & Smith, 2000; Neubert & Cady, 2001), but the opposite is true. The findings for Firm TA in regard to this hypothesis were consistent with the theory in the field of implementation.

The analysis of the findings shows that everyday morning team meetings, which were supposed to discuss productivity issues, were cancelled as they were considered to be a waste of time. This had implications for quality improvement efforts. The performance measures were also not collected and recorded, meaning that there was no sharing of information, which is vital for the effective implementation of TBWO.

At Firm TA, the low commitment to use TB shopfloor work practices was positively associated with low implementation effectiveness, which supports the hypothesis.

The hypothesis which states that a higher commitment by employees to the use of TB shopfloor work practices will lead to better quality and consistency of actual use of these shopfloor work practices by employees was supported.

All the hypotheses were supported at Firm TA, which means that they were in line with the literature and the research model. Little implementation took place at the firm, which meant

that there was little implementation effectiveness. The climate for implementation was weak, the TBWO-values fit was poor, and low commitment influenced implementation effectiveness, which was low.

6.5 Summary

The aim of this chapter was to discuss the findings presented in chapter five for each firm. Hypotheses one, three, four and five were supported for Firm GSM. Hypothesis two was not supported for Firm GSM due to the fact that the moderate implementation of TBWO management policies and practices was, but the climate for implementation was not.

Hypotheses one, three and four were supported for Firm F because they were in line with the research model and the arguments made in the literature. Due to the fact that the climate for implementation was strong despite moderate implementation of TBWO policies and practices, hypothesis two was not supported. Hypothesis five for Firm F was also not supported because, although commitment was high, implementation effectiveness was moderate.

All the hypotheses were supported for Firm TA because they were in line with the literature on the implementation of new forms of work organisation.

The discussion in this chapter has raised some important issues, some of which were common across the firms. The first issue related to the major question in this study, which was: what are the factors that account for high implementation effectiveness? The literature and the research model suggested that it was the combination of the implementation of the policies

and practices, the climate for implementation, the TBWO- values fit, and employee commitment, which accounted for high implementation effectiveness. The findings, however, suggested that the implementation of TBWO management policies and practices played a major role in influencing implementation effectiveness rather than other factors. What emerged from the discussion was that what the firm does in terms of implementation of TBWO management policies and practices has a greater impact on what employees do on the shopfloor than other factors. At Firm F, for example, implementation effectiveness was moderate despite the climate for implementation being strong and commitment being high. At Firm GSM, implementation effectiveness was high despite the fact that the climate for implementation was moderate. However, a more complex specification of the relationships, which allows for the dynamics between the different role players and the environment in which the TBWO initiative takes place, may also account for the discrepancies between the findings and the theory.

The second important issue that emerged with regard to the changes in the layout of the shopfloor towards a TB (cellular) layout was that the nature of the production process had an important influence.

The third issue related to the importance of job security in influencing the TBWO-values fit. It emerged from the discussion that the job security variable has a greater weight on the TBWO-value fit if there is a high level of job insecurity or in the case of the imminence of job losses. This was the case at Firm TA, where there was a high level of job insecurity.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

The aim of this chapter is to provide a summary of the study, concluding with remarks on important issues that emerged and how this study has added to the body of knowledge on the implementation of TBWO. Recommendations, which will be of use for policy makers and practitioners, will be provided and future research issues emanating from the study will be discussed.

7.2 A brief summary

The research question that was addressed in this study was "What are the factors that account for the effective implementation of TBWO?" The reason for pursuing this study was that according to the literature on implementation of new forms of work organisation, the implementation initiatives in most cases fail to yield the desired outcomes for the implementing firms. Implementation of new forms of work organisation has been associated with increased employee morale and improved firm performance. The literature, however, shows that the increase in employee morale does not necessarily translate into improved performance. There was therefore a need to understand what the factors that account for effective implementation, which would not only yield increased employee morale but also improved firm performance, were. It was envisaged that this study would contribute, from a South African perspective, to the body of knowledge that exists in the field of TBWO and would also help policy makers and practitioners in the field of implementation.

This study was based on research conducted at three firms in the metal fabrication industry, all of which participated in the Department of Trade and Industry project called the Workplace Challenge that was aimed at assisting firms to introduce new forms of work organisation to improve their competitiveness.

The literature on the implementation of TBWO was consulted and four theoretical models were examined to identify the one that would be used to develop the research model for this study. The four theoretical models that were identified were the following:

- Morhman and Novelli (1985) presented two competing models on participation in quality circles.
- Sagie and Koslowsky presented the three-path model explaining the effectiveness of employee participation in decision making (PDM) on work outcomes such as improved productivity and employee morale.
- Klein and Sorra (1996) presented the third model of the determinants and consequences of effective innovation implementation.

Klein and Sorra's theoretical model was selected as the one that would form the basis on which the research model for this study would be developed. One of the reasons for the choice of Klein and Sorra's model is that it avoids some of the weaknesses in the research on the implementation of PDM. Klein and Sorra's model is also more generally applicable to the implementation of any type of innovation. It also encompasses both the technical and the human resource management issues inherent in introducing an innovation, which are relevant to TBWO.

The research model for this study was then developed in chapter three through the modification of Klein and Sorra's model of innovation implementation. The evaluation of Klein and Sorra's model resulted in the identification of some inconsistencies in the way that the relationship between some of the constructs were presented, which therefore necessitated some modification of this model.

The development of the model of TBWO implementation included:

c. Modifying Klein and Sorra's generic model, which included the re-arrangement of the relationship between constructs
d. Adapting the modified generic model to be applicable to TBWO implementation. Since the focus of this study is the implementation of TBWO instead of any other innovation, it was necessary to adapt the generic model accordingly.

The five research hypotheses to be tested in this study, which were based on the research model, were then developed. The following were the hypotheses developed in this study:

- **Hypothesis 1**: If firms implement TBWO management policies practices more comprehensively and thoroughly, then the consistency and quality of use of shopfloor work practices by employees will increase.
- **Hypothesis 2**: If firms implement TBWO management policies practices more comprehensively and thoroughly, the climate for implementation will be positive.
- **Hypothesis 3**: If there is a good fit between the objective values of TBWO and the espoused values of employees, it will be positively associated with increased commitment to the use of shopfloor work practices by employees.

- **Hypothesis 4**: If employees have a positive perception of the implementation of TB policies and practices, it will be positively associated with improved commitment to the use of TB shopfloor work practices by employees.
- **Hypothesis 5**: Higher commitment by employees to the use of TB shopfloor work practices will lead to better quality and consistency of use of these shopfloor work practices by employees.

The qualitative research method, which involved using case studies, was explained in chapter four. One of the reasons for choosing to use the case-study method in this study was that it allowed for a better understanding of the process of TBWO implementation, which was a real-life event studied within a real-life context (within an organization).

Due to the fact that the research process on the implementation of TBWO took place over a period of two years and involved understanding a number of complex issues related to implementation, the narrative case study was more appropriate. The data collection involved the use of semi-structured interviews of ten employees at each firm (30 employees in total) and management and consultants at the three firms. Some of the challenges that emerged during the collection of data were that at some of the firms, the information was not readily available, and due to the interview settings, which were, in some cases, noisy, the quality of the recordings was poor. Triangulation, which involves the use of multiple sources of information, was applied to introduce construct validity.

Some of the research methodology issues that emerged related to the external validity of the study, which was about the generalisability of the findings to a wider universe beyond the

immediate research environment. Due to the limited nature of this study in terms of the sample size and the fact that only manufacturing firms were studied, it was difficult to generalise the findings to the wider population.

The findings were presented in chapter five in the form of case studies for each of the three firms that participated in the study. The presentation of the findings was based on the research model of TBWO, where each variable was assessed and the overall assessment of each construct was provided. Clear assessment guidelines that were developed in chapter four were used in the presentation of the findings. One of the challenges in this section was how to present the findings in such a manner that it would be understandable to the reader. The method that was then adopted was to use qualitative assessments of the findings, which proved more suitable for the purposes of this study.

In chapter six the findings that were presented in chapter five were discussed and explained, the aim being to establish whether the hypotheses developed in chapter three were or were not supported based on the findings.

The factors that accounted for the effective implementation of TBWO were identified, thus addressing the research question in this study. The main issue, however, that emerged related to the strength of each of the factors in influencing implementation effectiveness. According to the literature, implementation effectiveness was a function of the actual implementation of TBWO management policies and practices, the climate for implementation, the TBWO-values fit and employee commitment. There was a strong emphasis on the importance of having a strong climate for implementation, a good TBWO-values fit and high employee

commitment, in addition to high implementation of TBWO management policies and practices in ensuring high implementation effectiveness. The findings, however, indicated that the importance of the climate for implementation could be overstated in the literature because, for example, at one firm where the climate for implementation was moderate, implementation effectiveness was high and at another firm where the climate for implementation was high, implementation effectiveness was moderate. This meant that there was an alternative explanation for the strength of the factors responsible for implementation effectiveness.

The explanation that was advanced, which forms the main finding of this study, was that the implementation of TBWO management policies and practices (what the firm did) played a bigger role in influencing implementation effectiveness than the other factors. The evidence from the literature and the findings suggested the importance of implementing a bundle of HR policies and practices that support the TBWO initiative rather than focusing on just one practice. The evidence from the findings demonstrated that when a firm implemented "bundles" of HR practices (e.g. TB training, incentive schemes, communication structures, changing organisational structures, etc.) thoroughly, implementation effectiveness increases. The opposite was also found to be true: that a firm which did not comprehensively implement "bundles" of HR practices did not experience increased levels of implementation effectiveness, which is the case with Firm TA.

7.3 Limitations of the study

The issue of generalisability of the findings of this research in terms of size and industry also has to be pursued in future research. This study was conducted in small and medium-sized

firms in the manufacturing industry, which is characterized by its own set of dynamics. The findings of this study therefore may not apply to larger firms or to firms in the service industry.

7.4 Conclusion and recommendations

This study has attempted to identify the factors that account for the effective implementation of TBWO. In the study, hypotheses that had been developed were empirically tested. The fact that some hypotheses were supported and others were not supported has implications for theory and also for practitioners who are involved in the implementation of TBWO.

What became evident in this study was that the thorough implementation of TBWO management policies and practices (what the firm did) played a significant role in the achievement of increased implementation effectiveness (what the employees do to improve quality). The implementation of TBWO management policies and practices such as training, incentive schemes, communication structures, and promotion opportunities in achieving implementation effectiveness was highly recommended as these were considered to be important in influencing implementation effectiveness.

What was also evident was that although the social aspects (climate for implementation and values-fit) of implementation had to be taken into account, their role in influencing implementation effectiveness was not as strong as generally presumed. The importance of these factors in influencing implementation effectiveness has been called into question. Does this mean that the relationship between the constructs has to be modified in the light of the new evidence? The argument in this study is that the research model will be maintained as it

is since there has also been evidence from one case, where the hypotheses were supported, but the importance of these factors should not be overstated. The relationship between the 'climate for implementation', 'values-fit', 'employee commitment', and 'implementation effectiveness' constructs needs to be further investigated. The impact of the climate for implementation, TBWO-values fit, and commitment on the long-term sustainability of increased performance also needs to be further investigated in future research.

It is therefore important for practitioners to place a greater emphasis on the actual implementation of TBWO management policies and practices more thoroughly (bundles of HR practices and policies) as the evidence has shown that when a firm implements these policies and practices more thoroughly, implementation effectiveness increases. When the firm does not implement the policies and practices thoroughly, then implementation effectiveness will be low.

The 'job security' variable has also been shown to be very important because it carries a great weight on the 'values–fit' construct as job insecurity could slow down or even stop the implementation process.

The research question that gave rise to this study on the factors that accounted for the effective implementation of TBWO was addressed and a research model, which was based on the theory in this field, was compared to the empirical findings in the form of case studies. Although there was correlation between the theory and empirical evidence on some of the factors, some questions emerged with regard to the other factors, which need further investigation.

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APPENDIX I

Survey of the Climate for Implementation (Employees' Perceptions of implementation of TBWO) and Employees' Espoused Values.

This survey seeks to get your views and thoughts on the changes implemented by management at your workplace, which involves the introduction of training, incentive scheme, work teams and so on.

- **Employee Perceptions**

1.

-3	-2	-1		+1	+2	+3

What are your views on the training that has been implemented by management at your workplace?
Comments:
……
……
……
……
……...

2.

-3	**-2**	**-1**		**+1**	**+2**	**+3**

What are your views on the steering committee, representative committee, etc implemented by management at your workplace?
Comments:
……
……
……
……
……...

3.

-3	**-2**	**-1**		**+1**	**+2**	**+3**

What are your views on the incentive scheme implemented by your management?
Comments:
…… ….
……
……
……
……...

4.

-3	-2	-1		+1	+2	+3

What are your views on promotion opportunities implemented at your workplace since the introduction of changes at your workplace?
Comments:
……
……
……
……
……...

5.

-3	-2	-1		+1	+2	+3

What are your views on these changes in organisational structure implemented by management at your workplace?
Comments:
……
……
……
……
……...

6.

-3	-2	-1		+1	+2	+3

What are your views on the changes in shopfloor layout implemented by management at your workplace?
Comments:
……
……
……
……
……...

7.

-3	-2	-1		+1	+2	+3

What are your views about visits to other firms (eg suppliers or customers)?
Comments:
…… ….
……
……
……
……...

- **Employee Values**

Your values with regard to quality, teamwork, personal responsibility and so on will also be sought.

8.

-3	-2	-1		+1	+2	+3

How important is job security to you?

Comments:

…… ….
……
……
……
……...

9.

-3	-2	-1		+1	+2	+3

How important is it to you to acquire more skills to perform different tasks?

Comments:

…… ….
……
……
……
……...

10.

-3	-2	-1		+1	+2	+3

How important is it that you take responsibility for your work?

Comments:

…… ….
……
……
……
……...

11.

-3	**-2**	**-1**		**+1**	**+2**	**+3**

How important is working co-operatively with others (teamwork) to you?

Comments:

…… …….
……
……
……
……...

12.

-3	-2	-1		+1	+2	+3

How important is making less defects, producing more in the same time, delivering on time etc. to you?

Comments:

……
……
……
……
……...

Thank you for your participation and cooperation in completing this survey.

Appendix II

The Case Study Database

The sources from which data was collected which included semi-structured, face-to-face, managers and consultants; site visits (observation) and company documents were classified. In addition to these interviews, semi-structured face-to-face interviews with ten employees per firm were conducted, to determine the climate for implementation and TBWO values fit. All of the interviews were taped. The thirty interviews with employees were numbered from one to thirty and the dates of the interviews were included. Company documents and site visits were also numbered. The process of classification and creation of the database was to allow for more efficient retrieval of information. The following classification codes were used:

MI – Interview with a manager

CI – Interview with a consultant

GSI – Interview with shopfloor employees at firm GSM about the climate for implementation and espoused values

FSI – Interview with shopfloor employees at firm F about the climate for implementation and espoused values

TSI – Interview with shopfloor employees at firm T about the climate for implementation and espoused values

SV – Site visit

CD – Company document

Reference	Item	Date
MI1	Interview with Production Manager at firm GSM	10/05/2000
MI2	Interview with Production Manager at firm GSM	13/09/2000
MI3	Interview with Production Manager at firm GSM	20/03/2001
MI4	Interview with Production Manager at firm GSM	05/06/2001
MI5	Interview with Production Manager at firm F	06/06/2000
MI6	Interview with Production Manager at firm F	04/09/2000
MI7	Interview with Production Manager at firm F	03/05/2001
MI8	Interview with General Manager at TA	19/04/2000
MI9	Interview with General Manager at TA	16/10/2000
MI10	Interview with General Manager at TA	27/06/2001

Reference	Item	Date
CI1	Interview with Consultant at firm GSM	10/05/2000
CI2	Interview with Consultant at firm F	06/06/2000
CI3	Interview with Consultant at firm TA	19/04/2000
CD1	Firm GSM company information brochure	2000
CD2	Firm F company information brochure	2000
CD3	Firm TA Strategic work session document	2001
CD4	Performance measurements at firm F	26/04/2004
SV1	Site visit to observe Problem solving sessions and shopfloor processes at firm GSM	09/10/2000
SV2	Site visit at firm F to observe shopfloor processes	06/06/2000
SV3	Open day at firm F	15/03/2001
SV4	Site visit at firm TA to observe shopfloor practices	04/09/2000
SV5	Site visit at firm GSM to observe shopfloor practices	20/03/2001
SV6	Site visit at firm F to observe shopfloor practices	07/06/2001
SV7	Site visit at firm TA to observe shopfloor practices	27/06/2001
MW1	Milestone workshop number 1	21/02/2000
MW2	Milestone workshop number 2	22/06/2000
MW3	Milestone workshop number 3	06/12/2000
MW4	Milestone workshop number 4	19/04/2001
MW6	Milestone workshop number 5	27/09/2001
GSI1-GS110	Interviews with shopfloor employees at firm GSM about the climate for implementation and espoused values	27-28/11/2001
FSI1-FSI10	Interviews with shopfloor employees at firm F about the climate for implementation and espoused values	14/03/2002
TSI1-TSI10	Interviews with shopfloor employees at Firm TA about the climate for implementation and espoused values	13/03/2002