QUALITY MANAGEMENT FOR SUSTAINABLE HEALTH
Methodologies, Values and Practices taken from Swedish Organizations

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Östersund, August 2006
Ingela Bäckström
ABSTRACT
In many Western countries today, not least in Sweden, there are a lot of organizations that have great problems with sickness absence. The costs connected to the high rates of sickness absence have also risen to alarming levels. Healthy co-workers and healthy organizations are obvious goals for many leaders, but this is not always so easy to establish. Work practices and leadership that are beneficial to co-worker health are thus vital to identify.

Studies have shown relationships between company-wide implementation of quality programs and improved co-worker satisfaction along with low co-worker turn over; in other words, co-worker health along with improved customer satisfaction and financial results. Despite the great problems concerning sickness absence, there are organizations that have been awarded prizes for excellence in leadership, internal partnership, working environment, and profitability.

The overall purposes of the research described in this thesis are to examine and describe how management and leadership can establish sustainable health among the co-workers and examine how the leadership for sustainable health is related to Quality Management. The in-depth purpose is to examine which aspects within the values derived from the quality movement are those that primarily influence the co-workers’ perceived health.

The results presented can be described in three parts and are results from four case studies carried out in five different organizations. Three of the organizations have received awards for establishing good working environment, good financial results, and low sick leaves among their co-workers; the fourth received an award for the successful implementation of quality programs.

The first part consists of results from case studies in three different organizations and describes how organizations can work to achieve sustainable health among their co-workers, with practical examples. The results are methodologies, values and organizational structure, which it is considered possible for other organizations to adopt in their efforts to achieve good working conditions resulting in fewer sick leaves.

The second part is an attempt to investigate if leadership for sustainable health is related to Quality Management. Methodologies, leadership values,
organizational structure, and general values found in organizations which have achieved sustainable health are analyzed in the light of Deming’s 14 points, and a correlation is indicated. There is also correlation found between the TQM values and the co-workers’ perception of their health.

The third part examines which of the aspects within the values grown from the quality movement are those that influence the co-workers perceived health. The results show significant correlation between the values and the co-workers’ perception of their health. Aspects found within the value “Top management commitment” were named; Empathy, Presence and Communication, Integrity, and Continuity. Within the value “Let everybody be committed” the aspects; Development, Influence and Being informed were found. These aspects are described in more detail and also in one model per value.

The result implies that the TQM values; “Top management commitment”, “Improve continuously” “Let everybody be Committed” and “Focus on customers” are important for achieving healthy organizations and sustainable health among co-workers.
SAMMANFATTNING

I dag är det många organisationer i västvärlden, och inte minst i Sverige som har stora problem med sjukfrånvaro och kostnaderna som är kopplade till den höga sjukfrånvaron har stigit till alarmerande nivåer. Friska medarbetare och friska organisationer är tydliga mål för många ledare men de är inte alltid så lätt att etablera. Arbetssätt och ledarskap som är välgörande för medarbetarnas hälsa är därför vitala att identifiera.

Studier har visat på relation mellan helhetsomfattande implementering av kvalitetsprogram i företag och ökad medarbetar nöjdhet tillsammans med låg medarbetar omsättning, med andra ord medarbetarnas hälsa tillsammans med förbättrad extern kundnöjdhet och ökat finansiellt resultat. Trots stora problem med sjukfrånvaro så finns det organisationer som fått pris för sin utomordentlighet i ledarskap, internt partnerskap, arbetsmiljö och lönsamhet.

Det övergripande syftet med forskningen som beskrivs i den här avhandlingen är att undersöka och beskriva hur organisationer kan arbeta för att åstadkomma hållbar hälsa bland medarbetarna och undersöka hur ledarskapet för hållbara hälsa är relaterat till Kvalitetsutveckling. Det underliggande syftet är att undersöka vilka av de aspekter inom värderingarna som vuxit fram ur kvalitetsrörelsen som primärt influerar medarbetarnas upplevda hälsa.

Resultatet som presenteras i den här avhandlingen kan beskrivas i tre delar och är resultatet från fyra fall studier genomförda i fem olika organisationer. Tre av organisationerna har fått pris för att de har åstadkommit god arbetsmiljö, lönsamhet och låga sjukskrivningstal bland medarbetarna, den fjärde organisationen har fått pris för att de varit framgångsrika med att implementera kvalitetsprogram.

Den första delen innehåller resultat från fallstudier i tre olika organisationer och beskriver hur organisationer kan arbeta med praktiska exempel, för att uppnå hållbar hälsa bland sina medarbetare. Resultatet är arbetssätt, värderingar och organisationsstrukturer som bedömts vara överförbara till andra organisationer i deras strävan efter att åstadkomma bra arbetsmiljö som resulterar i färre sjukskrivningar.

Den andra delen är ett försök till att undersöka om ledarskap för hållbar hälsa är besläktat med kvalitetsutveckling. De arbetssätt, ledarskapsvärderingar,
organisationsstruktur och allmänna värderingar som hittades i organisationer som har uppnått hållbar hälsa analyserades mot Demings 14 punkter och indikerade korrelation.

Den tredje delen undersöker vilka aspekter inom värderingarna som vuxit ur kvalitetsrörelsen och har influerat medarbetarnas upplevda hälsa. Resultatet visar på signifikant korrelation mellan värderingarna och medarbetarnas upplevda hälsa. Aspekterna som hittades inom värderingen “Engagerat ledarskap” benämndes; empati, närvaro och kommunikation, integritet och kontinuitet. Inom värderingen ”Skapa förutsättningar för delaktighet” hittades aspekterna; utveckling, påverkan och att bli informerad. Dessa aspekter är beskrivna mer i detalj och med en figur för varje värdering.

Resultaten antyder att TQM värderingarna; ”Engagerat ledarskap”, ”Arbeta ständigt med förbättringar”, ”Skapa förutsättningar för delaktighet” och ”Sätt kunderna i centrum” är viktiga för att uppnå friska organisationer och hållbar hälsa bland medarbetarna.
# TABLE OF CONTENTS

PREFACE............................................................................................................. 5

1  INTRODUCTION ...................................................................................... 9
   1.1 BACKGROUND .......................................................................................... 9
   1.2 PROBLEM AREA ..................................................................................... 11
   1.3 PURPOSE .................................................................................................. 11
   1.4 RESEARCH QUESTIONS .......................................................................... 11
   1.5 DELIMITATIONS .................................................................................. 12
   1.6 THESIS STRUCTURE ............................................................................. 12

2  THEORETICAL FRAME OF REFERENCE ................................................. 15
   2.1 THE QUALITY CONCEPT ...................................................................... 15
   2.2 THE QUALITY MOVEMENT .................................................................. 16
   2.3 TOTAL QUALITY MANAGEMENT .......................................................... 18
   2.4 VALUES WITHIN TQM ......................................................................... 20
   2.5 VITAL FOR SUCCEEDING WITH QUALITY MANAGEMENT AND TQM.. 22
   2.6 LEADERSHIP AND MANAGEMENT ....................................................... 28
   2.7 THE INTERNAL PARTNERSHIP MODEL ............................................... 29
   2.8 HEALTH .................................................................................................. 31
   2.9 THE CONNECTION BETWEEN QUALITY MANAGEMENT AND HEALTH36

3  RESEARCH METHODOLOGY ................................................................... 38
   3.1 PURPOSE OF THE RESEARCH ............................................................. 38
   3.2 RESEARCH APPROACH ......................................................................... 39
   3.3 RESEARCH STRATEGIES ....................................................................... 46
   3.4 METHODOLOGICAL CHOICES IN THE PERFORMED CASE STUDIES...... 49
   3.5 RELIABILITY, VALIDITY AND GENERALIZABILITY ................................ 63

4  SUMMARY OF APPENDED PAPERS............................................................ 66
   4.1 PAPER A ................................................................................................. 66
   4.2 PAPER B ................................................................................................. 68
   4.3 PAPER C ................................................................................................. 71
   4.4 PAPER D ............................................................................................... 76
5 MAIN FINDINGS AND CONCLUSIONS ............................................. 80
  5.1 RECONNECTION TO THE RESEARCH QUESTIONS .................... 80
  5.2 RECONNECTION TO THE PURPOSE AND TO THEORY ............... 89
  5.3 CONCLUSIONS ......................................................................... 93

6 DISCUSSIONS AND FURTHER RESEARCH ................................. 96
  6.1 QUALITY MANAGEMENT FOR SUSTAINABLE HEALTH ............ 96
  6.2 FURTHER RESEARCH ............................................................... 97

REFERENCES .............................................................................. 99

APPENDED PAPERS

APPENDICES
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Paper A

Paper B
An earlier version of the paper was presented at and published in the Proceedings of 7th Toulon-Verona Conference, Quality in Services, September, 2004, Toulon, France.

Paper C
An earlier version of the paper was presented at and published in the Proceedings of 8th QMOD International Conference, Quality Management & Organizational Development, June, 2005, Palermo.

Paper D

APPENDICES

- Descriptions of the 5 studied organizations
- Questionnaire
PREFACE

I will first give a short description of my background as the author of this thesis since my background, education and experience have influenced the choice of approaches in different decisions during the whole research process. It is my intention that this introduction will help you, as a reader of the thesis, to understand my point of view and to follow me through my research.

Working as an accountant for many years I visited many different organizations in different fields and of different sizes. Even though there are differences between all organizations there are many things that are common to all organizations. All organizations have co-workers and managers, all organizations have some kind of administration. At that time I learned that the same routine work and the same set of problems could be solved in many ways, with different methodologies. I also learned that it depends on the leaders’ and the managers’ way of leading, as to how the co-workers get along with each other and how the work situations are. On my first visit to an organization, I could already tell by the morning coffee break, what kind of work situation the co-workers had: if they enjoyed working there, if they liked working together with each other, if they liked their manager or not. At some organizations they had so much fun at the coffee breaks that they were laughing their heads off, in other organizations they did not even talk to each other. This really fascinated me but studying the co-workers and the leaders was not what I was there to do.

As you might already have figured out, my work as an accountant did not appeal to me. I liked the contact with people in the organizations and my colleagues but not the work I had to do. After working seven years I decided to end my career in accountancy and finished my business studies and I also started to study pedagogics. My aim was to become a teacher at upper secondary school in economics and business, but sometimes life does not turn out as you expected but this is not necessarily a bad thing. When I had studied for a year, Ericsson advertised for people with business qualifications. I applied and got a job as a team leader at the accounts department. I liked working with
people and improving procedures. After a while, I started to look for other responsibilities within the organization and as the organization was big, about 1000 co-workers, there were a lot of opportunities. I got a job as a project leader working on a project to develop quality tools that were to be made more easily available for the co-workers. At that time I realized that I had been involved in quality work at the accounting company as well, although we did not call it quality work. I and another co-worker had developed a standard for the audits in small companies.

When I worked in the project at Ericsson, I realized how people with different skills and backgrounds could complement each other. As the leader for the project, I wanted to move on and achieve results but in the group there were some people that had experienced a project crash and were really afraid of making mistakes. We made a really good team together since we made use of all the team members’ different qualifications. We made one toolbox on the intranet and one physical tool box that co-workers in the organization could use in workshops and when they were working with improvements. I did not want to go back to my job at the accounts department when the project was finished. The American company Solectron had bought the Ericsson plant and that created new opportunities. I started to work as a member of a Customer Focus Team, where we first documented our customers’ expectations together with the customer and then we started to measure the Customer Satisfaction Index. That is a process by which every Solectron plant is evaluated. That was an enjoyable but frustrating job. We had a close relationship with the customer and we knew what they wanted but we did not have the authority, the resources, or the power to satisfy them and the manufacturing managers did not always understand us or the customer. Sometimes the managers did not want to make changes that had to be made. After a while I got the opportunity to work with the improvements inside the plant and I thought that this is where I can really make the changes that have to be made in the organization. I then realized that the top managers did not understand what really had to be done and sometimes they did not want to make tough decisions and risk their own position. By this time, I had realized that it was time for me to move on and at the same time, the order intake started to drop and the company had to give people notice. I volunteered to leave so that
another co-worker could have my job. I now understood that it was quality that was important and I had taken one course at the university during my employment at Ericsson. As if it were meant to be, some weeks after I had decided to leave there was a job advertisement in the newspaper for a lecturer and researcher in Quality Technology and Management at Mid Sweden University!

That was four years ago, and now, I have the opportunity to teach the students based on my experience and what I think is critical for success. I also have the opportunity to study and enter deeply into this exciting and important subject. During my research education I have become even surer of the importance of Quality Management and management commitment.
1 INTRODUCTION

The purpose of this first chapter is to give the reader an introduction and background to the research area and to describe the problem and the purpose of the research presented in this licentiate thesis. The structure of the thesis is also presented.

1.1 Background

Several countries in Europe have problems with high absence rates; among these are the Netherlands, the UK, Sweden, Norway, and Iceland (Bonato & Lusinyan, 2004). Sweden has displayed an upward trend in recent years (ibid) and this trend is especially clear when it comes to long-term sickness absence, which has increased by 30 % between 1997 and 2002 (Riksförsäkringsverket (Swedish Social Insurance Administration, 2002). Many people with a background of long-term sickness absence will never get healthy enough to work again. This can be seen by reading the early retirement rates in Sweden which have increased by 15 % between 2002 and 2004 (Lindberg, 2006). According to Janssen et al. (2003), the occurrence and causes of sickness absence are affected by several factors, including social, work-related, organizational, and individual factors which make sickness absence into a complex phenomenon. According to Lindberg (2006), there would be considerable gains for individuals, workplaces, and society if the number of co-workers suffering from physical and mental disorders could be reduced.

Daubas-Letourneux & Thébaud-Mony, (2003) maintain that health at work should be given high priority by the management and other actors, because having people absent from work results in considerable expenses for companies. Besides immense costs, sick absence has many consequences for individuals, workplaces and societies see e.g. (Bonato & Lusinyan, 2004). Unhealthy stress is one cause of sickness and sickness absence. According to Arnetz (2002), the research on stress, efficiency and renewal seen from the perspective of organizations, provides a number of interesting clues to management and co-workers on how the operation can be renewed and how unhealthy stress may be prevented.
He also states that it takes a series of efforts within both soft and hard areas in order to achieve a sustainable organization and co-worker health. Furthermore, Dolbier et al. (2001) and Yrkesinspektionen, Örebro distrikt (Labour Inspectorate, Örebro Division), (2000) among others, have documented the connection between a high frequency of sickness absence and a psychologically unsatisfactory work environment.

Compared to other OECD countries, the co-workers in Sweden have reported the largest decrease in job satisfaction from 1995 to 2000 Oeij & Wiezer, (2002). Despite the high sickness absence rates and the low job satisfaction in Sweden, there are Swedish organizations that have reduced their sickness absence and achieved sustainable health among their co-workers and they can also bear witness to an increased organizational performance, see, for instance, (Harnesk et al. 2005) According to Waddock & Graves, (1997), social and financial performance can be like a virtuous circle: social performance and financial performance feed and reinforce each other.

There are some studies that have shown relationships between a company-wide implementation of quality programs and co-worker health in the manner of improved co-worker satisfaction and low co-worker turn over, in addition to improved external customer satisfaction and financial results (Dahlgaard & Park, 2003a and 2003b). The connection between Total Quality Management (TQM) and financial performance has also been explored in many investigations. According to Hendricks & Singhal (1999), the link between TQM and financial performance is clear. Hansson & Eriksson (2002) found in their investigation that organizations that had implemented TQM also had significantly higher return of assets than comparable organizations. In a study by Sebastianelli & Tamimi (2003) it is pointed out that most obstacles to TQM can be linked directly to ineffective change management. According to Rahman (2004), the softer ‘dimensions’, often called ‘values’ of TQM, are much the same as the values in management theory. Deming (1986) describes how top management can provide a chain or a connection which means that improved quality nurtures effective and profitable organizations.
1.2 Problem Area
In spite of a lot of research, literature, and know-how around how to conduct organizations, the best way seem to be very difficult to carry out; that is, how to transform knowledge into action. There are, however, some organizations that have actually succeeded in achieving sustainable health among their co-workers through their quality work and their leadership. They have also decreased the sick absence among their co-workers and increased their organization’s profitability. How did they work in order to achieve sustainable health among their co-workers? Is it possible that other organizations can learn from these successful organizations and through that achieve sustainable health among their co-workers?

1.3 Purpose
The overall purpose of the research described in this thesis is to examine and describe how leadership can establish sustainable health among the co-workers and examine how the leadership for sustainable health is related to Quality Management. The in-depth purpose is to examine which aspects within the values grown from the quality movement are those that primarily influence the co-workers’ perceived health. The underlying assumption is that the results in this research could help other organization to establish sustainable health among their co-workers.

1.4 Research Questions
To fulfil the purpose, the following three research questions have been formulated:

1. How are organizations, which have achieved sustainable health among their co-workers, working in practice?
2. To what extent do organizations, which have achieved sustainable health among co-workers, work according to Quality Management?
3. What aspects within the values grown from the quality movement are of importance for the co-workers’ perception of their health?
1.5 Delimitations
The purpose and the research questions in this thesis will be restricted to Swedish organizations. Culture, structure, and other differences in organizations in other countries might influence the possibility and the effect of their way of working.

1.6 Thesis Structure
The body of the thesis consists of six chapters, plus four papers and appendices. The structure is presented in Figure 1-1 below. The first chapter is meant to give an introduction and background to the research area and it also describes the problem area and the purposes of the research presented in this licentiate thesis. The theoretical framework relevant to the research presented in this thesis is then given in Chapter 2, along with references to other authors’ work in this field of research. Chapter 3 has a presentation of the chosen methodology and includes a discussion of aspects related to the chosen research approach and strategy in order to fulfil the purpose. Chapter 3 also contains a discussion concerning validity, reliability and generalizability. In Chapter 4, the four appended papers are shortly summarized and in the fifth chapter of the body, the findings and conclusions are presented and suggestions given to organizations and leaders who wish to achieve healthy co-workers. In the last chapter the results are discussed and ideas for further research are also presented.

The relations between the appended papers and the research questions presented in this thesis are shown in Figure 1-2.
Figure 1-1 The structure of this thesis
Research Question 1
How are organizations, which have achieved sustainable health among their co-workers, working in practice?

Research Question 2
To what extent do organizations, which have achieved sustainable health among co-workers, work according to Quality Management?

Research Question 3
What aspects within the values grown from the quality movement are of importance for the co-workers’ perception of their health?

Paper A
How successful Swedish organisations achieve sustainable health

Paper B
Quality management and health, a double connection

Paper C
Health effects of quality management, the role of leadership and participation

Paper D
Leadership and Workplace Health Promotion - Successful organisations from a TQM perspective

Figure 1-2 The connection between the research questions and the appended papers of this thesis.

Figure 1.2 illustrates the main relations between the research questions and the appended papers. The relations are complex and it can be noted that three papers are related to two research questions each. Research Questions 1 and 3 are answered through two papers each, while the answer to Research Question 2 is found in three papers.
2 THEORETICAL FRAME OF REFERENCE

In this chapter, the theoretical framework relevant to the research described in this thesis is presented. The chapter gives references to other authors’ work in the area related to the research presented in this thesis.

2.1 The Quality Concept

Quality has been given different definitions at different times; see for example (Juran, 1951) who defines quality as “fitness for use”. According to Deming (1986), quality should be “aimed at the needs of the customer, present and future”. The fact that the quality concept should originate from the needs and wants of the customers was something that the Japanese managers soon became aware of (Bergman & Klefsjö, 2003). Bergman & Klefsjö (2003) have defined quality in a wider concept; “quality is to satisfy, and preferably exceed, the needs and expectations of the customers”. Quality in the research described in this thesis is defined as the wider concept of Bergman & Klefsjö (2003).

Since quality is judged by the customer, work that aims to increase quality within organizations has to start by identifying the customers. Different organizations have different kinds of customers, although some organizations do not refer to them as customers, and most organizations have both external and internal customers. The meaning and the definition of the concept of customer vary. From as narrow as in the ISO 9000:2000 standard “an organization or person that receives a product” and Deming (1986) “those who judge the quality” to the wider Bergman & Klefsjö (2003) “those we want to create value to” and the even wider, (Juran & Gryna, 1988) “anyone who is affected by the product or by the process used to produce the product”. In the research presented in this thesis, customer is defined by the wider approach used by Bergman & Klefsjö (2003); that definition also includes internal customers. Co-workers are considered as internal customers and there are investigations that demonstrate a link between internal customer satisfaction, external customer satisfaction, and productivity (Gronholdt & Martensen, 2001).
2.2 The quality movement

The quality movement as a theoretical concept is young compared to traditional sciences, although high quality has probably always been a matter of concern in human activities. Walter A. Shewhart together with W. Edwards Deming and Joseph M. Juran, are seen as main contributors to the quality movement, see, for instance, (Garvin, 1988) and (Sitkin et al., 1994).

The comprehension of the evolution of the quality movement differs between authors. One common description of the development of Quality Management is the four phase model towards the concept of Total Quality Management see, for instance, Garvin (1988) and (Dale, 2003). According to this model, the development starts with the phase Quality Inspection around 1910 at Ford Motor Company when the focus still was on inspection (Dahlgaard et al., 1998). The next stage is described by Bergman & Klefsjö (2003), as the Quality Control phase and was developed by Walter A. Shewhart. Quality Assurance, considers the whole production chain from design to market, (Dahlgaard et al., 1998). The current stage is Total Quality Management; it covers understanding and implementation of Quality Management principles and concepts in every aspect of business and it has a clear system approach (Bergman & Klefsjö, 2003). This development can be described as in Figure 2-1.

Another comprehension of the evolution of Quality Management is based on two different parallel schools; the Deterministic School of Thought and the Continuous Improvement School (Kroslid, 1999). Systematized Quality Management with the belief in the continuous improvement school is generally seen as originating from the works of Walter A. Shewhart, (Garvin, 1988) and Kroslid (1999) while the Deterministic School of Thought, originates from Taylorism. Taylor’s ideas were then further developed in the form of military standards and became later the base for the international system ISO 9000 of Quality Management (ibid).
A third comprehension is that Quality Management is developed through a continuous process. (Dahlgaard, 2001). She sees TQM as an evolution out of Western theories and Eastern practices; the rational and logical from West and the practice from East including the successful Japanese work practice.

Irrespective of the fact that the comprehension of the development of Quality Management differs, Total Quality Management (TQM) originates from Quality Management even though Deming, one of the gurus, avoided this term himself (Martínez-Lorente et al., 1998). There is not a clear or an agreed difference between Quality Management and Total Quality Management and the definitions of the two terms differs. In the research presented in this thesis, Quality Management is used as the term for the development of the quality movement described above and thereby an overarching term, wherein TQM is included ¹.

Maybe as a result of the differences in the comprehension of the Quality Management development, there are many different views on what is included in TQM and there is still an ongoing discussion as to whether working with TQM contributes to organizational performance or not.

¹ It should be noticed that, in Paper D has the term TQM been used when Quality Management should have been used.
2.3 Total Quality Management

Total Quality Management, TQM, has been described and presented in different ways over the years, see for instance, (Dahlgaard et al., 1998) and (Dale, 2003). Dahlgaard (1998) describe TQM as a corporate culture characterized by increased customer satisfaction through continuous improvement in which all co-workers in the organization participate actively. According to Hellsten & Klefsjö (2000), TQM is “a continuously evolving management system consisting of values, methodologies and tools”. The values are fixed but the methodologies and tools are just examples and can differ depending on the value it is supposed to support, (ibid). Dale (2003) defines TQM as “a management approach of an organization, centred on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and society”. The definition by (Shiba, et al., 1993), is “an evolving system, consisting of practices, tools and training methods for managing organizations in a rapidly changing context” is similar to the definition by Hellsten & Klefsjö (2000) according to system. In this research the term TQM is defined similarly to Hellsten & Klefsjös’ (2000) and Shiba et al.’s (1993) definition; as a management system with values, methodologies and tools. Hellsten & Klefsjö (2000) also states that the aim of the system is to “create increased external and internal customer satisfaction with a reduced amount of resources, see Figure 2-2.
Figure 2-2 Total Quality Management can be seen as a management system made up of values, methodologies and tools, (Hellsten & Klefsjö, 2000).

Bergman & Klefsjö (2003) maintain that in order to have an impact, the core values of TQM must be supported by the top management and have to include “quality aspects in the company vision, and support activities regarding quality financially, morally and with management resources”. In Hellsten & Klefsjö’s (2000) model see Figure 2-2 the values are the base on which a culture for successful quality improvement are built. The values are in turn based on top management commitment. With this approach, TQM becomes a management system with different units, where the values are the base. (Deming, 1994) has a similar view when he talks of a system as a network of dependent units with a joint goal. More of Deming’s thoughts are described in Section 2.5 and 2.5.1.

In the research described in this thesis, values are defined as how co-workers and leaders work, act, and solve problems but it is also fundamental assumptions so deeply rooted that nobody gives them any thought. In that way, the core values within the organizations establish the culture of the organizations; those practical values are called attitudes in Paper A and D. A further presentation of core values can be found in Section 2.7.1.
According to Hellsten & Klefsjö (2000), methodologies are needed to support the core values of the organization. The established English term for an organization’s approach, its way of working, or its work procedure in TQM literature is methodology. This definition of methodology, a more practical way of working than values, is used in this thesis and the research related to it.

2.4 Values within TQM
The base in TQM is referred to in different ways by different authors. Different terms used are, for instance, factors, key elements, values, core stones, or principles (Foster, 2004), (Dale, 2003), (Bergman & Klefsjö, 2003) and (Sila & Ebrahimpour, 2002). There is not a consensus on this issue. An investigation of 347 TQM articles written between 1989 and 2000 summarizes the most frequent TQM factors as; customer focus and satisfaction, employee training, leadership and top management commitment, teamwork, employee involvement, continuous improvement and innovation, and quality information and performance measurement (Sila & Ebrahimpour, 2002). According to Bergman & Klefsjö (2003), the base within TQM are the core values and they list them as; focus on customers, improve continuously, focus on processes, base decisions on fact, let everybody be committed and top management commitment. Those core values seem to be the values that many in the quality movement agree on, see, for instance, Lagrosen (2003) and they are briefly described further below.

2.4.1 Focus on Customers
Quality has to be valued by the customer and it has to be related to their needs and expectations (Bergman & Klefsjö, 2003). Customer satisfaction is the measure of quality and it is important to listen to the customers’ experience of how the organization has performed (ibid). Deming (1986) maintains the importance that all efforts in the organization should be linked to fulfilling the needs and wants of the customer. Both external and internal customers are here included in the concept of customer. Internal customers are, for instance, different departments within the organization, the co-workers as a group, or the co-workers as individuals.
2.4.2 Improve Continuously
Continuous improvement is a necessary value in the work to increase customer satisfaction, (Bergman & Klefsjö, 2003). This is often conceptualized in the use of the Deming cycle to improve systematically through four stages: Plan, Do, Study and Act (PDSA cycle) (Deming, 1986). Deming (1986) describes continuous improvements in his 14th point, see also 2.5.1, and he states that the cycle was originally conceived by Walter A. Shewhart. Every process in the organization must work with continuous improvements and in order to do this, the human resources have to be used in a more effective way (ibid).

2.4.3 Focus on Processes
A process is “a repetitive network of activities and its goal is to satisfy its customers”, (Bergman & Klefsjö, 2003). Focus on processes is interconnected with the other values in TQM (Rentzhog, 1996). The main difference between an organization working as an process organization and a traditional function organization is the holistic view (Ljungberg & Larsson, 2001). According to Deming (1986), the management’s task is to focus on the processes and not on the outcome.

2.4.4 Base Decisions on Facts
In TQM, it is important to base decisions on facts and not let random factors rule the way decisions are made (Bergman & Klefsjö, 2003). Data of both a numerical and verbal character is needed as well as systematic tools for the structure and analysis of these data (ibid). Deming, (1994) recommends the use of simple statistical tools to ensure that processes are under statistical control and for gathering, structuring and analyzing numerical data. Seven Quality Control Tools and the Seven Management Tools are recommended for data collection in order to base the decisions on facts (Mizuno, 1988) and (Bergman & Klefsjö, 2003).

2.4.5 Let everybody be Committed
This value is achieved through methodologies based on communication, delegation, and training, (Bergman & Klefsjö, 2003). The aim of these
methodologies is to give the co-workers knowledge about their place in the organization, where the organization is going, and their capability to carry out necessary improvements. Everybody’s participation and commitment are also in accordance with the ideas of Theory Y, as described by McGregor (1960), where co-workers are regarded as beings who like to work and regard work as the opportunity to develop themselves. Deming (1986) stresses that quality should be an issue for everybody in the organization and not just the quality department: everybody’s commitment is essential.

2.4.6 Top Management Commitment
Top Management Commitment is one of the values in TQM (Dale, 2003) and (Bergman & Klefsjö, 2003). Foster (2004) and Deming (1986), among others, stress that Management Commitment is a critical factor for success with the quality work. Also (Kotter, 1996) emphasizes the importance that the management has for quality improvements and organizational change. According to Bergman & Klefsjö (2003), Joseph Juran has said, “to my knowledge, no company has attained world class quality without upper management leadership”. (Martin, 1993) also claims that management commitment is a necessary foundation for succeeding in implementing and working with TQM although he is referring specifically to the human service area. Deming (1986, 1994) talks about 14 points for management transformation and explains how these 14 points are based on what he calls “profound knowledge”. Profound knowledge is in turn based on four elements: appreciation of a system, knowledge about variation, theory of knowledge, and psychology; see also Section 2.5.1 about Deming’s 14 points and below, Section 2.5, where management commitment and Quality Management are further discussed.

2.5 Vital for Succeeding with Quality Management and TQM
Montgomery, (2005) is of the opinion that effective management of quality is the successful execution of the following activities: quality planning, quality assurance, quality control and quality improvement. He describes quality planning as one of the strategic activities that is
vital for business success and it includes identifying customers and their needs. He describes quality assurance as the set of activities that ensure that the quality levels of products and services are properly maintained. Quality control and quality improvement are in his opinion the set of activities used to ensure that the products and services meet requirements and improvement on a continuous basis. (Juran, 1989)’s description of Quality Managements is similar. He states that management for quality is carried out by “The Juran Trilogy”; quality planning, quality control, and quality improvement.

Most obstacles to TQM can be linked directly to ineffective change management, (Sebastianelli & Tamimi, 2003). (Dahlgaard et al., 2002) stress the importance of managers outlining quality goals, quality policies, and quality plans. The quality goals are the signals to the co-workers of the importance of satisfying external customers. Most of the articles about TQM support the benefits of adopting the management philosophy in different organizations (Sila & Ebrahimpour, 2002). Some have argued that TQM does not work but TQM seems to have survived this criticism since many organizations continue to work with it (Sila & Ebrahimpour, 2002). According to Sebastianelli & Tamimi (2003), most researchers agree that the philosophy and principles of TQM are sound but there are problems with the performance. Sebastianelli & Tamimi (2003) among others, discuss the obstacles to performing TQM successfully. Hendricks & Singhal (1999) claim that TQM pays off when it is effectively implemented. That means, according to Hendricks & Singhal (1999), that the key factors of TQM such as focus on customer satisfaction, employee involvement and continuous improvement, are accepted, practiced, and deployed within the organization. Rahman (2004) has divided the key factors of TQM into soft and hard and claims that the soft factors are the behavioural aspects of management. The link between TQM and financial performance is maintained by several researchers see, for instance, (Eriksson & Hansson, 2002; Eriksson, et al., 2003; Hendricks & Singhal, 1996, 1997, 1999). According to (Dahlgaard, et al., 2002), more and more organizations will realize that TQM is necessary just in order to survive.
Many of the traditional core values and methods for TQM also seem to cover the social dimension to some extent (Bäckström et al., 2005).

Deming (1986) stresses the importance of top-management leadership, customer/supplier partnership, and continuous improvement in product development and manufacturing processes in his 14 points for management transformation. He wrote the classic “Out of the Crisis” as a handbook to American managers on how to transform American management. The Japanese had used this form of management and they had managed to change Japanese industry from a disaster to a success. Deming (1986) claims that this management will provide a chain, a chain that improves quality, which subsequently leads to increased productivity and “stay in business” see Figure 2-3.

![Diagram](image)

*Figure 2-3 The chain reaction. From (Deming, 1986)*

Anderson et al. (1994) say that some scholars have regarded the Deming management method as a new management theory, but they think that the 14 points are principles of transformation for improving the practice of management. Deming (1986) himself emphasizes that “the 14 points constitute a theory of management”.

### 2.5.1 Deming’s 14-points

In his book Deming (1986) teaches managers how to take their firms out of a crisis. The first step is to learn how to make changes by understanding the use of the 14 points of transformation and by handling the diseases and obstacles that stand in the way for the transformation. The 14 points are shortly summarized below with extracts from (Deming, 1986).
Point no 1: Create constancy of purpose for improvement of product and service
Instead of focusing on short-term profit, companies should create constancy of purpose for improvement of products and services. This is done through innovations, by constant improvement of the design of products and services, and by putting resources into research and education. With no investments for the future in product and process development, the requirements for short-term profitability might be met but severe problems will occur in the long run, (Deming, 1986).

Point no 2: Adopt the new philosophy
Companies must take a new customer-driven approach based on a never-ending cycle of improvement. A transformation is required in order to meet the forces of competition. Deadly diseases and obstacles must be removed so that the new philosophy can be adopted. The remaining twelve principles indicate how to bring about this change, (Deming, 1986).

Point no 3: Cease dependence on mass inspection
Build quality into the products at the production stage. Inspection does not add any value to the product, it only decreases productivity and increases costs. 100 percent inspection is equal to planning for defects. If all signals indicate that errors are expected to occur, it is no wonder that they actually do occur, (ibid).

Point no 4: End the practice of awarding business on the basis of price tag alone.
Managers should not purely make decisions on the basis of costs. It is more important to take issues as quality and service into consideration before decisions are made. A long-term relationship between purchaser and supplier is necessary in order to obtain best economy and suppliers have to take part in the development process if a close cooperation between customer and supplier is to be developed, (ibid).
Point no 5: Improve constantly and forever the system of production and service.
Continuous improvements in every process, test methods, and understanding the customers’ needs and use of the products and services is very important. Quality must be built by teamwork at the design stage and must be continued through all processes, including vendor relationships, (ibid).

Point no 6: Institute training
Employees, both management and workers, require the proper tools and knowledge in order to be able to work with continuous improvements. The training needs to be totally reconstructed, it is a great waste and a failure not to use the abilities of people, (ibid).

Point no 7: Adopt and institute leadership
The job for the management is leadership and not supervision. The leaders should focus on the process and the people who work in it and they must also know the work they supervise. In addition to that, the leaders need to have more knowledge about statistical methods, and they should be coaches that help workers to do a better job and help them develop their skills, (ibid).

Point no 8: Drive out fear
It is very critical to drive out fear; if the workers are not secure they cannot perform on a high level. Workers who are afraid to point out a misunderstanding will never do a good job, (ibid).

Point no 9: Break down barriers between staff areas
The company should optimize the team efforts and the staff should work as a team for the company and not sub-optimize its own work. Teams should consist of members from different departments. The departments and the individuals in the production process should see the next one in the process as a customer, (ibid).
Point no 10: Eliminate slogans, exhortations, and targets for the work force
All these activities that urge the workers to increase productivity should be eliminated in order to achieve higher quality. If some real changes are to be achieved, the shortcomings in the processes have to be remedied. The management needs to learn that their main responsibility is to improve the system and remove any special causes detected by statistical methods, (ibid).

Point no 11: Eliminate numerical quotas for the work force and numerical goals for people in management
Goals can be useful, but without the incorporation of a method to reach the goals, the goals only generate frustration and resentment. Numerical goals for the management should also be eliminated since they are an attempt to manage without knowledge of what to do. Management should eliminate work standards, rates, and piecework because they form a barrier that stands between the worker and his/her pride of workmanship. Focus on outcome is not an efficient way to improve a process or an activity, (ibid).

Point no 12: Remove barriers that rob people of pride of workmanship.
These barriers, like terms of the annual ration of performance, must be removed from both the group of management and the hourly workers. Barriers and handicaps rob the hourly workers from their right to be proud of their work, something which demands competent leadership facing the problems of people, (ibid).

Point no 13: Encourage education and self improvement for everyone
The people within the organization must continuously receive education for self-development in order to ensure success in the long term for the organization. Advances in competitive positions will have their roots in knowledge. The management should not only support the initiative to further development from individual staff members, but also initiate and stimulate education and personal development for everyone, (ibid).
Point no 14: Take action to accomplish the transformation

The transformation includes everyone but starts with the top management. Management will carry out the new philosophy by taking responsibility and involve a critical mass of people in the company. The Shewart cycle is recommended as a procedure to follow for improvement in any stage, (ibid).

2.6 Leadership and Management

DuBrin (2004) states that leadership is the ability to inspire confidence and support among the people who are needed to achieve organizational goals. DuBrin (2004) writes that the managers’ job is to lead, plan, organize and control and that can be compared to the definition by Yukl (2006) in which he states that manager is an occupational title. He suggests that a person can have the title manager without actually leading, but also the opposite can occur; a person can be a leader without being a manager, the person is an informal leader. He also means that successful management also needs to incorporate leadership (ibid). Kotter, (1996) takes it a step further and declares that leadership is conceptually broader than management and he also says that leaders provide more to their organizations than managers. It can, in any case, be established that both leaders and managers, and thereby also leadership and management, are important for the organizations. According to DuBrin (2004), the underlying assumption when studying leadership and management is that leaders and managers affect organizational performance.

Research and literature on management and leadership is enormous. According to DuBrin (2004), about 40,000 research articles, magazine articles, and books have been written about leadership. In this research, the leadership and management used and preferred in the quality movement is what is interesting. As mentioned before, Rahman, (2004) considers the soft factors, or what could be called the soft values, of TQM to be widely the same as the values in the management theory. Rahman (2004) describes the soft values as the behavioural aspects of management, such as leadership, human resource management, employee empowerment, training and education, loyalty and teamwork.
Rahman (2004) also describes these soft factors of TQM as essentially human aspects and the behavioural aspects of management. They can for example be leadership, human resource management, employee empowerment, training and education, loyalty, and teamwork.

The importance of leadership and charismatic leaders has also been discussed by many researchers over the years. Following this discussion, DuBrin (2004) establishes that leadership deals with change, inspiration, motivation and influence. According to Conger & Kanungo (1998), charismatic leaders have a special quality whose purposes, power and extraordinary determination differentiate them from other leaders. Charisma is an important element of leadership as it leads to behavioural outcomes such as commitment to the leaders, self-sacrifice, and high performance (DuBrin, 2004). He also states that a key dimension of charismatic leadership is that it involves a relationship or interaction between the leader and the people being led. Harnesk (2002) has described decisive factors for the relation between leaders and co-workers, as a partnership that depends on communication in dialogue. The model is called The Internal Partnership Model and is briefly described below, together with the decisive factors.

2.7 The Internal Partnership Model

Harnesk (2002) discussed how to achieve increased commitment from the co-workers and the concept of partnership was found to be a relevant one. He identified five decisive factors and showed how they are dependent on a communication in dialogue between leaders and co-workers. The decisive factors for partnership are; core values, personal maturity, personal motives, trust and equity, and communication in dialogue as the bridge between the leaders and the co-workers. This is illustrated in a general model shown in Figure 2-4.
**2.7.1 Core Values**

The first decisive factor is core values and it refers to principles that co-workers within the organizations agree upon as guidelines for attitude and priorities. It is of importance that the core values are in harmony with the co-workers’ own personal intrinsic motivation and it is also important that the leader confirms the agreement in action as a role model (Harnesk, 2002). This is similar to Bergman & Klefsjö’s (2003) apprehension of core values; a way to emphasize chosen statements or cornerstones. Core values that work together constitute the culture of the organization.

**2.7.2 Personal Maturity**

The second decisive factor, ‘personal maturity’, is, according to Harnesk (2002), “based on the maturity people attain from life experiences that mediates moral courage, trust and interpersonal competence”. It is also a matter of understanding human behaviour, one’s own personal needs and at the same time having the ability to achieve self-distance. (ibid).

**2.7.3 Personal Motives**

Personal Motives is about intrinsic factors for motivation based on personal experience in the same way that every individual has personal desires and priorities as drivers for action (Harnesk, 2002). Important
factors for motivation can be if the work is meaningful, gives responsibility and knowledge of results (ibid). This is in accordance to other authors’ comprehension within the quality movement see, for instance, Senge (1990), Deming (1994) that claims that all transformation processes start with individuals as the first step. Harnesk (2002) states “to be able to combine personal motives with the organization’s vision and core values, personal motives must be understood by the supervisors/leaders but also by the individual co-workers themselves”.

2.7.4 Trust & Equity
With the fourth decisive factor, trust and equity, Harnesk (2002) means that “mutual trust and respect is essential for a successful honest relation between leaders and co-workers”. He also states that the ability to build relations, credibility, and trust is crucial for all types of leadership. Deming (1986) also emphasizes this when he states that it is important to “drive out the fear”.

2.7.5 Communication in Dialogue
The fifth decisive factor, communication in dialogue, is described as a bridge between the leaders and the co-workers and as a key factor for partnership by (Harnesk, 2002). Bergman & Klefsjö (2003) and Senge, (1990) have also pointed out communication as a key issue for the development of co-workers, leaders, and organizations. Without communication, core values can not be deployed in the organization and personal maturity has no meaning (Harnesk, 2002). Without communication, personal motives cannot be combined with the organization’s vision, trust and equity nor be mediated (ibid). Communication in dialogue and partnership may act as incentives to increase co-workers’ satisfaction with their jobs and thereby their health.

2.8 Health
There is support for the assumption that when there is a high level of satisfaction in one’s job, the co-workers and the organization are healthy (Arnetz, 2002). Developing a good working environment and work organization is related to increased workplace health and performance
Job satisfaction is affected positively by clear goals, when the goals are realistic, and when it is possible to evaluate them. In other words, when the co-workers are well aware of the organization’s goals and can affect them. It is also important that people take pride in their organization, more pride gives higher job pleasure (Arnetz, 2002). Job pleasure is a comprehensive measure that shows the level of balance between co-workers and organizations (ibid). Factors that influence how both management and co-workers estimate the quality of their work are presented in Figure 2-5. The figure is dynamic, and thus, it also shows the relations of cause and effect. The immediate leadership influences how co-workers experience the efficiency of operations.

Figure 2-5 The critical passage to operational quality and customer satisfaction. The figure identifies management, organizational efficiency and work satisfaction as critical factors to reach organizational quality which is appreciated by the customers. From (Arnetz, 2002).
Arbetsmiljökommissionen (1990) (Swedish Government Commission on Work Environment) discusses human resources, business economy, and national economy as three main reasons for improving working environment. According to Lim & Murphy (1999), a healthy work organization is an organization whose culture, climate and practices create an environment that promotes both co-worker health and safety as well as organizational effectiveness.

Healthy co-workers and healthy organizations are goals for many leaders but the term ‘health’ has also been discussed by several researchers. Several different definitions of health have been proposed and discussed during recent years since sickness absence has become a growing welfare problem. According to Medin & Alexanderson (2000), there are two ways of looking at health; one is the biomedical view and the other is the humanistic view. The biomedical view is based on the opinion that health is the absence of illness. The humanistic view, on the other hand, sees health as something more, or something other than absence of illness (ibid). It is based on humanistic and social concepts where the view is that the whole is greater than the sum of the parts, (Nordenfelt, 1986).

The World Health Organization, (1948) has its own definition of health and states that: “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. Health can also be defined as a combination of self-assessed health, the absence of chronic conditions and absence of subjective health complaints, see for instance Mackenbach, et al. (1994). Medin & Alexanderson (2000) have identified three overarching areas which represent the layman’s apprehension of health: health as absence of illness, health as a resource and a strength, and health as a state of being in balance, being in shape. Lindberg (2006) summarizes his research of the health concept in his thesis saying; there is no generally accepted definition of health. Naturally, there is the same difficulty with health problems. Theorell & Vogel (2003) have found three related concepts: disease, illness, and sickness. They state that disease refers to biological or physiological reactions, such as injuries, while illness is subjective and relates to the consequences of a disease. Theorell & Vogel (2003), finally, state that sickness is the social
consequence of disease and illness. Caplan et al. (2004) state that a person can always increase their health with appropriate actions in different situations, and thus there is no optimal state of health. A sustainable work system is, according to Docherty et al. (2002), “a system where human and social resources are regenerated through the process of work while still maintaining productivity and competitiveness”.

In the research described in this thesis, the definition of health is extended to also include “sustainability”. The long-term perspective includes not only annual sick leaves rates, but also the positive progress made by the organizations over time. Our definition of Sustainable Health is influenced by several of the different humanistic definitions and is stated as: durable individual perceived well-being. This leads, for example, to long-range preserved or increased:

- Motivation and commitment
- Ability to perform
- Health presence
- Good physical and psychical health
- Social well-being in working life and private life

In the work to increase the presence of health and avoid sickness, the concept of health promoting and prevention is often used. In the Ottawa Charter (Ottawa charter for health promotion, 1986) the WHO states that health promotion is “the process of enabling people to increase control over, and to improve, their health”. “In order to reach a state of complete physical, mental, and social well-being, an individual or a group must be able to identify and realize aspirations, to satisfy needs, and to change or cope with the environment.” “Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy lifestyles to well-being”. (ibid)

According to Andersson et al. (2005), leadership for health promotion is an area where advanced knowledge could make valuable contributions to the improvement of the health of populations. The key is what capacity an organization has for health promotion. This is determined by
both its will to act and the infrastructure in the organization (Pearson et al., 1998). Organizations that demonstrate an overall democratic management style tend to plan and implement more workplace health promotion programs than those organizations that demonstrate an overall authoritarian approach to management (Barret et al., 2005).

Health is measured with a lot of different methods and it is not always easy to compare different status of health between organizations and countries. According to Theorell & Vogel (2003), self reported health has shown to be a valuable indicator of health. However, there are difficulties in comparing self-reported health. Difficulties arise when the questions in the questionnaires are to be formulated and furthermore, the same word might have a different meaning to different people, (Nyberg et al., 2005). Despite the difficulties in comparing and measuring health, self-reported health is one way to measure and it provides useful information for further research (Theorell & Vogel, 2003). According to Westerlund (2005), a common way to measure health is by asking people about their health through questionnaires or interviews.

Leadership values and approaches are often referred to as central components in different health promoting activities. In this context, (Nyberg et al., 2005) have summarized health promoting factors in leadership and compared ‘bad’ leaders with ‘good’ leaders. With respect to health and job satisfaction of subordinates, a good leader: shows consideration towards a subordinate, initiates structure when needed – especially in stressful situations, allows subordinates to control their work environment and gives access to empowerment structures and opportunities for participation, autonomy, and control, inspires co-workers to see a higher meaning in their work, provides intellectual stimulation and is charismatic.

With respect to the health and the job satisfaction of subordinates, a bad leader: does not show consideration, initiates structure without showing consideration, or deprives subordinates of participation, autonomy, and control, uses only a transactional approach towards subordinates, acts
laissé-faire – does not respond to subordinates and does not monitor performance’, (ibid).

Leadership performed by leaders and managers in organizations that have achieved sustainable health among their co-workers in called leadership for sustainable health in the research described in this thesis.

2.9 The Connection between Quality Management and Health
Interest in the connection between quality and health seems to be on the increase, but not so many of the authors in the quality movement mention health or co-worker health in particular. The focus in Quality Management has instead been on external customer satisfaction and continuous improvements. The co-workers are however seen as internal customers in the quality movement, thus their satisfaction and well-being have to be considered in quality work. Lagrosen & Lagrosen (2004) have pointed out that bringing in a more human and effective practice into the Quality Management provides beneficial effects on co-worker health.

Axelsson (2000) reported that deficiencies in information handling, management, work tasks, workplace design and motivation are important causes of poor quality. Warrack & Sinha (1999) stress that the same kind of overarching management system is needed in order to both achieve excellence in product and service quality and organize healthier and safer workplaces. The relations between quality development and health of the co-workers have also been discussed by (Dolbier et al., 2001).

As mentioned before, some studies have shown relationships between a company-wide implementation of quality programs and improved co-worker satisfaction, low co-worker turnover, in other words co-worker health, in addition to improved external customer satisfaction and financial results (Dahlgaard & Park, 2003a and 2003b). The link between internal customer satisfaction, external customer satisfaction, and productivity has also been confirmed (Gronholdt & Martensen, 2001).
Other studies indicate no positive health outcomes from the implementation of TQM Kivimäki et al. (1997) and some even negative effects in the working environment Bejerot & Hasselbladh (2002).

As several researchers emphasize, TQM has a strong participative component where every co-worker in the organization should be involved in the quality work (Sila & Ebrahimpour, 2002) and (Bergman & Klefsjö, 2003). This is well in line with research in the health field, where the demand-control-support model is a major finding which discusses the importance of the co-workers being able to control their own work situation (Karasek & Theorell, 1990). In Quality Management and TQM the values within the organization are the base and the assumption, see Section 2.1, 2.3 and 2.4. This is in accordance with results from a research program within NIOSH (National Institute for Occupational Safety and Health) (Sauther et al., 1996). They have identified three key dimensions associated with both co-worker health and organizational effectiveness: commitment to company values; an organizational climate in which co-workers felt appreciated and resolve group conflicts; and management practices, such as rewarding workers for quality work, supportive supervisors, and strong leadership.

Co-worker participation has also been shown to help improve both organizational outcomes (Eriksson et al., 2003); (Hendricks & Singhal, 1999) and health outcomes (Karasek & Theorell, 1990). The co-workers’ perception of their health, self-reported health, has shown to be correlated to the TQM value management commitment (Lagrosen, 2004). On the other hand committed leadership can put more demands on co-workers. If the organization wants to do the best for its external customers, it must put demands on its co-workers which can lead to ill-health (Lagrosen, 2006).
3 RESEARCH METHODOLOGY

This chapter contains a presentation of the chosen research methodology presented in this thesis, along with a discussion of aspects related to the chosen research approach and strategy in order to fulfil the purpose. The chapter ends with a discussion on validity, reliability and generalizability.

3.1 Purpose of the research

Before a research process is started, the purpose of the study must be decided. According to Creswell (2003), the choice of which research approach to use is based on the research problem, the author’s personal experiences, and the audiences for whom the research is written. The preface of this thesis is an attempt to describe the training, the experience, and the pre-understanding that have had an influence on the choice of strategy and approaches during this research process.

According to Yin (1994), there are three different types of purposes for research: exploratory, descriptive, and explanatory. Each one is a way of collecting and analyzing empirical evidence, following its own logic. Exploratory research is used when things are investigated. Yin (1994) stresses that when the research questions deal with ‘how’ and ‘what’, an explanatory research is probably the best strategy. When the research purpose is to describe things like events or phenomena, a descriptive strategy is preferred. The research then deals with questions like ‘what’, ‘who’ and ‘where’ (Yin, 1994). The purpose with explanatory research is to explain and inform, for instance about a phenomenon. Common research questions in an explanatory research are ‘how’ and ‘why’, (Yin, 1994). He also establishes that the explanation is made through the stipulations of a set of causal links.

The research purpose of the research described in this thesis is both exploratory and explanatory since the intention is to examine and describe how organizations…. To fulfil the purpose of the research presented in this thesis, the following research questions were formulated;

- How are organizations, which have achieved sustainable health among their co-workers, working in practice?
- To what extent do organizations, which have achieved sustainable health among co-workers, work according to Quality Management?

- What aspects within the values grown from the quality movement are of importance for the co-workers’ perception of their health?

The research questions in this thesis start with ‘how’, ‘to what’, and ‘what’ which according to Yin (1994), is typical for exploratory and explanatory approaches. The expected audiences of this thesis are researchers, managers, and others interested in leadership for sustainable health, a fact that did not influence the choice of methodology but in a way how the results of the research are presented.

3.2 Research Approach

Once the purpose of the research is decided the approaches are the next decision to make. The approaches are often related to each other and to the purpose of the research. When approaching problems and seeking the answers the researcher has to give attention to some aspects: is the research going to be founded on hermeneutics or positivism, is it going to be performed according to induction, deduction or abduction. Another issue is whether the research is shown to be quantitative, qualitative or a mix. These different possible approaches, and the chosen approach for the research presented in this thesis, are discussed below.

3.2.1 Positivistic or Hermeneutic

Positivism and hermeneutics are the two main different research paradigms today. They originate from separate theoretical perspectives: positivism from natural science and hermeneutics from interpretation of arts and literature. To find a purpose or a meaning of the studied phenomenon, hermeneutics tries to obtain understanding of the phenomenon (Andersson, 1979). On the other hand, positivism tries to interpret a phenomenon objectively by causal links between variables and is based on experimentation and logical reasoning (ibid). These two main paradigms have started to blend with each other and there is now no clear partition between them (Thurén, 1991). Creswell (2003) calls the paradigms ‘alternative knowledge claims’ and states that researchers
start a project with certain assumptions about how they will learn and what they will learn during their inquiry. He also discusses four different schools of thought about knowledge claim positions found within positivism and hermeneutic namely; post-positivism, advocacy/participatory constructivism, and pragmatism, see Table 3-1.

Table 3-1 Knowledge Claim Positions. From (Creswell, 2003)

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<th>Alternative Knowledge Claim Positions</th>
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<td><strong>Post-positivism</strong></td>
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<td>Determination</td>
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<td>Reductionism</td>
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<td>Empirical observation and measurement</td>
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<td>Theory verification</td>
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<td>Political</td>
</tr>
<tr>
<td>Empowerment issue-oriented</td>
</tr>
<tr>
<td>Collaborative</td>
</tr>
<tr>
<td>Change-oriented</td>
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</tbody>
</table>

Creswell (2003) describes the different claims and according to him, the first claim, post-positivism, is the scientific method, which is also called quantitative research. It challenges the traditional notions of positivism saying that we cannot be ‘positive’ about our claims of knowledge when studying the behaviour and actions of humans. Furthermore, post-positivism is a deterministic philosophy and thus, problems studied by post-positivists reflect a need to examine causes that influence outcomes. The knowledge that is developed through the view of the post-positivists is based on an objective reality, and this objective reality is carefully observed and measured.

The second claim, constructivism, carries assumptions that individuals look for understanding of the world they live and work in and through their experiences, they develop subjective meanings. The varied and multiple meanings that are developed lead the researcher to look for the
complexity of views instead of reducing the meanings into a small number of categories or ideas. The aim is to rely as much as possible on the participants’ analysis of the situation that is being studied. This position is in favour of asking broad, general, and as open-ended questions as possible to the participants in the studies since this gives the participants the opportunity to construct meaning of their situation; meaning that is worked out in discussions or/and interaction with other persons. The procedures of interaction between individuals are often addressed by constructivist researchers, who often recognize the fact that their own background shapes their interpretation (Creswell, 2003).

The third claim, advocacy/participatory knowledge claim, believes that it is necessary to link inquiry with politics and a political agenda, a reform agenda that may change not only the lives of the participants but also the institutions in which they work as well as the researcher’s life. One assumption within this claim is that it is important to precede the inquiry by cooperation in order not to marginalize the participants and therefore, the participants may assist in designing questions, collecting data, and analyzing information. This knowledge claim tends to take a stance for groups and individuals in society in order to help them avoid being marginalized and it takes on different theoretical perspectives in order to accomplish that. Examples of such theoretical perspectives are: feminist perspectives, critical theory, queer theory, and racial discourses (Creswell, 2003).

The fourth claim is called the pragmatic knowledge claim, or pragmatism. In contrary to post-positivism, pragmatism does not see that knowledge claims arise out of antecedent conditions but rather out of actions, situations, and consequences. It is not methods that are important to pragmatists, it is the problem that is of most importance and the researchers are free to use all approaches in order to understand the problem. There exist many forms of pragmatism, which provide a base for a number of different knowledge claims. One of them is that pragmatists believe that we need to stop asking questions about reality and the laws of nature while another claim is that truth is what works at the time and it is necessary to use both quantitative and qualitative
methods in order to be able to present the best understanding of a research problem (Creswell, 2003).

I have my background and base in the hermeneutic paradigm, but during recent years, I have been influenced by positivism through my work and my research education. This has certainly influenced my choices of research approach during the process and this mix is reflected in my choices of approaches, which derive from both hermeneutics and positivism. Within the knowledge claim positions identified by Creswell (2003), my research can be located mainly within social constructivism with features of post-positivism and an attempt at pragmatism. To me, this seems to be the obvious and most suitable approach to use in order to answer my questions. The choices I have made concerning approach and knowledge claim have affected my research result and it is worth mentioning that another researcher, with different experience and background, might have chosen a different approach in order to answer the research questions I have posed.

3.2.2 Induction, Deduction, or Abduction

Traditionally, in research a distinction is made between induction and deduction. Induction means that the researcher draws general conclusions on empirical facts and an assumption for induction is a quantification of the data, (Alvesson & Sköldberg, 1994). In other words, the researcher gives theoretical explanations based on empirical findings. Deduction, on the other hand, is research where the researcher draws a logical conclusion which is considered valid if it is logically connected. Thus, theory has a more obvious role in deduction. According to Alvesson & Sköldberg, (1994), both deduction and induction have their weaknesses. With induction, the generation of general conclusions from the specific case causes a reduction of the underlying structure and only an outer, mechanical connection is obtained. Deduction also causes a reduction of the underlying structure and tendencies and thus, it has a reverse approach and states the explanation, (ibid).

Abduction is, according to Patton (2002), a combination of inductive and deductive thinking with logical underpinnings and it is possible to
develop the empirical application as well as adjust the theory during the research process. Abduction starts from an interpretation of patterns in the empirical material in contrast to deduction which, starts from nothing, and to induction that starts from a theory (Alvesson & Sköldberg, 1994). This is illustrated in Figure 3-1. Alvesson & Sköldberg (1994) claim that abduction is often used in case studies.

![Figure 3-1 Deduction, induction and abduction (Alvesson & Sköldberg, 1994)](image)

The research approach for the research presented in this thesis can be described as an abduction process since it has been an interactive process between the collected empirical data and the theoretical data; a specific case interpretation with a hypothetic overarching pattern which explains the case and then the interpretation was confirmed with new observation, see Figure 3-2. In order to answer the first research question, the empirical data, the methodologies from the case organizations achieving sustainable health among their co-workers, were collected and presented. Thus, the first part of the research can be described as induction since it emerged from the empirical material. Research question number two was answered through theory testing of empirical data: an investigation was carried out in order to see if the organizations were working according to TQM and this can be described as the second step in abduction. The third question can be described as the third step in abduction; the causes and the aspects within the values were
investigated, empirical material together with the theory, in order to search for possible correlation with the perception of the co-workers’ health.

Approaches of the research described in this thesis

| Theory (profound structures) | 2 |
| Empirical regularities (surface structures) | 3 |
| Empirical material | 1 |

Figure 3-2 The interpretation of this research in relation to the research questions. The figure is inspired by (Alvesson & Sköldberg, 1994).

3.2.3 Quantitative or Qualitative

There are two main research methodologies from the basis of research; namely quantitative and qualitative; see (Creswell, 2003) and (Bryman, et al., 1997). Bryman et al. (1997) also establish that these two research traditions can be combined as they both contribute to our understanding of different aspects of the phenomenon due to the fact that they are studying the same question in different ways. Quantitative research can be seen as connected partly to positivism and partly to natural science (Bryman et al., 1997). Yin (1994) even maintains that there is a strong and essential common ground between quantitative and qualitative methods. Using more than one method and more than one type of information in order to answer the same question is called triangulation, (Bryman et al., 1997). Researchers using a triangulation with several different methods
can expect a rich picture of the studied phenomenon (Patton, 2002). With a combination between quantitative and qualitative methods, researchers can be more sure of their conclusions as they have confirmed their results in two different ways (Bryman et al., 1997). However, it is not uncommon that the results from studies that have combined quantitative and qualitative methods show dissimilarity (ibid). That is in accordance with the idea of triangulating and does not mean that one of the results is repudiated. Instead, differences and dissimilarity in the results can force the researcher to go deeper into the studied phenomenon. That, in turn, can bring about new and fertile questions. (ibid).

At the same time there are a few obstacles to integration between quantitative and qualitative research. One of these obstacles is that the research is based on fundamentally irreconcilable points of view in theory of cognition, (Bryman et al., 1997). According to Creswell (2003), mixed methods use theory either deductively, as in quantitative research, or inductively as in qualitative research. There are also researchers that have begun to identify the use of theoretical lenses or perspectives in their mixed methods studies. This perspective incorporates a transformational-emancipator design (ibid). Barret et al. (2005) recommend combining research approaches that engage both qualitative and quantitative techniques when examining leadership for health promotion within health organizations since it is of a complex nature.

In the beginning of this research a qualitative approach was the obvious choice to answer the first research question. Further on, there were reasons to complement and extend the research with a quantitative approach. According to Creswell (2003) this kind of procedure whereby the researcher seeks to elaborate on or expand the findings of one method with another method is named sequential. Without this combination this research process would probably not have reached such deep understanding of co-workers’ perceived health, the underlying factors in the TQM values; ‘Management Commitment’ and

\[\text{This value is named Leadership Commitment in the papers}\]
‘Let Everybody be Committed’. On the other hand, this might have resulted in discovery of more successful methodologies or other factors that influence co-workers’ health.

3.3 Research strategies
There are different types of research strategies to choose from and a lot of decisions to make for the researcher during the research process, in order to best answer the research question. Creswell (2003) mentions different strategies of inquiry associated with qualitative, quantitative and mixed methods. He claims that the main strategies for quantitative research are experiments and surveys. The strategies for qualitative research can be ethnographies, grounded theory, case studies, phenomenological research, and narrative research. There are several strategies associated with mixed methods, three general ones are; sequential procedures, concurrent procedures, and transformative procedures (ibid).

To fulfil the purpose of the research described in this thesis, case study as the main research strategy was the obvious choice as the purpose of the research was to examine and describe how leadership can establish sustainable health among the co-workers and examine how the leadership for sustainable health is related to Quality Management. The in-depth purpose was to examine which aspects within the values grown from the quality movement are those that primarily influence the co-workers’ perceived health. The case study strategy was complemented with survey strategy through a questionnaire to the co-workers in the studied organizations. The intention with the questionnaire was to test the correlation between the TQM values and the co-workers’ perception of their health, the degree to which the variables are related.

According to Yin (1994), case studies can be based on any mix of quantitative and qualitative proof. Case studies is the preferred research strategy when how- and why-questions are being posed and they are used in many situations in order to contribute to our knowledge of individual, group, organizational, social, and politically related

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3 This value is named Participation of everybody in the papers
phenomena, (Yin, 1994). Case studies can be designed in four major ways: either single-case or multiple-case, which is further sub-divided into either holistic or embedded. A single case study is preferred when a well-formulated theory is tested, or when the case represents an extreme or a unique case, or when the case is representative or typical, or when the case is revelatory (Yin, 1994). A multiple case study has obvious advantages and disadvantages compared to a single case study (ibid). The results from a multiple case study can lead to a more robust study and augment external validity as it is regarded as more compelling. But the rare, critical and the revelatory case can only be designed as a single case study since these cases can not be performed with multiple case studies, (Yin, 1994). To carry out a multiple case study usually requires more resources than a single case study and therefore, the decision to design a multiple case study has to be considered carefully (ibid). The choice between holistic or embedded examination within the cases depends on if the case studies examine one or several sub-units. Both variants have their strengths and weaknesses. A problem with holistic design is that it can be conducted on an abstract level and another problem is that the entire nature of the study may shift during its progress. Embedded design on the other hand can have problems when the case study focuses only on the sub-unit level and fails to return to the larger unit of analysis (Yin, 1994).

As mentioned before, the main research strategy, for the research presented in this thesis, was case study. The Case Studies were both single and multiple, with embedded analysis since the study used different units (tree diagrams, interviews, focus group interviews, observations and literature studies of documents) for data collection within the organizations.

Surveys were used to further investigate and complement the results in the case studies. The correlation between the TQM values and the co-workers’ perception of their health (health index) were measured with the Pearson Product Moment Correlation (named Pearson’s Correlation and Pearson’s r). The Pearson’s r reflects the degree of linear relationship between two variables. Some of the qualitative results were analyzed with inspiration from grounded theory while the quantitative
results were analyzed with multivariate techniques. A more detailed description of research strategy with a description of the methods, tools and analysis used in the case studies, is presented in Section 3.4. An explanation as to the chosen case organizations for each case study is also presented.

Figure 3-3 Summary of different methodological alternatives and the choices made in this research with references to chapters in this thesis. Preformed choices are marked with gray or striped figures or bold text.
3.4 Methodological Choices in the Performed Case Studies

In order to best fulfil the purpose of the research presented in this thesis, four different case studies were performed in five different organizations. A description of the organizations is found in Appendix 1. The research strategy, methods and tools used in the four case studies are described in this chapter, together with the performed analysis. A summary in presented in Table 3-2.

3.4.1 Research Strategy, Methods and Tools in Case Study 1

In order to answer the first research question an exploratory and explanatory study was carried out at two organizations, Fresh AB and The Department of Emergency and Accidents at South Stockholm General Hospital (referred to henceforth as SÖS Emergency). The embedded multiple case study was performed by a research team consisting of Roland Harnesk and Karin Schön at the Division of Quality & Environmental Management at Luleå University of Technology, and Ingela Bäckström, the author of this thesis. The selection of the two studied organizations was based on their recognition as successful organizations; they were both awarded the Alecta award, “The best workplace in Sweden” in 2001, in their respective size category. The number of case study organizations was carefully considered, weighing up the advantages of comparison, complementary information and the amount of empirical data against the demand for more resources. The choice of two organizations that are both different in size and business field (public health service and traditional manufacturing business) was then made for complementary reasons. The fact that they were both selected for the Alecta award made it possible to compare the results.

The research project started with studies of articles, reports and internal documents followed by study visits at both Fresh AB and at SÖS Emergency. The reasons for these visits were to build relations, present the project and to make an overview observation of the organizations. The next step started with one workshop to create a tree diagram together with co-workers, observations and a manager interview at Fresh AB, then two workshops creating tree diagrams with co-workers
followed at SÖS Emergency and the manger interview at SÖS Emergency. The data collection and the analysis are described in more details below and the whole research process is illustrated in Figure 3-4.

**Observations and Literature Studies**

The purpose of the observations was to give a cursory understanding of the work situation at the two organizations and the literature studies were done to give an understanding of what the organizations have written down in policy documents and how the organizations had been referred to in articles, together with the results of different study reports. The observations and the literature studies were both used as a basis in the planning of the study and during the triangulation in the analysis.

**Workshops Creating Tree Diagrams**

The research team was looking for a tool that could structure qualitative information from a complex situation in an easy way for the correspondents, as well as inspire creativity. A couple of different data collection methods were discussed before the tree diagram was chosen. Both the Ishikawa diagram (also called Fish bone diagram) and the tree diagram are used for breaking down one specific question into many detailed answers. Usually, these tools are used in problem solving processes, but they can also be used as a tool to disclose the successful methodologies used by the two case organizations (Mizuno, 1988).

The tree diagram was finally chosen after a small pilot study at the Division of Quality & Environmental Management at Luleå University of Technology. The group considered this tool to be easier to work with than the Ishikawa diagram and easier for the corresponding group to understand. The tool was chosen under the presumption that the interactive process would give answers which could not come as the result of several individual interviews since the group inspired each other during the “brainstorming”.

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The tree diagram tool was used in an effort to utilize the synergy of the interviewed groups, first based on individual answers and then from a consensus process formulated as the common groups’ answers. The interactive process from the workshop creating the tree diagram can also help to give a holistic view and define vital causes from a complex situation. The workshop participants also supported this presumption when asked at the conclusion of the tree diagram processes. They all expressed the opinion that they did not think they could have come to the same results if they had been interviewed separately.

To fulfil the purpose of the study, the workshop with the tree diagrams all started with one very general question, “Why are you among the best workplaces in Sweden?” The information needed was on a detailed level and probably embedded in complexity or was too obvious to be seen in every day work.

Different suggestions were then written down on post-it notes and placed on a white board. The next step was to further explore each of the suggestions to see how each suggestion answered the first question. Continuing like this, the idea was to, step by step, guide the group with new questions like “Why?”, “What is creating this?” and “How have you worked to achieve this?” The tree diagram workshop was concluded with an evaluation of the answers in the lowest level in the tree, the most detailed methodologies, to find out which issues were considered most important to the group.

The selection of the co-workers that participated in the workshops creating tree diagrams workshops was done by the organizations. They were selected on the grounds of availability, numbers and with the purpose of covering as many departments as possible. At Fresh AB, all departments were represented in an equal mixture of males and females. At SÖS Emergency, a mixture of nurses and staff nurses, all female, were represented. No males or other co-workers such as doctors or cleaners were represented at SÖS Emergency.
During the tree diagram process, one of the three members in the research team had the role of coordinator. The coordinator tried to follow up what the members of the group said, in order to not miss anything. The other two members had the role of facilitators in the process. One was situated in the back of the room to observe and take notes of the process from the outside. This person only interrupted the work when a sidetrack started to take up too much time, or to explain difficulties with the tool. The actual writing of the post-it notes was done by one of the group members. The group itself ran the process and, depending on the level of interest, this was done with a little or a lot of help from the coordinator. For the complete tree diagrams see, (Bäckström et al., 2004). The reason for starting with the tree diagram workshops with the co-workers was to avoid influence from the general manager of the organization and the top manager of the department.

**Interviews**

When the tree diagram workshops were completed at each organization, a longer interview with the leader, seen as the driving force, concluded the data collection. The two leader interviews ended with the creation of a separate tree diagram, to have as a complement and comparison with the co-workers’ tree diagram. The interviewer was the person in the research team who had read least about the organizations in advance. This was to avoid possible influence on the interviewee.
Figure 3-4 The figure describes the full research process in case study 1.
The Analysis Process

All collected data from the tree diagrams was analyzed in a workshop with the members of the project team and an external facilitator. The facilitator had no information about the case organizations and the reason for this was to help the project members to look at the data with an open mind. The Internal Partnership Model see, Section 2.7 was then used as a starting point in the workshop and as a frame to sort the data into four main categories; Leadership Values (in the paper called attitudes), Methodologies, Organizational Structure and General Values. These decisive factors from The Internal Partnership Model were written down on separate big note pads. The methodologies from the written material, notes, and memory of the members, were written down under the five decisive factors. The methodologies that did not fit under any of those decisive factors were written on a separate notepad named “Other”. The analysis was first done separately with one organization at a time and then as a cross-case analysis. From the cross-case analysis a selection of possible and transferable successful methodologies was selected.

3.4.2 Research Strategy, Methods and Tools in Case Study 2

Case Study 2, an explorative and explanatory study, was carried out at Roxtec International AB by a research team consisting of Johan Larsson at Mid Sweden University, and Ingela Bäckström, the author of this thesis. The aim was to give an answer to Research Questions 1 and 2, and partly Research Question 3. Roxtec International was picked out because they were received the award “The best workplace in Sweden”, in 2002, by Alecta. The case study was an embedded single case study since the organization was interpreted as one sub-unit. The research can however be seen as a continuation of the case study at Fresh AB and SÖS Emergency. The experience and same methods from that case study was used in the performance of this case study. The reason was to use the results together and compare with the results from the previous case study.

The research process for Case Study 2 started with a study of articles, reports, and internal documents and was followed by a study visit at the
organization in order to build relations, present the project, and make an overview observation of the organizations. The next step started with one tree diagram workshop with co-workers and observations at the organization, followed by one more tree diagram with co-workers, and an interview and a tree diagram with the general manager and co-owner at Roxel International AB.

The whole data collection process was carried out in the same way as in Study 1, and therefore, more details as to how the observations, literature studies, the tree diagram workshops and the interview were performed can be seen under the description of Case Study 1, above.

The Analysis Process
The analysis process in Case Study 2 started with picking out the methodologies, which had been of high priority to the co-workers in Case Study 1 as well as in Case Study 2. These methodologies were then compared in order to find common methodologies from the different organizations. A methodology was selected when it was confirmed by at least two organizations. The remaining methodologies were now those that had been given high priority by the co-workers and were found in at least two organizations. A literature study of Deming’s 14 points was then performed in order to understand the meaning of the points (Deming (1986)) and this was followed by an analysis of the remaining methodologies versus Deming’s 14 points with the purpose of finding methodologies that supported the meaning of the points. The reason for choosing Deming’s 14 points as an analytical tool was the high degree of human and relation related aspects found in the studied organizations when the results were compiled. The next step was to sort out the methodologies supported or correlated with Deming’s 14 points. The assumption was that at least two organizations had to support or use methodologies correlated with each point; if so, the points were marked. All the steps in the analysis were made together by both members of the research team in a discussion form. A table that shows the correlations is presented in Table 4-3.
3.4.3 Research Strategy, Methods and Tools in Case Study 3

An explorative study was carried out to answer Research Questions 2 and 3 with a research team consisting of Yvonne Lagrosen at Chalmers University of Technology, Stefan Lagrosen at University West (Swedish Högskolan Väst) and myself. The study was preformed as an embedded multiple case study, since each organization was seen as a sub-unit. The research approach was a combination of qualitative and quantitative methods with the intention of confirming the results in two different ways. The researcher had previously investigated one organization each. Stefan Lagrosen had carried out a case study, both qualitative and qualitative at the maternity clinic of Motala Hospital, which had received The Swedish Healthcare Quality Award (in Swedish "Kvalitetstumärkelsen Svensk Hälso- & Sjukvård"). Yvonne Lagrosen had carried out a case study at Fresh AB, a study that was both qualitative and quantitative. I had participated in the case study at SÖS Emergency as described above, which was a qualitative study. The study at SÖS Emergency was complemented with a questionnaire, performed by Yvonne Lagrosen, to also become a qualitative and a quantitative study. Fresh AB and SÖS Emergency had, as mentioned earlier, received the Alecta award in 2001 in their respective category. The selection of the organizations was based on their recognition as successful organizations and their successful implementation of quality programs.

The Qualitative Part

The qualitative collected data at the maternity clinic of Motala Hospital is one in-depth interview with the clinic manager and two focus groups interviews: one with eight doctors and one with ten nurses. The in-depth interview and the focus groups were of a conversational character and the respondents were encouraged to speak freely and be as honest as possible. From Fresh AB the qualitative collected data are three in-depth interviews; one with the chairman of the board, one with the manager, and the last with one co-worker who had participated in the award application. The interviews were unstructured but had one main question: What is the reason for the co-workers’ good health at this company? In addition to this, there was one focus group interview consisting of eight co-workers of which five were members of the health development
group and three of the Safety Committee. At SÖS Emergency, the quantitative part is represented by two focus group interviews performed as brainstorming structured in tree diagrams and an interview with the manager and a separate tree diagram was also constructed with the general manager, see description at Section 3.4.1.

The Quantitative Part

A structured questionnaire was designed for Fresh AB. This was partly based on the results from the interviews and used to measure the extent of influence of the different values and variables. The questionnaire designed for Fresh AB was also used at SÖS Emergency in order to make comparisons easier although some statements were modified for a hospital. At Fresh AB, the questionnaire was handed out at the regular Monday meeting to the whole company. The company had 53 co-workers at the time and since 42 of them responded, the response rate was 80%. The reason for not responding was absence from the meeting and the main reason for absence was that salespeople were away on customer visits. The non-responses do not seem to have limited the effect of the results since the traveling sales-staff do not appear to be correlated with the purpose of the investigation as they actually did not spend much time at the office with the co-workers.

SÖS Emergency is around the clock, all year around, and all co-workers are never on site at the same time. This made it more difficult to hand out the questionnaire to current co-workers at SÖS Emergency. Of 397 co-workers, the questionnaire were handed out to 180 and 102 responded, which gives a response rate of 57%. This can be marked as an accepted response rate as the non-responses were estimated to be a random population of the co-workers; the main reasons were vacation, sick leave and days off. The result of the questionnaire can thus be considered to correspond to the co-workers’ opinion.

The questionnaire contains 37 statements and consists of two parts. The first part contains 21 statements constructed to measure the TQM values, as the following description, see also Appendix 2. The following values are measured: Management commitment, Let Everybody be Committed,
Improve Continuously\textsuperscript{4}, Focus on Customers\textsuperscript{5}, Base Decisions on Fact\textsuperscript{6} and Focus on Processes\textsuperscript{7}. Each TQM value is constructed from the mean of three different statements that were considered to represent the specific value. For instance, the value ‘Management commitment’ was covered by the three statements: ‘I feel that the managers see me and support me’, ‘In our company we have an active and visible commitment from the managers’, and ‘Our manager sets a good example regarding quality’. Health was measured through a health index comprised of three statements. These were: ‘I think my health is very good’, ‘I am hardly ever ill’ and ‘I am rarely tired’. The statements were rated on a 7-point agreement scale from ‘Disagree strongly’ to ‘Agree strongly’. The second part contained 16 statements derived from the interviews at Fresh AB that were not obviously related to the values.

The questionnaire at the maternity clinic at Motala had a different design. It consisted of 65 items on a five-level Likert scale. The questionnaire was based on the results from the qualitative part and was divided into three parts. The first consisted of 32 items concerning the present quality level of the clinic, the second 19 items concerning the effects of their quality work, and the third 14 items concerning success factors. In the questionnaire, the respondents were asked to indicate whether they agreed that the effect in question had been generated. This was measured on a five level Likert scale with the extremities ‘agree completely’ and ‘disagree completely’. The questionnaire was handed out to all 45 co-workers at the clinic and the response rate was 100 %.

The Analysis Process
The empirical data from the in-depth interviews and the focus group interviews from organization 3 and 1 (maternity clinic at Motala and Fresh AB) were analyzed with methods inspired by the grounded theory approach (Strauss & Corbin, 1997). The results from the quantitative part in the second studied organization, the most important methodologies

\textsuperscript{4} This value is named Continuous Improvements in the papers.
\textsuperscript{5} This value is named Customer Orientation in the papers.
\textsuperscript{6} This value is named Management by facts in the papers
\textsuperscript{7} This value is named Process orientation in the papers
according to the co-workers, were then compared to the TQM values and the findings from the first two studied organizations.

The quantitative results from the questionnaires of the three studied organizations were analyzed separately with multivariate techniques, including factor analyses and Pearson’s correlation. The relation between the TQM values and the co-workers’ perceived health was tested through three statements. The correlations were calculated by using Pearson’s Correlation Coefficient.

3.4.4 Research Strategy, Methods and Tools in Case Study 4
The fourth study was carried out at an anonymous multinational manufacturing company in Sweden as an explorative, embedded single case study. It was preformed by Yvonne Lagrosen at Chalmers University of Technology and myself, to answer Research Questions 2 and 3. The main purpose of this study was to further investigate the relationship between employees’ perceived health and the values grown from the quality movement, with emphasis on ‘Management Commitment’ and ‘Let everybody be Committed’. The company was chosen because it showed interest in such questions. There was also a possibility to examine variation regarding this phenomenon, since the company had noticed that the sick absence varied substantially between two different units.

The Qualitative Part
The qualitative part in Case Study 4 consisted of two focus-group interviews with operators/assemblers at two different units to enable comparison between the units and wider range. The company picked out the participants for the focus groups interviews to achieve the widest possible range of work tasks, working years and age. In-depth-interviews were performed with two operating managers, who were managers for most of the focus-group participants and with two unit-managers at the same two units. This brought an examination on three levels at each unit and enabled comparison between the units, see
Table 3-1. Both researchers participated in all interviews, one had the role of asking the questions while the other had the role of observing and asking complementary questions when needed. The participants were encouraged to talk freely and express their opinions and follow-up questions were frequently asked. All interviews were taped and afterwards transcribed in order to enable analysis. Before the interviews begun, the aims of the study were explained to the interviewee: to explore correlations between perceptions of values of Quality Management and co-worker health. The interviews were semi-structured and had a general overall question for the values (Management Commitment, Let Everybody be Committed, Improve Continuously, Focus on Customers, Base Decisions on Fact and Focus on Processes) along with an overall question on their perceived health. For instance, the questions to the operators and the assemblers at the focus-group interviews regarding the value ‘Management commitment’ started with “Describe how the managers work at your unit?” The question regarding the same value asked to the managers was; “How do you show your commitment to quality?” Particular questions were then asked about what was considered of importance in ‘Management Commitment’ and ‘Let Everybody be Committed’ in order to create health among co-workers.

The Quantitative Part

In this study the same structured questionnaire as described in Section 3.4.3, was used to measure the correlation between the TQM values and the co-workers’ perceived health and also to compare the two units. The questionnaire was distributed to all co-workers present at the respective units during certain specific weeks. From the first unit, 72 of 79 questionnaires were returned which gave a response rate of 91%. At the second unit the response rate was 74% with 74 respondents of 101. A response rate between 60 % and 75 % is generally considered as high. The assumed main reasons to non-respondent questionnaires were co-workers on vacation and sick-absence which were considered to not influence the result materially.
Table 3-1 A summary of the levels examined in the organization and the kind of data collected in case study four. Level I was the “highest” level within the units and level III was the “lowest”. The level above I was the plant manager.

<table>
<thead>
<tr>
<th>Examined unit in the organization</th>
<th>Unit 1 Machining</th>
<th>Unit 2 Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchic level examined in the organization</td>
<td>in-depth-interviews with the unit manager</td>
<td>in-depth-interviews with the unit manager</td>
</tr>
<tr>
<td>Level I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level II</td>
<td>in-depth-interviews with one operating manager</td>
<td>in-depth-interviews with two operating managers</td>
</tr>
<tr>
<td>Level III</td>
<td>focus-group interview with 11 co-workers</td>
<td>focus-group interview with 6 co-workers</td>
</tr>
<tr>
<td>Level III</td>
<td>Questionnaire 72 returned 91% respond rate</td>
<td>Questionnaire 74 returned 94% respond rate</td>
</tr>
</tbody>
</table>

The Analysis Process

The transcript in-depth-interviews and the focus-group interviews were analyzed separately by both researchers with methods inspired by the constant-comparison technique from the grounded-theory approach (Glaser & Strauss, 1967) (Glaser, 1992). The analysis was performed by writing brief sentences under each value and part when the interviews were read and after that, the results from each researcher’s analysis were written down and compared to each other. The categories that appeared were then integrated and in this process, they were reduced in numbers. For example, the dimension ‘Integrity’ was labeled after the categories ‘Collaboration/learning’, ‘Independence’, ‘Trustworthiness’, ‘Fairness / equity’ and ‘Serve as a model / high morale’. These categories were then further elaborated under the ‘Integrity’ dimension, in this case also with quotations from the interviewees.
Table 3-2 A summary of methodical choices, studied organizations, papers in the performed case studies, and their relationship to the research questions.

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Case Study</th>
<th>Research Design</th>
<th>Data Collection</th>
<th>Studied organization</th>
<th>Papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Question 1</td>
<td>No 1; A multiple embedded case study</td>
<td>Qualitative</td>
<td>Interviews Focus Group interviews</td>
<td>1 and 2; One Manufacturing inc and One Health department</td>
<td>Paper A; How successful Swedish Organisations achieve sustainable health.</td>
</tr>
<tr>
<td>Research Question 1</td>
<td>No 2; A multiple embedded case study</td>
<td>Qualitative</td>
<td>Interviews Focus Group interviews</td>
<td>1, 2 and 5; Two Manufacturing incs and One Health department</td>
<td>Paper D; Leadership and Workplace Health Promotion - Successful organisations from a TQM perspective.</td>
</tr>
<tr>
<td>Research Question 2</td>
<td>No 3; A multiple embedded case study</td>
<td>Qualitative and Quantitative</td>
<td>Interviews Focus Group interviews Questionnaire</td>
<td>1, 2 and 3; One Manufacturing inc and two Health departments</td>
<td>Paper B; Quality management and health – a double connection</td>
</tr>
<tr>
<td>Research Question 3</td>
<td>No; 4 A single embedded case study for further exploration</td>
<td>Qualitative and Quantitative</td>
<td>Interviews Focus Group interviews Questionnaire</td>
<td>4; One Manufacturing inc</td>
<td>Paper C; Health effects of quality management, the role of leadership and participation</td>
</tr>
</tbody>
</table>

Organization 1 is Fresh AB, organization 2 is The Department of Emergency and Accidents at South Stockholm General Hospital named “SÖS Emergency” in the Licentiate Thesis and Paper B and D. Organization 3 is the maternity clinic of Motala Hospital, Organization 4 is an anonymous manufacturing plant and Organization 5 is Roxtec International AB. In Appendix 1 the organizations are described in more detail.
3.5 Reliability, Validity and Generalizability
Reliability and validity are issues that the researcher has to consider during the whole research process. According to Yin (1994), reliability and validity are different ways of judging research.

3.5.1 Reliability
The reliability of a study demonstrates that the data collection procedure can be repeated with the same results, (Yin, 1994). According to Somekh & Levin (2005), reliability means that the truth of the findings has been established by ensuring that they are supported by sufficient and compelling evidence. In case studies, a case study protocol and a case study database are useful in order to contribute reliability, (Yin, 1994). In order to maximize reliability in questionnaires, attention has to be given to the wording of the questions themselves, (Lewin, 2005).

3.5.2 Reliability in this Research
I am aware of the fact that my background, education and experience have influenced my perceptions and interpretations during the data collection and analysis, and my intention with the preface is to provide some clarity about that. The other team members in the research team and the participating co-workers and leaders in the examined organizations have also influenced the results in this study. With all this in mind, the results might not have been the same with other participants, in other words the results may have reliability deficiencies. Individual paradigms, perceptions and interpretations, together with other uncontrollable factors, can always in some way give different results. Other data collection methods and other participants in the research team and other representatives from the organizations would most certainly have come to different results; the objectivity is lost already in the selection and formulation of interview questions (Säljö, 2000). One way to handle these matters is to describe the work processes and explain the intentions as clearly as possible and leave it to the readers to form their own opinion of the reported study. The description of the research, done previously in this chapter, is an intention to
contribute to reliability in this study. To limit the variance, a triangulation of interviews, workshop creating tree diagram, focus groups interviews, observations, document studies, and questionnaires, were used.

3.5.3 Validity
Validity is the term used to claim that the research results have carefully and exactly addressed research questions (Somekh & Lewin, 2005). They claim that the effort to ensure validity in qualitative research by narrowing the field of study to something which can be measured may have the effect of undermining the extent to which the outcomes can be generalized. With matters of measurement in quantitative research there are many threats to validity (ibid). In qualitative research validation of findings occurs throughout the steps in the research process, (Creswell, 2003). There are four different threats to validity that will raise potential issues about an experimenter’s ability to conclude that the intervention affects an outcome. These threats are; internal validity, external validity, statistical conclusion validity, and construct validity (ibid).

3.5.4 Validity in this Research
It has been my ambition throughout the whole research journey to do the research and the presentation in this thesis as honestly and as plainly as possible in order to facilitate understanding. To ensure validity in the quantitative parts, the interview questions were open ended which made it possible for respondents to freely describe with their own words their picture of the used methodologies and the situation within the organizations. The interviews were taped and transcribed and after that, the respondents were given the opportunity to correct and complement. The interview questions were tested in advance to avoid misunderstandings. A pilot tree diagram was also executed in advance, testing its utility as a data-collecting tool. In the quantitative part, the TQM values and the co-workers’ perception of their health in the questionnaire were measured by three statements and they were distributed in a pattern with the purpose that the respondents should not apprehend any connection between those three statements. The
respondents were asked to mark on a seven-point agreement scale to what extent they agreed with the statements. The participants were anonymous in order to ensure honest answers and the questionnaire was discussed in its original version with some professors at Chalmers University of Technology.

3.5.5 Generalizability

According to Yin (1994), a concern about case studies is, that they provide little basis for generalization from a scientific point of view. This concern covers both single and multiple case studies, but is of particular importance in single case studies. Yin (1994) also claims that case studies can arrive at broad generalizations; it all depends on the motives of the studies and how they are conducted. According to Creswell (2003), generalizability does not carry the same connotation in the qualitative research as in quantitative.

3.5.6 Generalizability in This Research

The base of the research presented in this thesis in grounded on single and multiple case studies with qualitative research, using quantitative research just as a complement. All but one of the case study organizations have received awards for their excellence in work environment or implementation of quality programs. The studied organization for Research Question 3, the one that had not received any award, was not randomly selected. Many of the methodologies that were found are common despite of the differences in the studied organizations. Considering that and how general the methodologies and aspects found within the values are, they might be transferable to other organizations.
4 SUMMARY OF APPENDED PAPERS

In this chapter, the four appended papers are summarized. For more details, see the full papers in the appendix.

4.1 Paper A

4.1.1 Background
Since around 1980, sickness absence among co-workers has rapidly increased in Sweden and other European counties, (Nyman, 2002). As a consequence of the high levels of sick absence the connected costs have risen to alarming levels.

The connection between psychologically unsatisfactory working environments and a high frequency of sickness is well documented see for instance (Dolbier et al., 2001) The connection between participation and satisfaction is also well described in the literature; see, for example, (Kondo, 1993), (McGregor, 1960) and (Hackman & Oldham, 1976).

Despite the high sick absence there are organizations in Sweden that have succeeded in creating good working environments, good financial results, and low sick leaves among their co-workers. Alecta, a Swedish insurance company for occupational pensions, have instituted a national award that comprises of leadership, internal partnership, working environment and profitability.

4.1.2 Purpose
The purpose of this paper was to describe and discuss how two successful organizations have worked in order to achieve sustainable health among their co-workers. Through the description and discussion, the intention was to identify methodologies that other organizations could adopt.
4.1.3 Methodology

To find out how to handle the situation on an organizational level, a case study of two organizations was carried out. The organizations in the case study have both been recognized and awarded for their excellence in achieving sustainable health among their co-workers.

The data collection was made by using brainstorming structured in tree diagrams together with the co-workers. This was complemented by interviews and tree diagrams with senior management. The collected data was first analyzed separately for each organization and later as a cross-case analysis. After that, The Internal Partnership Model, see Section 2.7, was used as a frame to sort the data into four main categories; Leadership Attitudes, Methodologies, Organizational Structure and General Attitudes.

4.1.4 Main Results

The main results are methodologies, attitudes and organizational structure which it is considered possible for other organizations to adopt in their efforts to achieve good working conditions resulting in fewer sick leaves:

- Infrastructures for direct communication and dialogue (cross-functional groups and development groups)
- Relation building activities and meetings,
- Regular co-worker development interviews
- Co-worker’s influence (on their own daily work, pay and timetables)
- Delegated responsibility and authority to working teams
- Flat, flexible, non-hierarchical and non-bureaucratic organization
- Suggestions for improvements must be dealt with seriously (results and quick feedback)
- Establishing a holistic view (work rotation and cross-functional groups)
- Mutual respect without false authority or penalty for mistakes
- Balance between work and private life
- Good public attention
The studied organizations were different in both size and business area, but they generally used similar methodologies, attitudes and organizational structure. The mutually established teamwork based on good leadership together with the co-workers' commitment, once again proved to be the essence of success. Important methodologies and attitudes for managers found by us were low-prestige, visibility, and the fact that managers functioned as coaches with activities which aimed at building relations.

The main conclusion was that other managers and practitioners, in their work to achieve sustainable co-worker health, should be more concerned about building close personal relations with co-workers; they should pay attention to the importance of communication in dialogue, realize how each individual function is important for the performance of the system, note and respect the fact that the organization has hired a person with positive and negative values, who wants to be proud of him/herself, and maybe the most important issue – to make considerable effort to establish trust in all directions.

4.2 Paper B

4.2.1 Background
Quality Management is well established in the industrial manufacturing sector. More recently, interest has started to grow in the service sector and notably in health care (Brown et al., 1994). Several health care organizations have started to implant Quality Management and several articles report positive effects from using Quality Management in health care organizations. In a separate development, some researchers have very recently begun to study the effects that Quality Management has on the health of the co-workers in all kinds of organizations (Lagrosen, 2003). The relation between Quality Management and co-worker health is, however, much more sparsely researched.
Results of a longitudinal research project carried out by (Dahlgaard & Park, 2003a and 2003b) indicate clear relationships between a company-wide implementation of quality programs and employee health in terms of improved employee satisfaction, low employee turn over and absenteeism along with improved external customer satisfaction and financial results. As for the health effects of Quality Management in hospitals, Hancock (1999), argues that in order to promote health in society, hospitals need to be healthy work places in themselves. However, very little research has been carried out into if and how Quality Management can contribute to this, which accentuates the need for studies in this area.

4.2.2 Purpose
The purpose of this paper was to examine and discuss the effects of Quality Management in the health care sector and the general effects of Quality Management on the health of the co-workers.

4.2.3 Methodology
The empirical basis consisted of three studied organizations; one in an industrial manufacturing company, Fresh AB and two in hospitals: the maternity clinic of Motala Hospital and The Department of Emergency and Accidents at South Stockholm General Hospital (SÖS Emergency). The selection of the organizations was based on their recognition as successful organizations and their successful implementation of quality programs.

The empirical data was gathered with both qualitative and quantitative methods. The qualitative part was in-depth interviews, focus group interviews and focus group interviews performed as brainstorming structured into tree diagrams. The quantitative part consisted of questionnaires.
4.2.4 Main Results

The twofold value of Quality Management of preventing disease by supporting more rewarding working conditions as well as improving the treatment of disease by increasing the effectiveness of health care organizations is indicated. Management commitment was found to be the most crucial common prerequisite for successful Quality Management implementation and for creating a healthy work environment.

In addition, continuous improvements and participation of everybody were found to have importance for well functioning Quality Management as well as for health. This is a reactive effect considering society as a whole since it is a reaction to the existing health problems although the effects in the health care organizations may be proactive in preventing errors in the treatment procedures.

The results from the studied organizations in this paper also included an examination of the factors through which Quality Management creates this effect. The three factors; management commitment, participation of everybody and continuous improvements were shown to be vital contributors for health and managers should make every effort to implement them. In Figure 4-1, the two health effects of Quality Management, proactive and reactive, are depicted as the outcomes of five factors that the studies have indicated to have this influence. In Figure 4-1 the two health effects of Quality Management, proactive and reactive are illustrated.
This study indicated that Quality Management programs could contribute to the improvement of health status among co-workers as well as improving products and processes in health care organizations. The results from the studied organizations pointed at the commitment of managers as the most central of the common factors for achieving a healthy work place as well as creating efficient organizations. Additionally, the factors of continuous improvements, participation of everybody, information and customer orientation were, in certain instances, found to be related to employee health status and/or successful Quality Management implementation.

These results could serve as a basis for how companies might improve the health of their co-workers through changes in the organization and by letting these values permeate the organization’s culture. Furthermore, the tools and methodologies of Quality Management were obviously also needed in order to make the values part of the daily activities.

4.3 Paper C
4.3.1 Background

Workplace health is a complex phenomenon and its occurrence and causes are affected by many different issues – including social, work-related, organizational and individual factors. Work-related factors, for example, may be work content and work conditions. Organizational factors include, for instance, company size, the existence of health promotion programs, and sickness absenteeism policies (Janssen et al., 2003).

This paper explored the connection between Quality Management and health, and the role of the values of TQM was particularly examined. Studies have shown that working with organizational values that were grown from the quality movement affect job-satisfaction as well as resulting in increased profitability and customer satisfaction (Hendricks & Singhal, 1997, 1999) (Hackman & Oldham, 1976; Hansson & Eriksson, 2002; Westlund, 2001). There is also support for the assumption that when there is a high level of enjoyment in one’s job, the co-workers and the organization are healthy (Arnetz, 2002). Thus, it is reasonable to conclude that Quality Management could have beneficial effects on employee health by bringing in more humane and effective practices and thereby improving the working conditions.

4.3.2 Purpose

The purpose of this study was to go deeper into the TQM values of ‘management commitment’ and ‘participation of everybody’ and study what aspects of these values have influence on employees’ perceived health. Finding factors affecting sick leave was another focus of investigation.

4.3.3 Methodology

A case study was carried out at an international manufacturing company with production and sales in approximately 100 different countries in order to further explore our topic. The Swedish plant that performs
contract manufacturing for customers in Sweden, the Netherlands, France and Poland was chosen because they showed interest in this issue and they had noticed that the sick leave varied substantially between different units.

Both qualitative and quantitative methods were used along with data triangulation in the form of in-depth interviews and focus-group interviews at three levels at the studied company.

In the quantitative part of the study a structured questionnaire was used primarily to measure the correlation between the values of TQM; Leadership commitment, Participation of everybody, Continuous improvements, Customer orientation, Management by facts and Process orientation and perceived health of the co-workers.

### 4.3.4 Main Results

The results from the questionnaire are shown in Table 4-1 and they confirmed the earlier finding in Paper B, (Lagrosen et al., 2007) that co-workers’ perceptions of Quality Management values was significantly correlated with the perception of their health.

Table 4-1 Correlations between the values and the health index at both units.

<table>
<thead>
<tr>
<th>VALUE</th>
<th>PEARSON CORRELATION ASSEMBLY UNIT</th>
<th>SIG.</th>
<th>PEARSON CORRELATION MACHINING UNIT</th>
<th>SIG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership commitment</td>
<td>.472**</td>
<td>.00</td>
<td>.433**</td>
<td>.001</td>
</tr>
<tr>
<td>Participation of everybody</td>
<td>.417**</td>
<td>.000</td>
<td>.416**</td>
<td>.000</td>
</tr>
<tr>
<td>Continuous improvements</td>
<td>.444**</td>
<td>.000</td>
<td>.403**</td>
<td>.005</td>
</tr>
<tr>
<td>Customer orientation</td>
<td>.501**</td>
<td>.000</td>
<td>.397**</td>
<td>.000</td>
</tr>
<tr>
<td>Process orientation</td>
<td>.306 **</td>
<td>.009</td>
<td>.281**</td>
<td>.002</td>
</tr>
<tr>
<td>Management by facts</td>
<td>.286</td>
<td>.015</td>
<td>.347**</td>
<td>.001</td>
</tr>
</tbody>
</table>

Significance level: **p<0.01
The values ‘leadership commitment’ and ‘participation of everybody’ are strongly correlated with health and that confirms earlier studies. In the next step we elaborated this finding to see what aspects of these values had had this effect. For this purpose dimensions were extracted from the interviews regarding these values. Four dimensions of Leadership commitment were found, namely Empathy, Presence and Communication, Integrity and Continuity and were described in a model; see Figure 4-2.

Figure 4-2 A model of the dimensions of ‘Leadership commitment’ – the managers perspective, (Yvonne Lagrosen, Bäckström, & Lagrosen, 2006a).

Three dimensions regarding the value ‘Participation of everybody’ were also extracted from the interviews; Development, Influence and Being informed. An illustration is provided in Figure 4-3.

Figure 4-3 A model of the dimensions of ‘Participation of everybody’

No significant differences between the two examined units, Assembly and Machining, were found. As can be seen in Table 4-2 the scores vary substantially and are highest for customer orientation.
The study also found that ‘less freedom in work’, ‘high staff turnover’, ‘less qualified work’ and ‘vicious circles’ could be explaining factors for sick leave. The paper provides additional understanding for the connection of Quality Management and health, particularly regarding the role of leadership. The proposed models need to be further validated in future research.

The findings have demonstrated that Quality Management can be used for improving employee health and also how. The empirical research aims at increasing understanding of factors of importance for creating health among co-workers. Which aspects of leadership commitment and participation of everybody that is associated with co-workers’ perceived health are empirically examined, elaborated and highlighted.

Perceptions of TQM values were significantly correlated with employees’ perception of their health. Dimensions of importance for ‘leadership commitment’ and ‘participation of everybody’ regarding employees’ health were identified and described in models. The study also found that ‘less freedom in work’, ‘high staff turnover’, ‘less qualified work’ and ‘vicious circles’ could be explanatory factors for sick leave.
The paper provides additional understanding of the connection between Quality Management and health, particularly regarding the role of leadership. The proposed models need to be further validated in future research. The findings have demonstrated how Quality Management can be used for improving employee health.

4.4 Paper D

4.4.1 Background
There are a lot of organizations that have great problems with sickness absence and stress-related problems among their co-workers in the western world and especially in Sweden. At the same time, there are prize-awarded organizations that have shown excellence in leadership, internal partnership, working environment, and profitability. This made us interested in examining how three Swedish organizations, successful in organizational performance and sustainable health, work and if the leadership conforms to Deming’s 14 points. For Deming’s 14 points see Section 2.5.1. The studied organizations are two manufacturing companies and one hospital: Fresh AB, The Department of Emergency and Accidents at South Stockholm General Hospital and Roxtec International AB. They have all received the Alecta award “The best workplace in Sweden” for achieving excellence in leadership, internal partnership, working environment and profitability.

4.4.2 Purpose
The purpose of this paper was to present and describe methodologies identified in different organizations that have been recognized for achieving sustainable health among their co-workers. The purpose was also to examine if the identified key-methodologies support TQM according to Deming’s 14 points.
4.4.3 Methodology
To find methodologies the data collection has been carried out through brainstorming in groups, structured in tree diagrams and complemented with senior management interviews. The methodologies were then analyzed against Deming’s 14 points to find correlations.

4.4.4 Main Results
Main results are key-methodologies, attitudes and organizational structures found in all three examined organizations and they are described below. These correlate well with Deming’s 14 points se Table 4-3.

- customer orientation by giving the co-workers the opportunity to meet the customer in person and understand their own contribution to the customer
- creating infra structure for communication and information
- giving all the opportunity for a holistic view by, for example, work rotation
- routines for learning from each other
- continuous education and development through projects and cross-functional groups
- maintaining committed and charismatic leaders who gives the co-workers responsibility and authority to influence their work.
Table 4-3 Correlations between methodologies and Deming’s 14 points

<table>
<thead>
<tr>
<th>No.</th>
<th>Deming’s 14 points</th>
<th>Organization No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create constancy of purpose for improvement of product and service</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Adopt the new philosophy</td>
<td>●</td>
</tr>
<tr>
<td>3</td>
<td>Cease dependence on mass inspection</td>
<td>●</td>
</tr>
<tr>
<td>4</td>
<td>End the practice of awarding business on the basis of price tag alone.</td>
<td>●</td>
</tr>
<tr>
<td>5</td>
<td>Improve constantly and forever the system of production and service.</td>
<td>●</td>
</tr>
<tr>
<td>6</td>
<td>Institute training</td>
<td>●</td>
</tr>
<tr>
<td>7</td>
<td>Adopt and institute leadership</td>
<td>●</td>
</tr>
<tr>
<td>8</td>
<td>Drive our fear</td>
<td>●</td>
</tr>
<tr>
<td>9</td>
<td>Break down barriers between staff areas</td>
<td>●</td>
</tr>
<tr>
<td>10</td>
<td>Eliminate slogans, exhortations, and targets for the work force</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Eliminate numerical quotas for the work force and numerical goals for people in management</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Remove barriers that rob people of pride of workmanship.</td>
<td>●</td>
</tr>
<tr>
<td>13</td>
<td>Encourage education and self improvement for everyone</td>
<td>●</td>
</tr>
<tr>
<td>14</td>
<td>Take action to accomplish the transformation</td>
<td>●</td>
</tr>
<tr>
<td>Sum</td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

The organizations examined can be regarded as healthy organizations according to their attaining of sustainable health among co-workers and organizational performance. In fact, many of Deming’s management thoughts pervade the organizations in question and the fact that we did not find any methodologies for point four, eleven and twelve can be seen as a task already achieved as these points start with ‘end’ and ‘eliminate’. Finally just the first point is left without any methodologies supporting it but as we already have mentioned we have seen the results of working according to this point.

Viewed through our analysis, it seems as though the three organizations examined are working according to most of Deming’s 14 points. An investigation with 347 TQM articles written between 1989 and 2000, summarizes the most frequent TQM factors; customer focus and satisfaction, employee training, leadership and top management commitment, teamwork, employee involvement, continuous
improvement and innovation, and quality information and performance measurement (Sila & Ebrahimpour, 2002). All these established TQM factors also occur plainly in all three examined organizations. This indicates that the organizations are working according to TQM philosophy.

Working with the methodologies described above, the three organizations have among other things improved co-worker health. Other organizations could probably adopt the methodologies and improve the health of their co-workers. We have not identified any health-promoting activity as a key methodology in the organizations, although we have spotted some health-promotion activities during our visits and research at the organizations. One probable reason for why we did not find health-promoting activities as key-methodologies is that in our research we did not specifically ask or search for such activities. We asked for important methodologies helping the organizations to become one of “the best workplaces in Sweden”. Another reason for the lack of findings regarding health-promotion activities may be that they had become a natural part of the organizations and therefore the co-workers did not emphasize them. It is however reasonable to assume that the organizations have the will and the infrastructure for health-promotion activities. Most likely there are also other factors influencing the health of the co-workers and we realize that more research has to be done to be able to draw conclusions on the connections between TQM and co-worker health.
5 MAIN FINDINGS AND CONCLUSIONS

In this chapter, the findings are presented and reconnected to the research questions and the purpose of the research. The chapter also contains a presentation of the conclusions.

5.1 Reconnection to the research questions
The main findings are reconnected to the three research questions that were stated in order to fulfil the purpose. The findings are presented under the respective question below.

5.1.1 Research Question 1
The first research question was: How are organizations, which have achieved sustainable health among their co-workers, working in practice?

Research Question One was answered through Case Study 1, at Fresh AB and at SÖS Emergency and through Case Study 2, at Roxtec International AB. Despite differences in the organizations concerning size, ownership, business, structure, culture and other differences, these case studies resulted in a number of common methodologies, values and an organizational structure, which it is considered possible for other organizations to adopt in their efforts to achieve good working conditions resulting in less sick absence. The organizations have healthy co-workers with low sickness absence, and the co-workers enjoy working together; they are proud of their organization and the work they are doing. The results from both case studies are presented below, sorted and described with some examples;

General Methodologies
In all three organizations, the co-workers learn from each other through a structured and recurrent job-rotation which also gives them knowledge about the organization as a whole. Everybody attends an individual competence development interview and gets continuous education; they are given the opportunity and time to do competence training. The co-workers are also given the opportunity to listen to different lectures and

8 In Paper A and D are the values named attitudes.
everyone attends lectures about group value. There is a will to learn as well as to share knowledge and information with each other and the co-workers help each other.

Making mistakes is allowed and people are encouraged instead of punished. Mistakes that are made are used as basis to improvement with the question: “how can we act in order to prevent this mistake from happening again?”

The organizations have a culture that is open and susceptible to new ideas and they are also continuously questioning their processes and procedures; they are open to trying new work-methods. When a new way of working is better than an old, they make it permanent but if not, they just say, “now we know that this does not work and we do not have to try it again, but there may exist some other way that is better”. The suggestions to improvements are always dealt with seriously, and results and feedback are given promptly.

Within the organizations they try to solve problems and conflicts at once and they try to talk with each other not about each other. In order to create a good and positive relationship among co-workers, the organizations carry out relation building activities and meetings.

Communication and information are treated with high priority in all three organizations. The co-workers at one of the organizations explained to us that “the leader forced us to realize the importance of communication and information”. They have regular staff meetings and there is an open atmosphere and dialogue between the co-workers and the leaders.

The organizations also have an encouraging atmosphere, where the co-workers give and receive appreciation regularly and particularly when projects are ended. Constructive feedback is also given when needed, both to and from co-workers.
Everyone in the organizations is aware of the customers and what their own contribution is. Customer analyses are performed and customer satisfaction is measured continuously.

Good public attention in society creates pride among co-workers and leaders, that is a matter that is consciously dealt with by the organizations.

The co-workers have the opportunity to influence their own work situation. For instance, in one organization they create their own work schedule. The co-workers have freedom with responsibility; their own responsibility areas which are clearly defined, everybody has a task. Responsibility and authority are given to the co-workers bearing in mind interest and competence. The co-workers are encouraged to take their own decisions and are requested to use common sense.

They try to establish a holistic view of the organization and even of the whole society through work rotation, cross-functional groups, customer, supplier and society cooperation.

**Leadership Methodologies and Values**

The organizations carry out regular and documented co-worker conversations where the leaders really listen and try to find the drivers for action. Decisions made in the conversations are also realized. The co-workers expressed to us that they feel that the leaders really listen with a sensitive ear and that the leaders are on the co-workers’ side.

The leaders are visible and available for questions, discussions and for major decisions. The leaders walk around in the organization and talk to everybody, not only about the work but also about private issues and thereby, they get to know all co-workers. They are practicing “Management by Walking Around”.

The leaders have no prestige in their leadership; not in the atmosphere and not in the communication.
The leaders give guidance and take their time to coach with the overall purpose that the co-worker shall dare to make priorities and decisions by themselves; the leader do not control at a detail level. The responsibility and authority are delegated to the co-workers that often have the best information and the knowledge about the situations.

Everyone has to have balance between work and private life and the leaders are aware of the fact that they are role models and, consequently, they try to be good examples and, for example, not work too much.

**Organizational Structure**

The organizations’ structure is flat, flexible, and non-hierarchical, where it is easy to communicate, ask questions, and get help for difficult, big decisions. The organizations are also non-bureaucratic, the co-workers have power over their own situation and with responsibility they also get authority.

The infrastructures are made to encourage direct communication and dialogue. Within the organizations there are cross-functional groups, development groups, and project groups where co-workers meet in different constellations.

**General Values**

The people within the organizations treat each other with mutual respect; there is no false authority from the leaders and mistakes do not result in penalties. There is a mutual confidence between work-leader and co-worker and everybody relies on each other.

Recruiting is done with a high level of awareness. They recruit an attitude and train for skills and have in mind that they recruit a human being; not a work task. The co-workers expressed to us that the “staff is creative” and that “there is a good composition of human beings”.

83
There is generally a good atmosphere in all three organizations. They try to combine business with pleasure and there is a will to spend time with each other even after work.

5.1.2 Research Question 2

The second research question was: *To what extent do organizations, which have achieved sustainable health among co-workers, work according to Quality Management?*

The answer to Research Question Two was found in Case Study 2, 3 and 4. In Case Study 2, the methodologies, values, and organizational structure, found at Fresh AB, SÖS Emergency (from Case Study 1) and at Roxtec International AB were analyzed versus Deming’s 14-points. The intention was to examine if correlation could be indicated and the underlying assumption was that, according to Deming (1986), “the 14 points constitute a theory of management”.

In Case Study 3 we examined three organizations which had implemented Quality Management programs successfully; two of them had also achieved sustainable health among their co-workers. One intention was to explore relations between the values of Quality Management and the co-workers’ perceptions of their health. The results from Fresh AB and SÖS Emergency, which also had achieved sustainable health among their co-workers, are presented below.

In Case Study 4, the co-workers’ perceptions of the values growing from the quality movement were compared between the examined units. Since the company had noticed that the sickness absence varied substantially between two different units, we wanted to examine if the co-workers’ perception of the values also differed. The results of the co-workers’ perception of the values and the health are described briefly below. Also in Case Study 4 the relation between the values of Quality Management and the co-workers’ perceptions of their health was explored. The organization had not achieved sustainable health among their co-workers but the overall sick leave of the company is relatively
low, see case description in Appendix 1. These results are presented below.

**Relations to Deming’s 14 points**
The analysis shows that the methodologies, values, and organizational structure supported ten of Deming’s 14 points. The points that did not fit in were point one, four, ten, and eleven. With a deeper analyzes on point one, “create constancy of purpose for improvement of product and service” we saw effects in the organizations, which imply that they all focus on long-term activities. The organizations are also working with constancy of purpose for improvements. Point four, “end the practice of awarding business on the basis of price tag alone” is a negative point and the fact that we did not find any methodologies supporting this point must be seen in a positive light. We have identified a good cooperation between customer and supplier at both Fresh AB and Roxtec International AB, and SÖS Emergency serves the whole community and takes a holistic view thereof; all this is in accordance with Deming’s fourth point. Point ten, “eliminate slogans, exhortations, and targets for the work force” is also a negative point and the reason why we could not identify any methodologies for this point may be seen as proof that they actually have eliminated slogans, exhortations and targets for the work force. This could also be the reason regarding point eleven, “eliminate numerical quotas for the work force and numerical goals for people in management” since it is a negative point. The fact that we did not find any methodologies for point number eleven can also be an indication of earlier successful efforts to eliminate numerical quotas.

Viewed through our analysis and with a deeper perspective, it seems as the three organizations are working according to most of Deming’s 14 points and this indicates that the organizations also are working according to Quality Management.

**Relations between the Values of Quality Management and Health**
The results from Fresh AB show a correlation between three values of Quality Management and the health status. The three values are: Top
Management Commitment, Let everybody be Committed and Improve Continuously. The size of the correlation coefficient between perceived health and Top Management Commitment is about 0.45, which is rather high for this kind of study. Accordingly, three of six values were found correlated to health at Fresh AB.

The results from SÖS Emergency also showed significant correlation for three values although one value was different from Fresh AB. The correlated values were; Top Management Commitment, Improve Continuously and Focus on Customers. Let everybody be committed was not significantly correlated with health at SÖS Emergency. Instead we found that Focus on Customer showed significant correlation.

The results from the questionnaire in Case Study 4, the anonymous manufacturing company, showed that the values Top Management Commitment and Let everybody be Committed together with all the other values had a strong correlation with the co-workers’ perceived health.

At the three organizations where the relation between the co-workers’ perception of the values of Quality Management and their health were measured, the results showed that Top Management Commitment and Improve Continuously were closely connected at all three organizations.

Comparing Values of Quality Management between two units

In Case Study 4, the anonymous multinational manufacturing company, the co-workers’ perception of the organization’s work according to the Values of Quality Management were also compared between the units. This was interesting as the health presence varied substantially between the units. The results are briefly described below, for more details see Paper D or the summary of Paper D.

Five of the six values had a higher score at the machining unit which had recorded a higher health presence while Focus on Customers was the value that was noted higher at the assembly unit. A T-test of the results
shows that there are no significant differences between the two units and thus, no conclusions can be drawn from the results.

5.1.3 Research Question 3
The third research question was: *What aspects within the values grown from the quality movement are of importance for the co-workers’ perception of their health?*

Research Question Three was answered through Case Study 3 and 4. One intention with Case Study 3 was to further elaborate the positive effects of Quality Management that were found earlier. In Case Study 4, the anonymous multinational manufacturing company, the aspects within the values grown from the quality movement were examined in order to identify what is of importance for the co-workers’ perception of their health. The results are presented below.

Values of Importance for Co-worker Health
Case Study 4 indicated that Quality Management programs could contribute to the improvement of health status among co-workers as well as the improvement of products and processes in health care organizations. The results pointed to Top Management Commitment as the most central of the values for achieving a healthy work place as well as creating efficient organizations. Furthermore, the values Improve Continuously, Let everybody be Committed and Focus on Customers were found to be related to co-worker health status.

Aspects within the Values
The values Top Management Commitment and Let everybody be Committed were further elaborated upon to find aspects of importance for the co-workers’ perception of their health.

From the value Top Management Commitment four aspects were extracted. These were named *Empathy, Presence and Communication, Integrity, and Continuity*. They are described in detail below.
Empathy is the first aspect and it implies that the manager must show awareness and concern and must be alert to the needs of the co-workers and understand their situation. Regular personnel development interviews and the manager seeing and listening to the subordinates is an important part of this aspect.

Presence and Communication is the second aspect and it means that the managers practice visible leadership and they communicate clearly and distinctly. It is important that the manager is easy to reach and that it is clear what the manager expects the co-worker to do.

The third aspect, Integrity, deals with the manager’s own qualities such as independence, trustworthiness and fairness. It is important that the leader does what she or he has promised to do and acts as a role model.

Continuity is the fourth and final aspect of the value Top Management Commitment which means that the manager should continue as leader to the same co-workers for a long time. A frequent change of managers is considered negative since building up trust can take quite a while to establish and a high turnover among the employees leads to more difficulties in their collaboration.

All aspects are seen from the manager’s viewpoint and the manager needs to ‘take/read in’ information from the co-workers. The ability of the manager to collect information about the co-workers and understand their situation is dependent on his or her level of empathy.

Three aspects regarding the value Let everybody be Committed were also extracted from the interviews. These aspects were Development, Influence and Being informed, and they are described below

In the first aspect of Let everybody be Committed, called Development, both competence and personal development are included. A perception gap between managers and co-workers was found regarding competence development. The managers perceived competence development as something ongoing when the co-workers learned
something new at work, while the operators/assemblers equated it with joining an external course.

Influence, the second aspect, is about co-workers’ possibility to influence their own work situation. It is important to have possibilities to influence both small and big things and it is also important that their opinion is taken seriously and is given results.

The third and last aspect is Being informed and it considers communication in general and especially getting enough information. It is important that the managers communicate with all co-workers.

These aspects were also described in two models, see Paper D or summary of Paper D.

5.2 Reconnection to the purpose and to theory
The overall purposes of the research described in this thesis were to examine and describe how organizations could work in order to establish sustainable health among the co-workers, and examine how the management and leadership for sustainable health were related to Quality Management. The in-depth purpose was to examine what aspects within the values grown from the quality movement were those that primarily influence the co-workers’ perceived health. The underlying assumption was that the results in this research would help other organizations to establish sustainable health among their co-workers.

The research resulted in a description of methodologies, values and organizational structures together with practical examples from the successful organizations examined. These methodologies, values, and organizational structure are considered possible for other organizations to adopt and all of them are already supported in the quality, management and leadership literature. Support from the health literature is also found for most of the methodologies, values, and organizational structure. Some of the support is presented here. The methodologies; learning from each other and continuously education, is
emphasizes by many authors see for example (Deming, 1986), (Senge, 1990) and (DuBrin, 2004). Communication and information is mentioned as important for the value Let everybody be committed by (Bergman & Klefsjö, 2003). Yukl (2006) also stresses the importance of good communication within leadership. The leaders are actually practicing “Management by Walking Around” which is what Deming (1986) means with his point no 7: adopt and institute leadership. Arnetz (2002) and Nyberg et al. (2005), from the health domain, emphasize the importance of immediate leadership and leaders that show consideration towards their co-workers in the work for healthier organizations.

The support for all the methodologies, values and organizational structure from the successful organizations in the quality, leadership, and management theories, confirm that this is not a new way of managing and leading organizations.

Through the methodologies and values, it seems that the organizations which had achieved sustainable health among their co-workers are working according to Quality Management, when analyzing them versus Deming’s 14 points. But at the same time, not all values within Quality Management or TQM correlated with the co-workers’ perceptions of their health in those organizations. On the other hand, the results with correlations between all TQM values and the co-workers perception of their health, was from the organization which had not achieved sustainable health among their co-workers. The conclusion from this could be that the values Top Management Commitment, Improve Continuously, Let Everybody be Committed and Focus on Customers seem to be important for the co-workers’ perception of their health but more investigations are needed before any general conclusions can be drawn. The values Top Management Commitment and Let Everybody be Committed also seem to be related to each other.

The importance of these values for co-worker health is also in accordance with results from an investigation at a big Swedish bank, which had achieved sustainable health among their co-workers. Wreder (2006) found four values that were similar to the TQM values and also similar to the results in this research. The four values that were important for the
bank’s success were Management Commitment, Co-Worker Involvement, Focus on Customers and Continuous Development.

The results imply that not all TQM values are equally important for achieving sustainable health among the co-workers and healthy organizations. The values Top Management Commitment, Improve Continuously, Let Everybody be Committed and Focus on Customers seem to be more important than the other values for the co-workers’ perception of their health.

The results in this research that shows that Top Management Commitment is important for the co-worker health is earlier confirmed, see for instance (Lagrosen, 2006), (Arnetz, 2002), (Zwetsloot & Pot, 2004). Deming (1986) also emphasizes the importance of management commitment although he does not explicitly mention co-worker health as a result but instead improving the quality and productivity. Deming’s 14 points can all together be seen as a theory of management.

The importance of the value Improve Continuously’s affect on co-workers health has both support and opposition from other authors. It has been criticized for increasing stress and demands on the co-workers and thereby, impairing co-worker health, (Bejerot & Hasselbladh, 2002). By seeing continuous improvement like the deterministic school of thought, Korsild (1999) is more like Karasek and Theorell (1990); when the co-workers have the possibility to influence their own work situation, this value affects co-worker health in a positive way.

Deming (1986) stresses that everybody’s commitment is essential for the quality work and this is in accordance with the results of the research presented in this thesis. Also McGregor’s (1960) ideas of theory Y emphasize everybody’s participation and commitment and thereby the value Let everybody be Committed has support both in the quality literature and the management literature.

The importance of the value Focus on Customers for co-workers’ health, also has support from other authors. Earlier research has shown that the work for Focus on Customer has to start with work for co-worker

The methodologies, values and organizational structural found in the successful organizations are remarkably similar, in a practical way, to the aspects found when the values Top Management Commitment and Let everybody be Committed were elaborated. The aspects Empathy, Presence and Communication, Integrity, and Continuity are words and concepts that recurred frequently when the successful organizations were examined. Furthermore, Development, Influence and Being informed are methodologies, values and practices that are established in the examined organizations that have achieved sustainable health among their co-workers.

According to Deming (1986) the aim of leadership is ‘to help people do a better job with less effort.’ In doing this effectively, empathic listening might be an important feature. Dale (1999) points out that the CEO must ensure that his or her organization really listens to what their customers are saying, what they truly need, and their concerns. This is according to the elaborated aspect; Empathy.

The aspect Presence and Communication are supported by Dale (1999) and Oakland (2001) who emphasize that communication up, down and across the organization is one of the most important features of the relationships between managers and co-workers.

The importance of managers providing good examples and acting with quality in their own personal activities is recognized by, (Warrack & Sinha, 1999). Dale (1999) also emphasizes the integrity when commenting that managers should demonstrate that they really care about quality, and lead and teach by example. This can be seen as support from the quality literature for the elaborated aspect Integrity.

Deming (1989) supports the aspect Continuity in the first of his 14 points; Constancy of purpose. He also claims the importance of a long-term view. For example, he states that top management should publish a
resolution that no one will lose his job for contributing to quality and productivity.

The aspect Development, which was elaborated from the value Let everybody be Committed is confirmed by for instance Deming (1986) and (Juran, 1989) when they emphasize the importance of training, and co-worker development. Oakland (2001) suggests that development, education and training must be related to needs and expectations. They must be planned and their effectiveness must always be reviewed.

According to (Oakland, 2001), it is important that managers believe that co-workers want to achieve, accomplish and influence activity, and that they do not need to be coerced to perform well. This can confirm the aspect Influence that was found when the value Let everybody be committed was elaborated.

The found aspect Being informed is closely related to the aspect Presence and Communication found when the value Top Management Commitment was elaborated and is supported by Dale (1999), when he states that the managers should never overlook the fact that people want to be informed on how the improvement process is progressing.

It is my hope that the results from this research can help managers and leaders increase the sustainable health among their co-workers by working according to the important values and adopting the described methodologies.

5.3 Conclusions
The methodologies, values, and organizational structure that lead to sustainable health among co-workers, are supported by the quality, management and leadership literature and, to some extent, the health literature. They are not unique or complex and it should therefore be possible for any organization to adopt them and increase the health among their co-workers.
If an organization starts working according to these methodologies, values, and organizational structures, the effect would probably be increased co-worker health and thereby less sick absence. This would lead to reduced costs and higher profit and the organization could perform better. To persuade all organizations in Sweden to work according to these methodologies, values, and organizational structures would mean considerable gains for individuals, workplaces, and the whole society. This could be one way to stop the upward trend of sickness absence that has been evident in Sweden in recent years. Several of the found methodologies, values, and organizational structures could probably be adopted by organizations outside Sweden and solve some of the problems with high absent rates that are prevalent in many countries in Europe.

The results in this research show that Top Management Commitment is an essential value for achieving results in the work towards sustainable health among the co-workers. The results indicate that working according to the value Top Management Commitment requires a management and a leadership that is characterized by the aspects Empathy, Presence, and Communication, Integrity, and Continuity. This means that the leaders have to give up some of their authority and give the co-workers more responsibility and authority. The value Let everybody be Committed has also been shown to be important in the struggle to achieve sustainable health among the co-workers. The results imply that this value is characterized by the aspects Development, Influence and Being informed.

The results also imply that organizations that have achieved sustainable health among their co-workers are working according to Quality Management to some extent.

The TQM values Top Management Commitment, Improve Continuously, Let Everybody be Committed and Focus on Customers, are, according to the results in this research, the most important values to establish within an organization in order to improve co-worker health and create a healthy organization.
The results show that it is possible to achieve sustainable health among the co-workers and create a healthy organization with common and already known methodologies, values, and organizational structure.
6 DISCUSSIONS AND FURTHER RESEARCH

The findings are discussed in this last chapter which concludes with a presentation of ideas for further research.

6.1 Quality Management for sustainable health

The results found in this research show that Top Management Commitment is important in Quality Management for sustainable health. This is in line with what other researchers already have found see, for instance, (Wreder, 2006), (Lagrosen, 2004), (Axelsson, 2000). Within Quality Management management commitment is an assumption for achieving committed co-workers and management to plan and it also provides visions and goals which are important for the co-workers’ commitment. There are some values within TQM that have not emerged as important for the achievement of organizational health and sustainable health among the co-workers. Are they not important at all? The successful organizations are working according to Quality Management in the manner that they are working according to the Deming’s 14 points. Is there a difference between TQM values and Quality Management values?

As mentioned earlier, the methodologies, values and organizational structure found in the successful organization were remarkably similar to the aspects of the values Management Commitment and Let Everybody be Committed, which were found when interviewing the co-workers at the anonymous manufacturing company. That is in accordance with earlier research which also confirm that Empathy, Presence and Communication, Integrity, and Continuity are important within the leadership and for co-worker commitment see, for instance, (DuBrin, 2004) and (Harnesk, 2002).

It seems important that the leader within a healthy organization enjoys working with human beings in order to be able to meet those aspects and to be comfortable in that role. She or he also has to be willing to delegate some of their power to the co-workers since the possibility to influence one’s own work situation seems to be important. The fundamental aspects of ‘Let everybody be Committed’; Development, Influence and
being informed are also confirmed earlier, both in the quality movement, see for instance (Deming, 1986) and the leadership literature, (DuBrin, 2004).

The leadership literature also confirms these way of working and this kind of leadership but why do we have so many organizations that not are practicing this, when it has been shown to be effective in increasing the not only performance but also co-worker health?

In other words, the results from this research are not new or revolutionary and for that reason, the question emerges as to why Quality Management is not carried out on a larger scale when it has shown to have such good effects? Maybe it is necessary to find the underlying causes for why this is not carried out in all organization, before we can change the trend of unhealthy organizations.

6.2 Further research
The underlying aspects of the values ‘Management Commitment’ and ‘Let Everybody be Committed’ was found and brought forth in an investigation at a Swedish organization. There is however more research needed in order to strengthen the underlying aspects. It would be interesting to test those aspects in other Swedish organizations and in organizations in other countries.

It would be very interesting to make further investigations on why this is not done more widely in Swedish organizations but that is a task that might not be so easy to perform.

It would also be interesting to compare the results presented in this thesis with organizations in other countries to see if methodologies, values and an organizational structure are used in successful organizations in other countries with different cultures. Another interesting line of research would be to see if there is a correlation with the values growing from the quality movement and the co-workers’ perception of their health in other countries.
Finally, further evaluation of underlying aspects in the other values that were found to be related to co-worker health status would also be an interesting area for future research; the values Focus on Customers and Improve Continuously would probably be useful when it comes to creating healthier workplaces. In addition it would be interesting to investigate if the values that do not show any correlation to the co-workers’ perception of their health still are important.
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105


Paper A

How successful Swedish organizations achieve sustainable health.


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How successful Swedish organisations achieve sustainable health

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Abstract: The costs connected with the rapidly increasing number of sick leaves have risen to alarming levels in Sweden and, for instance, Norway and the Netherlands. To find out how to handle the situation on an organisational level, a case study has been carried out at two organisations, which have been awarded for their excellent working environment and low number of sick leaves. One is a small manufacturing company and the other is a large public health care organisation. Both organisations are nonhierarchical with responsibility and authority delegated to different groups. The data collection has mainly been carried out through brainstorming in groups, structured in tree diagrams, complemented by interviews. Important methodologies for the managers are emphasis on low prestige and visibility, and functioning as coaches with activities aimed at building relations. On the basis of the result of this study, suggestions are presented, which are considered possible for other organisations to adopt.

Keywords: sustainable health; methodologies; leadership; partnership.


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1 Introduction

Since around 1980, employees’ sickness absence and the connected costs have risen to alarming levels in Sweden, and also in, for instance, Norway and the Netherlands (Nyman, 2002). The number of people absent due to sickness for more than 365 days has increased by about 30% in Sweden between 1997 and 2001 (The National Social Insurance Board, 2000, 2003). The combined costs for sickness benefits and disability pensions were 10% of the total expenses of the Swedish government in the year 2001 (SOU, 2002:5).

The connection between psychologically unsatisfactory working environments and a high frequency of sickness is well documented (see, for example, The Swedish Labour Inspectorate, 2000; Dolbier et al., 2001). The connection between participation and satisfaction is also well described in the literature (see, for example, Kondo, 1993; Kondo and Dahlgaard, 1994; Hackman and Oldham, 1976; McGregor, 1960).

Docherty et al. (2002) discuss how leadership must be adjusted to the new demand of autonomy and flexibility in modern working life. This means that authority must be deployed down in the organisation in order to create participation. Because of the complexity and higher pace, it is no longer possible to keep a traditional supervising leadership. Instead a more supportive approach has now become necessary (Docherty et al, 2002).

Abrahamsson (2003) also discusses how work organisations and work environmental problems are approached by modern management concepts to adjust them to the new demands of modern working life. She states that it was primarily during the 1990s that many Swedish industrial and public organisations went through extensive organisational changes. The purpose of implementing some of these modern management concepts is that the organisations should rapidly adapt to a continuously changing market through independent, versatile and committed coworkers and a flexible organisation. This trend is still strong (Abrahamsson, 2003).

1.1 The purpose of the paper

The purpose of this paper is to describe and discuss how two successful organisations have worked to achieve sustainable health among their coworkers. Through the description and discussion, the intention is to identify methodologies that are possible for
other organisations to adopt. Other causes of illness related to the working environment, such as injuries or accidents, are not discussed in this paper.

1.2 The Alecta award

In Sweden, Alecta (an insurance company for occupational pensions) has instituted a national award that comprises leadership, internal partnership, working environment and profitability. Every year, one or several organisations in different categories are given awards, based on an analysis similar to that of quality awards like, for instance, the Malcolm Baldrige National Quality Award (NIST, 2003) and the European Quality Award (EFQM, 2003).

1.3 Sustainable health and quality in working life

A fundamental notion in this paper is sustainable health. The WHO’s definition from 1946 states, “Health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity”. In this study, that definition of health is extended to also include ‘sustainability’. Therefore, this paper focuses on the methodologies used by the studied organisations and also on how, in a long term perspective, these create a high rate of healthy employees compared to the average value in Sweden.

Because of the rapid increase in costs connected to absence due to sickness, current research in Sweden is looking at the subject from different angles. For instance, in a study of seven companies, Söderlund (2003) presents a theory of ‘health factors’ based on the question: “What makes people function in the best possible way, develop and feel good?” The health factors identified in that study are categorised as: tasks, working team and organisation.

Means to achieve the aim of a task are:
- variation, challenges, belief in the future
- personal responsibility, flexibility and pride
- meaningfulness of using one’s competence.

Means to achieve the aim of a working team are:
- all help one another, straight communication
- humour, to get on well together, to be able to see one another outside work
- to have trust in each other, honesty, work discipline.

Means to achieve the aim of an organisation:
- short decision making procedures, managers present in daily work
- positive feedback from managers, explicit guidelines
- managers ready to listen, balance between demands and resources.

Docherty et al. (2002) have studied sustainable work systems and argue that the growing flexibility caused by globalisation and information technology in the last two decades has increased the pace and demand for higher flexibility and adaptation. The disappearance of bureaucratic boundaries without creating structures, processes or resources to replace
them, leaves people much to their own judgement. The growing autonomy means endless choices and possibilities, causing stress. The increased intensity has become 'the kiss of death' or 'the spice of life'.

Also Schabracq and Cooper (2000) claim that loss of control in modern working life causes stress and that too many and too quick changes can both provide the foundations for illhealth and lower productivity. They also suggest that investing in human potential may be the most profitable approach.

Benders and van de Looij (1994) advocate four general characteristics to perceive quality in working life. These are: work content labour relations at the micro level, employment conditions, work environment.

They claim that the leadership style has important impact on employees’ satisfaction with other job characteristics. Furthermore, in relation to the quality of working life, Lewis et al. (2001) claim that, besides the extrinsic rewards, intrinsic rewards are key predictors of productivity, efficiency, absenteeism and turnover. They argue that the intrinsic rewards include traits such as: task content skill level autonomy challenge.

They further argue that important traits in an organisation to determine quality of working life are: salary benefits supervisor style communication discretion.

This paper presents examples of an adjusted, supportive leadership, from two studied organisations, caused by the new demands in modern working life.

1.4 Partnership

From the ‘health factor’ theory by Söderlund (2003) and the aspects of quality in working life, the relation between managers and coworkers is identified as important for health. This relation is also discussed in a literature study by Harnesk (2004) focusing on how to achieve increased coworker commitment. Here, the concept of partnership was found to be relevant. The study identified four decisive factors and how they depend on a fifth factor, communication in dialogue between managers and coworkers. Bergman and Klefsjö (2003) and Senge (1990), among others, have also pointed at communication as a key issue for the development of people and organisations. The factors are illustrated in the internal partnership model in Figure 1. This model was used in this paper, as a theoretical framework, especially when analysing the collected data.

**Figure 1** The internal partnership model shows how decisive factors for partnership depend on communication in dialogue between leaders and coworkers by Harnesk (2004)
Core values have to be communicated in order to be part of a culture, and the ability to communicate is often dependent on personal maturity. Communication in dialogue is also of vital importance when leaders try to understand and respond to the coworkers’ personal motives. Trust and equity must also be mediated in order to be meaningful. A well-developed dialogue includes active listening and efforts to understand each other’s messages to jointly come to a mutual understanding (Harnesk, 2004).

2 Description of case organisations

2.1 Fresh AB

Fresh AB develops, manufactures and markets ventilation products for indoor environments. The company was established in 1969 and has developed into a market leader in Sweden. The customers are wholesalers and retailers all over the world. In 2002, Fresh AB had 54 employees. The company has deliberately worked to have a diversified organisation and an equal mix of men and women including 15 people from seven countries. The average age is 40.

In 1990, the present owner bought the company. The decreasing market nearly caused a bankruptcy in 1993 and in 1994 a new executive manager was appointed. The new manager’s assignment was to make the company profitable in two years. Since 1995, the turnover has increased by an average of 22% per year.

All coworkers at Fresh AB are organised in customer teams. The teams are divided into customer controlled teams, internal customer controlled teams and management teams. The management teams and the executive management are there for coaching the other teams when they need help to solve serious problems. All teams have full responsibility for activities from ordering to delivery, and invoicing to customers (see Figure 2). Every coworker is also a member of one of about ten cross functional development groups.

Figure 2 The cornerstones of the organisational structure and culture at Fresh AB
Figure 2 illustrates the cornerstones of the organisational structure and culture of Fresh AB, which is built around ‘the Marine Chart’ with a particular vision, values, policy, and strategies. The methodologies are designed to be as flexible as possible in four areas:

- teams
- development groups
- regular developmental conversations
- communication and information (For more details, see Bäckström et al., 2004a, 2004b).

2.2 The department of emergency and accidents at the south stockholm general hospital

The Southern Stockholm General Hospital (‘Södersjukhuset’) is a corporation owned by the Stockholm County Council with about 3,600 employees. In the following text ‘SÖS Emergency’ refers to the Department of Emergencies, Casualties and Accidents, which was included in this study.

SÖS Emergency is the largest department of its kind in northern Europe and provides emergency medical care to more than one million people, who visit the centre at Stockholm every day. The ward receives some 50 high priority ambulance receptions every day. In 2002, there were 397 full time workers employed at SÖS Emergency.

The organisation at SÖS Emergency consists of one management group for the department, and four groups that are each managed by one head nurse. SÖS Emergency may be described as a flexible and flat organisation with short decision making procedures; a result of delegated authority. All coworkers also participate in cross functional working teams dealing with protective and developing issues.

SÖS Emergency has deliberately chosen to have a diversified organisation. There are, for instance, 14 different languages spoken at the department. In comparison with other departments at the hospital there are more male employees. The department uses a model for ‘work time planning’ that allows the coworkers to make their own working schedule. The working periods have different values and give full time pay for part time work.

2.3 Average days of sick leave

Figure 3 shows how the number of average days of sick leave has varied over time for the two organisations. For comparison, the average number for Sweden as a whole is included.

As the diagram shows, the average days of sick leave at Fresh AB and SÖS Emergency are lower than the average number for all organisations in Sweden. In 2002, the average number of days of sick leave in the studied organisations was about 50% of the average value in Sweden. At Fresh AB, a few coworkers had to stay at home for a number of days in 2002 because of accidents not related to their working situation. Because of the size of the organisation, these accidents had a big and misleading effect on the average number of days of absence. At SÖS Emergency, information about sickness absence was not available for the years 1998 and 1999.
Figure 3  Average days of sick leave per person at Fresh AB, SÖS Emergency and the average value as a whole in Sweden. Since no data were available for 1998 and 1999, there is a gap in the curve of SÖS Emergency.

3  Research methods

Since the study aimed to explore successful organisations’ methodologies for achieving sustainable health, a case study with an explorative, qualitative approach was chosen. The selection of the two case study organisations (Fresh AB and SÖS Emergency) was based on their recognised status as successful organisations. They both received the Alecta award in 2001.

3.1  The research process

The research project started with two study visits to build relations, present the project and to receive an overview of the organisations. This was also the start of data collection from relevant documents, articles and reports. The data collection was made by using brainstorming, structured in tree diagrams by the employees. All documented data from the tree diagrams (Mizuno, 1988) were then complemented by management interviews in both organisations. The collected data were then analysed. The research process is illustrated in Figure 4. The process follows the improvement cycle ‘Plan-Do-Study-Act’ (Deming, 1986). For more details about this study, see Bäckström et al. (2004a, 2004b).
3.2 The data collection

3.2.1 The tree diagrams

The research team tried to identify a tool that would structure qualitative information from a complex situation in an easy way for the respondents, as well as inspire creativity. The tree diagram (see Mizuno, 1988) tool was ultimately chosen on the assumption that the interactive process would give answers that could not be obtained as a result of individual interviews. The creation of the tree diagrams always started with the question: “Why are you among the best workplaces in Sweden?”
Different individual suggestions were written down on post it notes and placed on a whiteboard. The next step was to further explore each of the suggestions in order to find out how it was related to the first question. From a consensus process, the group formulated a final answer. By continuing like this, the idea was to guide the group stepwise with new questions like ‘Why?’ “What is creating this?” “How have you worked to achieve this?”

The tree diagram process was concluded with an evaluation of the answers at the lowest level of the tree, listing the most detailed methodologies in order to find out which methodologies were considered most important to the group. At Fresh AB, a group of six persons, representing the whole organisation, participated in the tree diagram creation, in March 2003. At SÖS Emergency, two separate tree diagrams were made with four participants in each group, consisting of a mix of nurses and staff nurses, all women, in May 2003.

3.2.2 Interviews

After the tree diagrams were completed for each organisation, an interview with the CEO of Fresh AB and the Department Manager of SÖS Emergency concluded the data collection. After each interview, a separate tree diagram was constructed with the manager in the same way as with the coworkers, so as to have as a complement and also for comparison with the coworkers’ tree diagram.

3.3 The analysis process

The members of the research team analysed all the data collected together with an external facilitator. When all the data had been recorded on note pads, the analysis process started with developing categories, as suggested by Merriam (1988) and Goetz and LeCompte (1984). The analysis was first made separately for each organisation and then, as a cross case analysis. The internal partnership model (in Figure 1) was then used as a frame to sort the data from the cross case analysis. From that analysis, a new set of methodologies, considered possible to adopt in other organisations, was selected.

4 Empirical findings

4.1 Fresh AB

4.1.1 Tree diagram

The empirical findings from the tree diagram at Fresh AB resulted in a final assessment of the most important methodologies, made by the coworkers. This came as a result of a stepwise process down to the lowest level of the tree diagram. The tree diagram started with the question: “Why are you one of the best workplaces in Sweden?” The most important identified activities were:

- everybody participates in competence development programmes
- the coworkers are encouraged and not punished
- the managers listen to the coworkers’
- the coworkers were forced to understand the importance of communication and information.
4.1.2 Interview with CEO

The interview with the CEO, Mats Birgersson at Fresh AB, ended with a separate tree diagram and the most important activities performed to reach the epithet: “One of the best workplaces in Sweden”, in his opinion, was:

- the regular developmental conversations
- the vision process
- answering the question: “Why do you go to work?” with: “Creating value for others”.

When Birgersson started in 1994, the company was in bad shape. “The coworkers didn’t understand anything of what they were doing”… “So the competence of the coworkers was a shock to me”, he said. Birgersson understood that the company had been managed in an exceedingly top-down manner. He started a developmental conversation programme with all coworkers to understand the coworkers’ competence situation. He also introduced a programme for all coworkers in 1995, performed by the employment service agency for new entrepreneurs. His vision was to increase the holistic view, make all coworkers conscious of the crisis, and bring about a change of attitude. Resistance to his efforts was widespread and it was hard to sell the idea. During the interview he said that, in the beginning he invested about 50% of his time in building relations with every individual coworker by walking around in the factory. His belief was that nobody wants to be treated as an anonymous person in a collective environment, but prefers to be addressed as an individual. “Everything is a matter of communication”, he stated. He also emphasised the infrastructure for cross communication at many meetings, aimed at enabling the employees to exchange information and talk to each other. “The developmental conversations are the basis of the leadership”, as he expressed it.

Another mission he described was to tear down the hierarchy, “because hierarchy will be an obstacle to people talking to each other”. An informal structure creates equity and commitment, he argued. “Trust between managers and coworkers comes from conversations, communication and visibility. Practice what you preach”, was also something which he also saw as vital for building this trust.

Birgersson’s idea of good leadership is also to build and communicate visions. He likes to use metaphors to sell his message, like ‘The Marine Chart’. He also describes the organisation as ‘a train’ with an engine consisting of the driving forces, passenger carriage for those who just go along and braking carriages for hesitators or ‘objectors’. His advice is: “Abandon old beliefs, look for engines and don’t waste too much time on braking carriages”. He also mentioned that the policy document ‘The Marine Chart’ had been developed by the coworkers alone, on their own initiative, when Birgersson was away on a business trip to Japan.

He advocated some important characteristics of leadership: be authoritarian in combination with situation based leadership to force things to happen at times, but be a coach to support the coworkers’ own decisions. “It’s a matter of helping people to motivate themselves”. If a suggestion comes up his response is: “Let’s try; if it doesn’t work we can always just go back to where we started”. His comment on the positive sick leave statistics was: “We don’t talk about sick leave; we talk about health presence”.

Birgersson described how he constantly repeated the question: “Why do you go to work?” and like a mantra the coworkers answered: “To create value for others”. “You can only reach your own self fulfilment through making value for others”, he said. “It can
only be reached together with other people”. The development of a diversified organisation is another example of an ethical dimension, and it was done in an effort to increase the understanding of other people. His comments about the organisational culture at Fresh AB are:

“Culture stands for: cultivation, refinement and education”. The cultivation is implemented by sowing seeds from ideas. We refine them through a high level of communication and competence development. Education is harvesting. It is a sort of self fulfilment for the organisation that people are healthy, because then the economy is functioning.”

4.2 SÖS Emergency

The empirical findings from the two tree diagrams at SÖS Emergency resulted in a final identification, made by the coworkers, of the most important methodologies (see Bäckström et al., 2004a, 2004b). The two tree diagrams started with the same question as at Fresh AB: “Why are you one of the best workplaces in Sweden?” and the most important identified reasons were:

Tree diagram 1
- the managers are visible and available and there is mutual trust between managers and coworkers
- responsibility and authority are distributed in accordance with interest and competence
- evaluation is made with inquiries and discussion groups
- the model for working time planning is developed by the coworkers
- the corporate culture is open to new methodologies and ready to solve problems instantly.

Tree diagram 2
- the managers listen with a sensitive ear and are on our side
- the management group have common missions and the right person on the right spot
- we have an encouraging atmosphere and like to spend time together
- there is a desire to learn and share knowledge from many highly competent coworkers
- proposals from the coworkers and cooperation groups lead to results and solve problems
- we have agreed on methodologies and tools in a job that is unpredictable
- we have open and straight communication and try not to speak ill of each other behind her/his back.

4.2.1 Interview with the department manager

The interview with the department manager, Sören Carlsson-Sanz at SÖS Emergency, also resulted in a separate tree diagram and the most important identified methodologies for being: “One of the best workplaces in Sweden” were:
• authority followed by responsibility is highly valued by leaders
• there is no competition, but cooperation and decreased work load
• we have influence, for instance through participating in debate programmes, articles and lectures
• we carry out scientific studies and reflect on society and participate in actions with external resources
• there is a forum for decision making and an interest in sharing knowledge
• we have created room and channels for communication and information
• opportunities for long term rehabilitation of sick listed coworkers and use of direct treatment.

At most clinics doctors are the managers, but Carlsson-Sanz is a nurse and was selected by a unanimous coworker group in 1994. He referred to the clinic as ‘a worn out work place that raised a mutiny’. He described his vision of good leadership as: visible and working together with the coworkers ‘on the floor’. The leadership abilities he wishes to emphasise are: holistic views, structure, mediation of trust, knowledge of human behaviour, supportive attitude, imparting and showing respect and no false authority. During the interview he, in particular, emphasised the importance of creating a forum for communication in dialogue and competence development.

Through various different, externally financed, preventive projects they try to fight against the sense of meaninglessness often caused by the work at emergency clinics. They take part in and share, for example, books, lectures, reports and documentary films and, according to Carlsson-Sanz, “the coworkers are growing and feel that they are doing something important”. He emphasises the importance of reflecting on ethical issues and use straight communication to avoid conflicts. “People must talk to each other and not about each other”, he points out. The diversified organisation of the clinic is a valued asset in his view. Throughout the interview he returned to the issues of participation and dialogue.

When concluding the interview on how sustainable health can be achieved Carlsson-Sanz advocates: “room for debate and straight communication without false authority”.

5 Analysis

5.1 Cross case analysis

The empirical findings from the two studied organisations were, as a next step, subjected to a cross case analysis to look for conformity between the organisations. In this analysis, all data collected was taken into consideration, including observations, interviews and tree diagrams. All the data was then sorted under the five decisive factors including the internal partnership model (see Figure 1) plus one factor named ‘Other’, including detected factors, which did not have any obvious connection to those in the model.
From this analysis the research team identified the methodologies functioning in the two studied organisations and considered possible to adopt by other organisations. Then four new, more relevant, categories were formulated. ‘General Attitudes’ concerns everyone in the organisation, both managers and coworkers. The other presented areas are considered more dependent on the managers’ attitudes. The following paragraphs summarise and comment on the main findings shown in Figure 5.

**Figure 5** Results of the cross case analysis based on the findings from the two organisations
5.1.1 General attitudes

The empirical findings show that communication in the organisations is highly valued. The coworkers verify that the atmosphere is open, without prestige, with mutual respect, and based on trust. They use straight communication, i.e. “they talk to each other, not about each other”. Different opinions are welcome and people cooperate instead of compete. They are encouraged and corrected, not punished when making a mistake. The coworkers have a lot of direct influence on their current working situation and they can therefore make adjustments according to their own situation. Another attitude, which both organisations emphasised, is that work is judged to be fun.

The coworkers in both organisations gave positive comments on their managers’ personal attitudes. The managers are described as having an understanding of human conditions and meeting people as individuals which makes it possible for them to receive personal support. The balance between work and leisure is also taken into consideration by the two managers. Every coworker has regular developmental conversations about their current situation, needs and plans for the future. A great deal of effort is made by the managers to unify the coworkers through visions of a common direction.

The use of ethical dimensions is also described by both organisations. This provides conditions for a sense of ‘doing good’ and stimulates the debate and unity of a common base of values. At Fresh AB they have a strong customer orientation and constantly talk about why they go to work, with the answer: “making values for others”. At SÖS Emergency they focus on the patients and what is best for them, but also participate in various preventive societal projects.

5.1.2 Leadership attitudes

The managers of the studied organisations were considered by the coworkers to be visible and supportive coaches, with no false authority. Experience and ability to establish trust when coaching coworkers are also valued. The organisations are designed for a balanced delegation of authority and responsibility to the coworkers.

5.1.3 Methodologies

Both organisations are characterised by having many cross functional groups. The focus is on relations and understanding each other in activities like work rotation and learning from each other. Again, communication between coworkers and between managers and coworkers is underlined. If conflicts occur they try to sort them out instead of avoiding them.

Their problem solving methods are described as quick and easy, based on delegation of decision making processes, which leads to fast and noticeable results. The problem solving methods focus on solving basic causes, even if the problems are caused external. At SÖS Emergency, they also handle recurrent traumatic situations in their daily work by ‘mirroring’ (debriefing). Various competence development programmes are also common in both organisations. The public attention gives both pride and motivation. Recruiting and keeping coworkers is, according to their own information, not difficult in either of these organisations.
5.1.4 Organisational structure

Both organisations studied have designed their infrastructure for coworker influence. The organisations are flat, nonhierarchical and nonbureaucratic. This makes the decision process short and creates an infrastructure for communication. Furthermore, they have regular meetings in different constellations such as crossfunctional groups. Processes focusing on the customer provide a holistic approach and characterise both organisations. At Fresh AB, for instance, they have established a salary system and at SÖS Emergency they have a model for work time planning, both developed by the coworkers.

5.2 Cross case analysis vs. the internal partnership model

After the cross case analysis was completed a comparison with the internal partnership model was made, in order to study the relevance of the model.

Neither organisation uses the term ‘core values’, but ethical and moral issues seem to be present in their daily work. Both organisations work towards a diversified organisation in order to reflect the society outside the organisation and to create a dynamic atmosphere inside the organisation. The core values, such as mutual agreements, are also established in the policy documents of both organisations.

The issue of personal maturity is strongly represented when discussing desirable leadership abilities among coworkers, and in the coworkers’ competence development programmes. The conversations, with respect, in a professional manner may also be seen as an example of personal maturity to clarify mutual expectations. Covey’s (1992) formulation is strongly applicable to both organisations; “Independent people, who do not have the maturity to think and act interdependently, may be good individual producers, but they won’t be good leaders or team players”.

Both organisations are designed for coworker influence and therefore the coworkers’ personal motives should, in such an environment, have good chances of being fulfilled. The regular developmental conversations on an annual basis, give the coworkers an opportunity to express personal desires and provide opportunities to combine those with the interests of the organisation. The individual competence development programmes are also examples of efforts to satisfy individual needs.

Trust and equality are evidently pervading characteristics of both organisations. This is shown in their communicative attitudes and seems to be well incorporated in both organisations’ methodologies. Groups often make their own decisions, and mutual trust and respect between managers and coworkers seem to be established. The nonhierarchical, flat structure of both organisations underlines their effort to establish equality.

The empirical findings from the two organisations also strongly emphasise the importance of communication, as suggested in the internal partnership model (see Figure 1). They have both designed a successful infrastructure for dialogue, both as coworker influence on different cross functional groups and regular developmental conversations between managers and coworkers.
5.3 Cross case analysis vs. sustainable health

The findings of the cross case analysis support Söderlund’s (2003) theory of the ‘health factors’, as indicated by the responses to the question: “What makes people function in the best possible way, develop and feel good?” The conformity of the studied organisations and the presented 'health factor' theory is striking. The statistics on the average sick leave rate also support the view that the health factor theory is applicable to both the studied organisations.

There is reason to believe that increased responsibility for coworkers, mentioned at both SÖS Emergency and Fresh AB, can cause stress, as discussed by Docherty et al. (2002). This subject never came up as a negative consequence in either of the organisations during the data collection phase. In terms of the concepts used by Docherty et al. (2002), one may ask whether it is more relevant in these organisations to talk of ‘the spice of life’ rather than ‘the kiss of death’ when referring to trends in modern working life.

6 Discussion and conclusions

The studied organisations differ in both size and business, but they basically use similar methodologies. The restart from critical situations has most certainly provided special conditions for the processes of change in the two organisations described. It is also hard not to recognise the managers’ influence and their personal approaches to leading the processes of change. The mutual established teamwork based on good leadership together with the coworkers’ commitment, is once again proven to be the essence of success. The public attention that comes from winning awards and receiving other kinds of recognition is a natural proof of being on right track and an inspiration for continued efforts.

The internal partnership model was used as a theoretical frame and seems to be relevant in both organisations. However, the decisive factors in the model seem to be too general and should therefore be redesigned to a more detailed level for better utility in the future. The ‘health factor’ theory by Söderlund (2003) and discussions of quality in working life by Schabracq and Cooper (2000), Benders and van de Looij (1994) and Lewis et al. (2001) are strongly supported by the results of this study.

There are of course many concurrent methodologies behind the success of the studied organisations. Some of them are unique like, for instance, the personal characteristics of the managers and internal routines that may be difficult for other organisations to adopt. Other methodologies have been considered possible for others to adopt in their efforts to achieve good working conditions resulting in less sick leave, such as:

- infrastructures for straight communication and dialogue (cross functional groups and development groups)
- relation building activities and meetings
- regular developmental conversations
- coworkers’ influence (on their own daily work, salary and timetables)
- delegated responsibility and authority to working teams
How successful Swedish organisations achieve sustainable health

- flat flexible nonhierarchical and nonbureaucratic organisation
- suggestions for improvements dealt with seriously (results and quick feedback)
- establish holistic view (work rotation and cross functional groups)
- mutual respect without false authority or penalty for mistakes
- balance between work and private life
- good public attention.

From the methodologies used, other managers and practitioners should be more concerned about building close personal relations with coworkers; they should pay attention to the importance of communication in dialogue, realise how each individual function is important for the performance of the system, note and respect the fact that the organisation has hired a person with positive and negative values, who wants to be proud of him/herself, and maybe the most important issue – give much effort to establish trust in all directions. These suggestions are not new or revolutionary, but already known to be winning concepts in management theory. A relevant question for further research seems to be: ‘Why are these methodologies not used to a larger extent?’

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References


Paper B

Quality Management and Health a double connection.


Forthcoming in
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Quality management and health, a double connection

Research paper

Abstract

Purpose

The purpose of this paper is to examine and discuss the effects of quality management in the health care sector and the general effects of quality management on the health of the employees.

Methodology/approach

The empirical basis consists of three case studies in one industrial manufacturing company and two hospitals. The empirical data have been gathered with both qualitative and quantitative methods.

Findings

The twofold value of quality management, of preventing disease by supporting more rewarding working conditions as well as improving the treatment of disease by increasing the effectiveness of health care organisations it indicated. Leadership commitment was found to be the most crucial common prerequisite for successful quality management implementation and for creating a healthy work environment. In addition, continuous improvements and participation of everybody were found to have importance for well functioning quality management as well as for health.
Research limitations/implications

The paper provides additional understanding of the influence of quality management on health and a model is presented. A limitation is that the factors studied are fairly broad and for further research it will be useful to go deeper into the mechanics of them.

Practical implications

The three factors leadership commitment, participation of everybody and continuous improvements have been shown to be vital contributors for health and managers should make every effort to implement them.

Originality/value

The double effect of quality management on health has not been studied before and knowledge of the factors contributing to it is valuable.

Keywords


Introduction and purpose

Quality management is well established in the industrial manufacturing sector. More recently, interest has started to grow in the service sector and notably in the area of health care (Brown et al. 1994). Several health care organisations have started to implement quality management in order to improve their operations. The effects of quality management in health care
organisations are relatively well studied. Several articles report positive effects of using quality management in health care organisations (e.g. Arcelay et al. 1999; Yasin and Alavi 1999). For instance, Ennis & Harrington (1999) have found the effects of more cost-effective and efficient hospitals. In addition, Newman & Maylor (2002) have found that the ability of nurses to give quality care is vital for their job satisfaction. Martin (1993) suggests that management commitment is a necessary base for succeeding in implementing and working with TQM in organisations in the human service area. Even more technically advanced forms of quality management such as Six Sigma has been shown to be useful in health care (Sehwail and DeYong 2003). However, Wagar & Rondeau (1998) have found that merely having a TQM programme is not sufficient for improving performance but a high overall commitment from management is also necessary. In a longitudinal case-control study by Kivimaki et al. (1997) the economic benefits of the TQM implementation were clearly indicated, but they did not find any significant change regarding well-being or work-related attitudes among staff. Perceptions of improvement work in Swedish health care are also studied by Book et al. (2003).

In a separate development, some researchers have very recently begun to study the effects that quality management has on the health of the employees in all kinds of organisations (Lagrosen 2003). It is reasonable to conceive that quality management could have beneficial effects on employee health by bringing in more humane and effective practices and thus improving the working conditions. The relation between quality management and employee health is, however, much more sparsely researched. There are studies that have implications for this field in that general variables that influence health have been identified. For instance, McHugh (2001) has found that holistic approaches towards the management of attendance foster more healthy work organisations. Shain (1999) claims that high control, high reward
conditions, employee assistance and health promotion programmes are crucial for creating healthy workplaces. Warrack & Sinha (1999) argue that the basic elements of building a healthier and safer workplace environment are congruent with the criteria important to achieve excellence in quality and productivity. Also Dolbier & Steinhart (2001), Hemingway & Smith (1999) and Siu (2002) discuss relations between quality development and health of employees. Results of a longitudinal research project carried out by Dahlgaard & Dahlgaard Park (2003a; 2003ba) indicate clear relationships between a company-wide implementation of quality programmes and employee health in terms of improved employee satisfaction, low employee turnover and absenteeism along with improved customer satisfaction and financial results. As for the health effects of quality management in hospitals, Hancock (1999) argues that in order to promote health in society, hospitals need to be healthy workplaces in themselves. However, very little research has been carried out into if and how quality management can contribute to this, which accentuates the need for studies in this area.

Bringing these two strands together raises interesting questions regarding the greater role of quality management in society. The societal value of quality management has been proposed by some of the most influential authors in the area (e.g. 2000; Deming 1986; Ishikawa 1985). For instance, Ishikawa proposes that the increasing quality of companies’ products will lead to increasing profits, which he hopes will be shared with society in general. In this way, he imagines that they can improve the quality of life for the Japanese people and the people of the world and even contribute to world peace. However, this is scarcely conceptualised in research.
The purpose of this paper is to examine and discuss the effects of quality management in health care and the general effects of quality management on the health of employees. Two research questions are included in this:

1. What are the effects of quality management in health care organisations?
2. How does quality management influence employee health (in all organisations regardless of sector)?

Bringing these two aspects together could provide interesting synergies and shed increased light on the greater role of quality management in society. Quality management could possible serve as a tool for improving the general effectiveness of the health care sector at the same time as it prevents health problems from arising in the first place. Examining both these potential effects concurrently might also elucidate more profound aspects of connections between quality management and health.

The empirical basis of the paper consists of three case studies. In the first study the effects of quality management in a maternity clinic were studied. In the second study, the effects of quality management practices on the health of the employees in a manufacturing company were examined. The third study brought the perspectives together in that the effects of quality management on the health of the employees in the casualty department of a major hospital were investigated.
Research methodology

Since we wanted to identify potential effects of quality management in the health care sector and possible effects of quality management on health, we needed to study organisations that have implemented quality management programmes successfully. Many attempts of putting quality management into practice fail (see for instance Noronha and Dahlgaard Park 2003) and in such cases, it is not reasonable to expect any of the above effects. Thus, we needed examples of complete implementation. For this reason, we choose to study organisations that have been recognised by receiving quality awards.

The first study was carried out at the maternity clinic of a hospital in Motala, Sweden. This is a fairly small hospital with 1455 staff including 117 doctors. They have tried to implement TQM since 1994 using the model for the Swedish Quality Award for the health sector. In 1997 the maternity clinic received this award. The maternity clinic offers pregnancy supervision, delivery and maternity care as well as treatment of gynaecological disease and prevention. The clinic has adopted a process oriented approach to their organisation, focused on the patients. The basis is a concept that they call the care chain which includes all activities seen from the patients’ perspective. They have also tried to empower all the personnel by delegating authority and responsibilities. Combined with education and information aimed at developing cost awareness and knowledge of all general processes of the clinic, this is believed to have increased the level of commitment and participation. They make intensive efforts to follow up and measure the effects of their operations and how they are seen by the patients and personnel. For this purpose, they use questionnaires and focus group interviews for the patients and questionnaires and personal interviews for the staff.
The object for the second study was Fresh AB, an industrial manufacturing company in Gemla, Sweden. Founded in 1969, the company is currently the national market leader in the field of indoor climate. The company employs approximately 50 people who are organised into seven self-managed teams. Additionally, there are eleven cross-functional development groups. Their TQM journey commenced in 1994 when a new manager, who was experienced in quality management, was appointed. They formulated a vision and new goals. They also started to adopt the values of the Swedish Quality Award and the team-organisation was set up. In 1995 the company was certified according to ISO 9000. The same year the development groups were created and a set of three common values (ethics and moral, high customer service and create understanding) was formed. They gradually started to work with the seven management tools. In 1999, the company also received ISO 14000 certification.

The manager has constantly focused on the human resources. The well-being and self-realisation of the staff are considered to be the most important issues, even more important than the financial goals. Nevertheless, they have also had an excellent financial development. Their quality improvement activities have been recognised in that they won the insurance company Alecta’s award for work-environment issues in 2001. In 2003, they received the honorary title ‘Best working-place’ from Sweden’s leading business paper.

Working with Quality Management, Fresh AB has managed to achieve substantial profitability as well as high well being of the employees. They have increased their turnover with 22% on average per year since 1995. The average number of days of absence due to illness was 15 days per person the year of 2002, compared to the Swedish average of 21 days per person.
The third study took place at the Clinic of Emergency and Accidents at South Stockholm General Hospital (denoted SÖS Emergency). The clinic’s 397 full time staff provide emergency medical care. The clinic has a flat organisation consisting of one management group and four groups that are each led by a nurse. All the employees take part in cross-functional development groups. They have the possibility to participate in planning their own work schedule in which the different shifts are rated according to their intensity.

In 1994, following an organisational unrest among the nurses, an organisational consultant was appointed. The following year, a new organisation was formed with new management that was elected by the staff as well as a new health manager and new facilities. The development groups were created in 1996 and in 1997 a new work-time model involving everyone’s participation was installed. In 2001, the clinic’s manager was awarded ‘Manager of the year’ by the magazine Chef (Manager) on the proposal of the staff.

Through their quality work the clinic of Emergency and Accidents have achieved sustainable health among their employees, increased their economic result and reached a better health care. They have for example reduced the number of employees who have been sick absent for more than a year, from 11 to 2 persons. The average days of sick absence per person in Sweden was 21 days in the year 2002 while the average per person at study 3 was 16 days. Results from patient inquiries indicate a general satisfaction from patients and relatives with the health care that the clinic offers.

The selection of the organisations was based on their recognized status as successful organisations and their successful implementation of quality programmes. The case organisation of the first study has received the Swedish Quality Award for the health sector and the two other organisations received the Alecta award in 2001 in their respective size. In
Sweden, the Alecta (an insurance company for occupational pensions) national award covers leadership, profitability as well as environmental issues.

The embedded multiple case study (Yin 1989), that comprises the three studies, have all been based on a combination of qualitative and quantitative methods. In each case a qualitative part has provided a basis consisting of a relatively small number of interviews but with a considerable depth. They have prepared the ground for questionnaires of high relevance that have been delivered to all employees of the organisations. In summary, the empirical foundation is the following:

- **Study one**: One in-depth interview with the clinic manager, two focus group interviews (one with eight doctors and the other with ten nurses) and a survey with 45 respondents (response rate of 100%).
- **Study two**: Three in-depth interviews (with the chairman of the board, the manager and one employee who had participated in the award application), one focus group interview (with eight employees of which five are members of the health development group and three of the safety control development group) and a survey with 42 respondents (response rate of 80%).
- **Study three**: Three tree diagram workshops (one with the manager and two with four nurses in each) and a survey with 102 respondents (response rate of 57%).

The qualitative in-depth and focus group interviews were of a conversational character. Efforts were taken to let the respondents speak freely from their hearts. The interviewers merely introduced the desired themes which related to their quality management activities, their effects, the reasons for the effects and the health of the employees. The empirical data
from the qualitative parts were analysed with methods inspired by the constant comparison technique from the grounded theory approach (Glaser 1992; Glaser and Strauss 1967; Strauss and Corbin 1990). The data from the quantitative parts were analysed with multivariate techniques including factor analysis and Pearson correlation (Hair et al. 1998).

In study 3 an additional method with an explorative, qualitative approach, was chosen. The data collection in this case consisted of brainstorming structured in tree diagrams (Mizuno 1988). First, tree diagrams for the employees were completed. Then, an interview with the department manager concluded the data collection. A separate tree diagram was constructed with the manager, in the same way as with the employees, to have as a complement and for comparison with the employees’ tree diagram.

The connection between the two research questions and the three studies is clarified in figure 1.

Figure 1. The connection between the research questions and the three studies.
Findings

Study 1

This study concerned the effects that the personnel of the clinic had noticed from using quality management programmes. From the focus group interviews, a number of potential effects were identified. In the questionnaire, the respondents were asked to indicate whether they agreed that the effect in question had been generated. This was measured on a five level Likert scale with the extremities ‘agree completely’ and ‘disagree completely’.

The most prominent positive effects were found to be the following:

- Improved use of evaluations (score 4.45). This factor implies that evaluations are made more regularly and the results are used more effectively as well as evaluations being more constructive and directed towards improvements rather than judgements.

- An ability to implement improvements that had earlier stayed on the idea level (score 4.38). Apparently, many improvements that were not directly connected to the quality management had taken place. It seems that some ideas that they had since a long time back had never come into practice. However, when working according to the quality management principles many of these old ideas came up again and were implemented.

- More room for creativity (4.16). The organisational climate had become more conducive for novel ideas and initiatives.

A negative effect in the form of a temporarily intensified work-load in some phases was also noticed. On the other hand, the general opinion was that the permanent work-load had not increased.
A further aim for this study was to go deeper and not only identify the effects but also discover the reasons for them. We wanted to find the success factors that made the positive effects possible. This was handled in the same manner as above. Possible success factors were detected in the focus group interviews and again the respondents were asked to rate their agreement with the factor being a reason for their successful development. The same five level scale was used. The principal factors that were identified were:

- Everybody getting sufficient information (score 4.49). This is a basic value that in its turn is linked to many of the subsequent factors.
- Strong commitment from the management (4.45). The leaders need to be actively engaged and act as role models in the quality development process.
- Continuous evaluation of operations (4.45). Evaluations are necessary in order to know what to improve and how the improvements are to be carried out.
- Employee empowerment (4.38). The employees need to have enough authority to solve problems and carry out improvements according to their common sense.
- Participation of all employees (4.37). This factor is linked to the previous one but it also indicates that the employees should have a possibility to influence the activities of the organisation at large.

**Study 2**

The objective of this study was to explore relations between the values of quality management and the health status of the employees. We used a set of values that are recognised by a many authors e.g. Bergman & Klefsjö (2003) as well as in the Swedish Quality Award, which is developed from the Malcolm Baldrige National Quality Award (NIST 2003). The following values were chosen
Leadership commitment. Leadership and especially top management commitment is crucial for inducing a quality culture in a company (Foster 2001). Managers focusing on quality related issues and providing good examples is important (Bank 2000).

Participation of everybody. The idea is that all the employees must be activated in the quest for quality. Empowerment in one’s own job development (Ishikawa 1985) as well as participation in the company’s development are emphasized (Senge 1990).

Continuous improvements. A company should not accept any certain quality level or tolerance level, instead it should constantly strive to improve all processes and products with involvement of all employees.

Customer orientation. This value implies that all activities should be directed towards fulfilling the needs and wants of the customer, including internal customers.

Management by facts. Decisions should be made, based on documented and reliable data or knowledge. It is important that data regarding all activities and outcomes are gathered and analysed in a proper way (Deming 2000).

Process orientation. This implies that the company should organise and develop its structure based on the activities that it is performing rather than forcing the activities into a predestined structure. The focus of management should be on the processes not on the outcomes (Deming 1986).

The relation between the values and the reported health, both measured through three-item indices that were developed based on the qualitative interviews, was tested with correlation analysis. For instance, the value ‘Leadership commitment’ was made of the three statements: ‘I feel that the managers see me and support me’, ‘In our company we have an active and visible commitment from the managers’, and ‘Our manager is a good example regarding quality’. Also the Health-index was made of three statements. These were: ‘I think my health is very good’, ‘I am hardly ever ill’, and ‘I am rarely tired’.

The respondents were asked to mark on a seven-level agreement scale to what extent they agreed to the statements. The extremities of the scale were “Disagree completely” and “Agree
completely”. Pearson correlation measures the amount and strength of linear association between variables and it varies between –1 and 1. Three values were found to have a significant correlation with the health status (see table 1).

<table>
<thead>
<tr>
<th>VALUE</th>
<th>PEARSON CORRELATION</th>
<th>SIG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership commitment</td>
<td>.437**</td>
<td>.004</td>
</tr>
<tr>
<td>Participation of everybody</td>
<td>.351 *</td>
<td>.023</td>
</tr>
<tr>
<td>Continuous improvements</td>
<td>.306 *</td>
<td>.049</td>
</tr>
<tr>
<td>Customer orientation</td>
<td>.261</td>
<td>.095</td>
</tr>
<tr>
<td>Process orientation</td>
<td>.291</td>
<td>.061</td>
</tr>
<tr>
<td>Management by facts</td>
<td>.250</td>
<td>.110</td>
</tr>
</tbody>
</table>

Significance level: *p<0.05; Significance level: **p<0.01

Table 1. Correlation between the values and the health index at Fresh.

As the table shows, a highly significant correlation between health and the value ‘leadership commitment’, with a p-value as small as <0.005 was found. The size of the correlation is about 0.45, which can be considered as rather high in this kind of studies. Also ‘participation of everybody’ and ‘continuous improvements’ were correlated with health.

**Study 3**

The third study combined the objectives of the two previous studies. Thus, the intention was to examine both the effects of their quality management activities and the connection between quality management and health.
Again, the correlation between the values of quality management and the health index was measured. The result was slightly different in that one of the values that was significant in the previous study, ‘Participation of everybody’ was found not to be significant in this case. On the other hand another value ‘Customer orientation’ was significant in this study (see table 2).

<table>
<thead>
<tr>
<th>VALUE</th>
<th>PEARSON CORRELATION</th>
<th>SIG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership commitment</td>
<td>.292**</td>
<td>.003</td>
</tr>
<tr>
<td>Continuous improvements</td>
<td>.315**</td>
<td>.001</td>
</tr>
<tr>
<td>Customer orientation</td>
<td>.277**</td>
<td>.005</td>
</tr>
<tr>
<td>Participation of everybody</td>
<td>.158</td>
<td>.113</td>
</tr>
<tr>
<td>Process orientation</td>
<td>.148</td>
<td>.138</td>
</tr>
<tr>
<td>Management by facts</td>
<td>.151</td>
<td>.129</td>
</tr>
</tbody>
</table>

Significance level: *p<0.05; **p<0.01

Table 2. Correlation between the values and the health index, at SÖS Emergency.

The empirical findings from the tree diagram at SÖS Emergency resulted in a final evaluation of the most important factors, made by the employees. According to the employees the most important factors answering the question: ‘Why are you one of the best workplaces in Sweden?’ were:

- The managers are visible and available and there is mutual trust between managers and co-workers
- The management group have common missions and the right person on the right spot
- Responsibility and authority are distributed in accordance with interest and competence
• The working time model is developed by the co-workers
• We have an encouraging atmosphere and like to spend time together
• We have an open and straight communication

• Proposals from the co-workers and cooperation groups lead to results and solve problem instantly
• There is a desire to learn and share knowledge from many highly competent co-workers

• We have agreed on methodologies and tools
• We try not to speak badly of each other/others.

The findings from the tree-diagram interview with the department manager at SÖS were fairly similar to those from the employees. Comparing the findings from the tree-diagram to the values of quality management defined above, we find that: The first two factors belong to ‘leadership commitment’, the following four factors are included in the value ‘participation of everybody’ and the next two factors are a combination of the values ‘continuous improvements’, ‘participation of everybody’ and ‘leadership commitment’. Participation of everybody is thus of importance although it was not statistically significantly related to health in the quantitative part. The last factor ‘We try not to speak badly of each other/others’ however, is not obviously traced back to the values grown from the quality movement, but is probably a very important ingredient for a company in order to have a good and positive atmosphere or climate where well-being of the employees can flourish.
Synthesis

The two research questions of this paper concerned the effects of quality management in health care organisations and its influence on employee health. This is highly pertinent to the wider question of the overall value of quality management in society. The studies in this paper have indicated that quality management programmes can contribute to improved health status of the employees as well as improving products and processes in health care organisations. By preventing work-related disease, quality management practices can thus contribute to a healthy society as well as providing more efficient health care organisations. Consequently, the effect of quality management on overall health status of the society is twofold. First, it can be a means of preventing disease by being used by organisations in all sectors. This is a proactive effect seen from the perspective of society. Second, quality management can contribute to increased effectiveness in the treatment of disease. The studies of this paper as well as much previous research indicate that usage of quality management by health care organisations can improve their efficiency (e.g. Arcelay et al., 1999; Harrington, 1999; Yasin & Alavi, 1999). This is a reactive effect considering society as a whole since it is a reaction to the existing health problems although in the health care organisations the effects may be proactive in preventing errors in the treatment procedures. The studies in this paper have also included an examination of the factors through which quality management create this effect. This is portrayed in figure 2.
In the figure, the two health effects of quality management, proactive and reactive, are depicted as the outcomes of five factors that the studies have indicated to have this influence. The foremost of these factors is leadership commitment. In the first study the term was management commitment but we consider the content to be similar. (Since the factors were developed from the qualitative interviews in the words of the respondents, the wording of them may vary somewhat). This factor was the single most influential aspect both regarding the proactive effect of prevention and the reactive effect of increased effectiveness in health care. Several earlier studies also point to the significance of leaders being committed (e.g. Hackman & Wageman, 1995; Martin, 1993; Wagar & Rondeau, 1998) Two additional factors were found to have influence on the proactive as well as the reactive effect. First, we have the factor of continuous improvements which is strongly related to continuous evaluation in that the value or evaluations always is to provide a basis for improvements. Thus, these two aspects could be combined into one factor. This factor was identified in all three studies.
Second, there is the factor of ‘participation of everybody’ which we have chosen to merge with ‘empowerment’ since the content of these two aspects are closely related. The relation to employee health of this study was not significant in the third study. However, it was significant in the second study and it was recognised as one of the factors affecting health care quality in both the first and the third studies. Consequently these three factors can be seen as the core of quality management concerning effects on health.

Nevertheless, there are two other factors of which the influence was only indicated on one of the effects, either the proactive or the reactive. The third study suggests that the factor customer orientation may be a prerequisite for good health of the employees but it was not identified as such in the second study. It is interesting to speculate over this difference. One possible reason may be the disparity in customer contact between the two organisations. In an industrial manufacturing company the employees rarely meet the customer in person (although this specific company tries to increase the number of such meetings in order to foster better customer focus). For this reason the level of customer orientation may be less related to their level of stress and work satisfaction. In contrast, the employees of a hospital constantly meet their customers (patients) in a most intimate manner. Indeed, they sometimes even literally have their lives in their hands. Under such circumstances, it must be imperative for a reasonable work situation that the employees feel that their employer has the patients best as their guiding light. Having responsibility for peoples’ life and safety without having the full support of management must be extremely stressful. This is also in line with the findings of Newman & Maylor (2002) that the opportunity of giving quality care is vital for the nurses’ job satisfaction. On the other hand, it is somewhat surprising that this factor was not regarded as one of the success factors for quality management since this is one of the most praised factors in the quality management literature. Possibly, the customer concept is too
abstract for the health care organisations as a basis for assessment of their effectiveness. Perhaps, adopting this principle in a more expressed way may be more beneficial for the health care organisations than they realise.

Finally, the factor ‘information’ was recognised as one of the main success factors for health care quality management. However, it has not been identified as such among the factors that influence employee health. This may indicate that information in itself does not improve the employees’ job situation. Rather, it is the ability to influence that is important as is indicated by the factor ‘participation of everybody’ mentioned above.

Conclusions

The studies have indicated that quality management can have a double effect regarding health. By improving the job situation its usage can contribute to better health among the employees and prevent disease. By increasing the effectiveness of health care organisations it can also play a role in the treatment of disease.

Furthermore, the studies have pointed to the commitment of managers as the most central of the common factors for achieving a healthy work place as well as creating efficient organisations. This is in accordance with the findings of, for instance Hackman & Wageman (1995) who also explored this topic in their framework about TQM theory and practices. Additionally, the factors of continuous improvements, participation of everybody, information and customer orientation were found to be, in certain instances related to employee health status and/or successful quality management implementation. These results could serve as a basis for how companies can improve the health of their employees through changes in the
organisation and letting these values permeate the organisation’s culture. Furthermore, the tools and techniques of quality management are obviously also needed in order to make the values part of the daily activities.

The studies have emphasised the value of leadership commitment both for the health of the employees and for the general successfulness of quality management initiatives. Therefore, the main focus for managers should be to uphold their own commitment and top management should inspire managers on all levels to make commitment to quality their first priority. In doing this, one of the main aspects is probably that managers act as good role models and adopt a healthy and positive lifestyle themselves. Since participation also seems to be important managers should ensure that the employees are empowered and that they have the possibility to influence their own work situation as well as the wider issues of the organisation. Continuous improvements should also be promoted.

One limitation of this study is that it has only identified these rather wide factors. In order to understand the connections more completely and to employ the factors in practice it is vital to know their mechanisms more completely. In further research, it should thus be valuable to probe deeper into these factors. For instance, this study has indicated the importance of leadership commitment. Elaborating this concept in order to see what aspects of commitment from the leaders that are most important and the mechanics of their influence should be particularly valuable.
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Paper C

Health effects of Quality Management - the role of leadership and participation.


Submitted for publication.
Health effects of quality management – the role of leadership and participation

Research paper

Abstract

Purpose
The purpose of this study was to go deeper into the TQM values of ‘leadership commitment’ and ‘participation of everybody’ and study what aspects of these values have influence on employees’ perceived health. Finding factors affecting sick leave was another focus of investigation.

Methodology/approach
Both qualitative and quantitative methods have been used. Data triangulation has been used in the form of in-depth interviews and focus-group interviews on three levels at the studied company.

Findings
Perceptions of TQM values were significantly correlated with employees’ perception of their health. Dimensions of importance for ‘leadership commitment’ and ‘participation of everybody’ regarding employees’ health were identified and described in models. The study also found that ‘lesser freedom in work’, ‘high staff turnover’, ‘less qualified work’ and ‘vicious circles’ could be explanatory factors for sick leave.

Research limitations/implications
The paper provides additional understanding of the connection between quality management and health, particularly regarding the role of leadership. The proposed models need to be further validated in future research.
Practical implications
The findings have demonstrated how Quality Management can be used for improving employee health. The empirical research aims at increasing our understanding of factors of importance for creating health among co-workers.

Originality/value
Which aspects of leadership commitment and participation of everybody are associated with employees’ perceived health are empirically examined, elaborated and highlighted.

Keywords
Quality management, TQM values, health, employee health, leadership commitment, participation of everybody.

Introduction and purpose
Workplace health is a major issue for most countries in the developed as well as the developing world. Work practices that are beneficial for employees’ health status are thus vital to identify. Consequently, more and better empirical research on the aspects affecting the health of employees is needed (Alexanderson and Hensing 2004). Workplace health is a complex phenomenon and its occurrence and causes are affected by many different issues – including social, work-related, organizational and individual factors. Work-related factors, for example, may be work content and work conditions. Organisational factors include, for instance, company size, the existence of health promotion programs, and absence policies (Janssen et al. 2003).

The definition of health varies. Two different alternatives have been proposed by Medin & Alexandersson (2000): the biomedical view and the humanistic view. While the former sees health as the absence of illness, the latter regards it as something more or something else (ibid.). The humanistic view is in accordance with the definition of the World Health Organization (WHO): ‘Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.’ Mackenbach et al. (1994) define health as a combination of self-assessed health, the absence of chronic conditions and absence of subjective health complaints. According to WHO (1986), health promotion is ‘the process of enabling people to increase control over, and to improve, their health’. To reach a state of
complete physical, mental and social well-being, an individual or group must be able to identify and realise aspirations, satisfy needs, and change or cope with the environment.

This paper explores the connection between quality management and health. In particular, the role of the values of TQM is examined. Studies have shown that working with organizational values grown from the quality movement affects job satisfaction, as well as resulting in increased profitability and customer satisfaction (Hackman and Oldham 1976; Hansson and Eriksson 2002; Hendricks and Singhal 1997; Westlund 2001). In addition, there is support for the assumption that when there is a high level of pleasure in one’s job, the co-workers and the organization are healthy (Arnetz 2002). Moreover, Arvonen (2002) has shown connections between change-oriented leadership and the co-workers’ reactions to stress. Thus, it is reasonable to assume that quality management could have beneficial effects on employee health by bringing in more humane and effective practices and thereby improving the working conditions. Some studies indicate that this is the case (Lagrosen and Lagrosen 2003; Lagrosen 2004; Lagrosen and Bäckström 2005; Lagrosen and Lagrosen 2004).

In particular, the relationship between quality management and employee health has been studied by Lagrosen (2004). In her study, a statistical correlation between the level of adoption of some of the values of quality management and the health of the employees is found. Since this was a pioneer study, more research testing this relationship should be valuable. Furthermore, while establishing a relationship between the values and health is valuable, it should be even more useful to create an understanding of the mechanics of this relationship and knowledge of the facets of which it is constituted. This is what we have attempted to do in the study of the present article. In Lagrosen’s (2004) study, the values ‘leadership commitment’ and ‘participation of everybody’ were found to be particularly important for employee health. Thus, these values should be most urgent to investigate further. Accordingly, the first purpose of this study is to verify the relationship between the adoption of quality management values and employee health. The second purpose is to examine the constituents and mechanics of the relationships between health and the values ‘leadership commitment and participation of everybody’.
The values of quality management

Quality management may be seen as a system consisting of different aspects (Hellsten and Klefsjö 2000). Some authors propose certain levels of adoption of quality management depending on the degree to which the various aspects are adopted (Dale 2003; Dale and Lascelles 1997). Furthermore, the aspects themselves can be seen as pertaining to different levels of profundity. Lagrosen and Lagrosen (2003) present a model of quality management consisting of three levels of increasing depth. The most superficial level contains the practical tools and techniques such as FMEA and SPC etc. The middle level consists of more comprehensive models or systems, for instance ISO 9000 and the award models. The third and most profound level comprises the phenomena that are referred to as values (Hardjono et al. 1997; Lagrosen and Lagrosen 2003), principles (Dale 1999) or cornerstones (Bergman and Klefsjö 1994) of quality management, which are deep lying notions of which organisational behaviour that the organisation should express. Due to their profundity, the values (which we prefer to call them) may be the most important aspect of quality management. For this reason, Lagrosen (2004) argues that the relationship between the values and health is the most important connection to examine. In her instrument, Lagrosen (ibid.) has included the following six values, which she argues based on a literature review, are most frequently occurring:

- Customer orientation
- Leadership commitment
- Process orientation
- Continuous improvement
- Participation of everybody
- Management by fact

In her empirical research, Lagrosen (2004) has found that particularly the values ‘leadership commitment’ and ‘participation of everybody’ are connected to employee health.
Methodology

The empirical basis for the study is a case study carried out in a Swedish production plant of an internationally active manufacturing company. The plant performs contract manufacturing for customers in Sweden, the Netherlands, France and Poland. The plant has about 700 employees and the production operations are divided into two main areas: machining and assembly. In the machining unit, most of the operations are carried out in machining centres supplied with automatic article-handling. Assembly operations take place in manual lines, fitted with modern equipment. The work at the machining unit is more technically advanced with programming of the machines etc., and the operators need extensive education for working here, which is not the case at the line in the assembly unit. The company aspires to have an active commitment to quality, trying to employ many of the quality management values and practices.

A combination of qualitative and quantitative methods has been used. The reason for choosing triangulation with several different methods is that a rich picture of the studied phenomenon can be expected (Patton 1990). For verification of the relationship between the values of quality management and health, we used the instrument developed by Lagrosen (2004). The questionnaire measures the adoption of the values, presented above, with three item indices for each value. For instance, the value ‘Leadership commitment’ is made of the three statements: ‘I feel that the managers see me and support me’, ‘In our company we have an active and visible commitment from the managers’, and ‘Our manager is a good example regarding quality’ The respondents are asked to mark on a seven-point agreement scale to what extent they agreed with the statements. The extremities of the scale were ‘Disagree completely’ and ‘Agree completely’. Health is measured in the form of self-report also based on the three items ‘I think my health is very good’, ‘I am hardly ever ill’, and ‘I am rarely tired’. Self-reported health has been shown to be a valuable indicator of health (Theorell and Vogel 2003) and consequently the questionnaire should provide a reasonable estimation of the health status of the employees.

The questionnaires were distributed internally by the company and it was treated so as to guarantee the anonymity of the respondents. Of 180 questionnaires delivered, 151 were returned, giving a response rate of 84%.
The qualitative part consisted of focus-group interviews (Seymour 1988) and in-depth interviews. Three levels in the company were examined, in that the operators/assemblers, operating managers and unit managers were interviewed. In total two focus-group interviews with operators/assemblers, three in-depth interviews with operating managers and two in-depth interviews with unit managers were carried out.

The empirical data from the interviews was analysed with methods inspired by the constant-comparison technique from the grounded theory approach (Glaser 1992; Glaser and Strauss 1967; Strauss and Corbin 1990). The interviews were conversational and only a general overall question for each value was asked. For instance, the question for the focus-group interviews regarding the value ‘Leadership commitment’ was stated as follows: “Describe how the managers work at your unit?” The corresponding question for the managers was “How do you show your commitment to quality?” The participants were encouraged to talk freely from the heart, and follow-up questions were asked frequently. Explicit questions were asked regarding what, in ‘leadership commitment’ and ‘participation of everybody’, is important for creating health among the employees.

We used a set of values that are recognized by a majority of authors, e.g. Bergman & Klefsjö (2003), as well as in the Swedish Quality Award, which is developed from the Malcolm Baldrige National Quality Award (NIST 2003). The following values were chosen: Leadership commitment, Participation of everybody, Continuous improvements, Customer orientation, Management by facts, and Process orientation. The questionnaire contained 37 statements, the first 21 being related to these values.

Findings

We examined the correlation between the adoption of the values and the employees health by calculating the Pearson correlation between the statements regarding the values and the statements regarding health for both the units. The results are presented in Table 1.
Table 1. Correlations between the values and the Health Index at both units.

As the table shows, statistically significant correlations were found between the Health Index and all the values, with a p-value as small as <0.000. The size of the correlations varies between .2 and .5, so many of the correlations can be considered quite high for this kind of study. The findings are in line with the previous research which has indicated that perception of the values and perception of one’s health are closely related.

In earlier studies ‘leadership commitment’ and ‘participation of everybody’ have been shown to correlate with employees’ perceived health (Lagrosen 2004; Lagrosen and Bäckström 2005). Moreover, they are strongly correlated with health from the findings above. In the next step we wanted to elaborate this finding and see what aspects of these two values that have this effect. For this purpose, dimensions were extracted from the interviews regarding these values. Four dimensions of leadership commitment were found, namely Empathy, Presence and Communication, Integrity and Continuity, and a description of them follows below. Then, a model of the dimensions is presented and described (Figure 1).

**Empathy**

The manager must show awareness and concern. Regular personnel development talk is an important part of this. The manager’s seeing and listening to the subordinate was considered important. He or she must be alert to the needs of the employees and understand their situation. A prerequisite for being successful with this is probably that the manager enjoys...
working with people and human relations. The operators also commented on the need for recognition and positive feedback when performing their work well – and not only the opposite, as one operator at the assembly unit said: ‘We only get noticed when something goes wrong’.

Presence and Communication

How the managers communicate is considered under this dimension. The company practises visible leadership, and this was also recognized and appreciated by the employees. The manager’s being easily accessible was perceived as important. It must also be very clear what the manager expects them to do. In this regard, a clear and distinct way to communicate was considered vital to have. The employees of both units were quite unafraid of telling their opinion and in general the communication was perceived as straightforward.

Integrity

This dimension deals with the manager’s own integrity. She or he should possess qualities such as independence, trustfulness and fairness. One operator at the machining unit said: ‘It is important that the manager does what he/she promises to do and works for us in relation to his/her own manager.’ In the fairness aspect, it was considered important that all employees were given the same possibilities for development. For managers it was considered crucial to take time for reflection in order to avoid just going ahead. Further, acting as a role model and providing good examples with a high level in both mood and attitude was considered vital. In addition, the independence aspect includes the ability to learn from others, for instance their mentors.

Continuity

Frequent changes of managers in the company were considered negative. Building up trust can take time and, in addition, what is said in the personnel development talks can more easily be neglected or forgotten when a new manager enters. High turnover among the employees also naturally leads to more difficulties in their collaboration.
Figure 1. A model of the dimensions of ‘Leadership commitment’ – the manager’s perspective

The flow between managers and employees is illustrated in Figure 1. This model takes the manager’s perspective. Thus, all dimensions are seen from the manager’s viewpoint. The manager needs to ‘take/read in’ information from the employees. The ability of the manager to collect information about the employees and understand their situation is dependent on his or her level of empathy. It is the process of ‘taking/reading in’ information that is empathy. How successful the employees are in being positively recognized, seen and heard is vital for their satisfaction at work. Ingredients in this flow could be love, respect and sympathy. Furthermore, the manager needs to be available for the employees. Thus, the information flow that goes from the manager to the employees concerns presence and communication. That the manager makes herself or himself seen and heard concerns other vital aspects of the leadership. The manager must possess integrity and act as a good example regarding for instance attitude, trust and fairness. In addition, there should be continuity and balance in everything, including absence of frequent changes of managers and employees.

Three dimensions regarding the value ‘Participation of everybody’ were also extracted from the interviews. These dimensions are Development, Influence and Being informed, and they are listed and described below. An illustration is provided in Figure 2.
Development
Both competence and personal development are included. A perception gap between managers and employees was found regarding competence development. The managers perceived competence development as something ongoing when the operators/assemblers learned something new at work, while the operators/assemblers equated it with joining an external course like learning to drive a truck. Joining an external course was attractive but perceived as quite rare. In general, to achieve personal development was perceived as equivalent to getting competence development.

Influence
Freedom in the work and possibilities to take a breather from time to time were considered to be important. In this regard, a fixed working pace was perceived as a hindrance. The employees perceived two levels of possibilities for influence. The operators commented that possibilities for influence were present in small things, not in the perceived big things like staffing. They felt comfortable in expressing their opinion, but were not always satisfied with the results.

Being informed
Communication in general is considered under this dimension, and especially getting enough information. It was considered important that the operating managers communicated with all the employees. Sometimes information falls between the chairs, and particularly in connection with changing of shifts. Between the shifts there exist some blaming and distrust, with speaking badly of each other, while this scarcely happens within the shifts.
Relating the dimensions to the quality movement literature

How do theory and practices in the quality movement literature support the dimensions and factors? Basic ideas from the quality movement can be recognized in all these dimensions and explanatory factors. In this section, each dimension is mentioned and related ideas from the quality movement are then presented. This is done first for the dimensions of ‘Leadership commitment’ and then for the dimensions of ‘Participation of everybody’. Thereafter the identified contributing factors for sick leave are similarly treated.

Empathy

According to Deming (1986) the aim of leadership is ‘to help people do a better job with less effort.’ In doing this effectively, empathic listening might be an important feature. Dale (1999) points out that the CEO must ensure that his or her organization really listens to what its customers are saying, what they truly need, and their concern. This customer information is the starting-point of the improvement planning process. Employees are seen as internal customers; hence this should also concern them. Oakland (2001) states that ‘it is all too easy to criticize mistakes, but it often seems difficult to praise efforts and achievements.’ Thus, efforts and achievements should be recognized and publicized.

Presence and communication – visible leadership

Dale (1999) and Oakland (2001) emphasize that communication up, down and across the organization is one of the most important features of the relationships between directors, managers and staff. Regular feedback needs to be made about any concerns raised by employees. Commitment to quality, and the improvement made, should be communicated to customers and suppliers. Senior managers need to visit, on a regular basis, every area to see what is happening in relation to TQM, give advice, and create good practice through leadership. Dahlgaard et al. (1998) hold the opinion that clear leadership is considered to be one of the two most important critical success factors of TQM.

Integrity

The importance of managers providing good examples and acting with quality in their own personal activities is recognized by, for instance, Bank (2000) and Warrack & Sinha (1999). Senior managers should demonstrate that they really care about quality, and lead and teach by example (Dale 1999). Oakland (2001) also emphasizes that leadership must be by example.
Continuity
Mobility of management and manpower (co-workers) is considered by Deming (1986) to be one of the deadly diseases afflicting most companies in the Western world. In the first of his 14 principles (constancy of purpose), he also emphasizes the importance of a long-term view. For example, he states that top management should publish a resolution that no one will lose his job for contributing to quality and productivity. The managers have to allocate resources for long-term planning and put resources into research and education for establishment of constancy.

Development
Oakland (2001) suggests that development, education and training must be related to needs and expectations. They must be planned and their effectiveness must always be reviewed. Dale (1999) points out that a company-wide education and training programme needs to be planned, and undertaken, to facilitate the right type and degree of changes. A planned programme of training is required to provide employees with tools and techniques on a timely basis. The importance of training is emphasized also by for instance Deming (1986), Juran (1989), Ishikawa (1985) and Dahlgaard et al. (1998).

Influence
According to Dale (1999) the people in the organization need to be empowered with responsibilities for continuous improvements. It is important that all employees feel that they can demonstrate initiative and that they have the responsibility to enact changes in their own area of work. Oakland (2001) recognizes that managers need to believe that people want to achieve, accomplish and influence activity, and that people do not need to be coerced to perform well. This is in line with McGregor’s (1960) Theory Y assumptions that people are basically bright, energetic, and trustworthy.

Being informed
Dale (1999) states that senior managers should never overlook the fact that people want to be informed on how the improvement process is progressing. ‘Being informed’ is closely related in this literature to the dimension of presence and communication. It is the responsibility of senior management to communicate organizational objectives, values, strategies and plans as well as the reasons behind them with the underlying logic.
Implications for practice

The findings have demonstrated how quality management can be used for improving employee health. A tentative model has been suggested. This model identifies which aspects or ingredients of ‘Leadership commitment’ are of importance to consider for creating health among employees. These are ‘empathy’, ‘presence and attendance’, ‘integrity’ and ‘continuity’. The manager’s capacity to influence employees’ health beyond superficial arrangements may rest jointly on the four dimensions described.

The study has hopefully shed some light on, and contributed additional understanding about, the relationship between quality management and employee health. Through increased knowledge and continuous improvements in the suggested direction, managers can improve the health of their employees.

Conclusions

The purpose of this study was to further explore the values of TQM and health regarding employees’ perceptions. The study showed statistical correlations between the values of the quality movement and the perceptions that employees have of their health in both of the examined units. The values of ‘Leadership commitment’, ‘Participation of everybody’ and ‘Continuous improvement’ had correlations of size 0.4 or higher for both units, which can be considered quite high for this kind of study. Thus, the results confirm a relationship between the performance of leadership and employees’ perceived health in the case company which is well in accordance with (Lagrosen 2004) and (Lagrosen and Bäckström 2005). Seeing the values as the basis for the culture of the organisation as suggested by (Hellsten and Klefşiö 2000) might explain how employees are affected by the values from a holistic point of view.

In the interviews, we have probed more deeply and identified details and mechanisms of these relationships. For participation of everybody, ‘development’, ‘influence’ and ‘being informed’ were found to be underlying dimensions. Dimensions for the ‘leadership commitment’ value were found to be ‘empathy’, ‘presence and communication’, ‘integrity’ and ‘continuity’. The ability of the manager to ‘take/read in’ information and understand the employees’ situation, as well as recognizing them when they are performing a good job, was considered important. The manager should be easily accessible and act as a role model by
being a good example in personal as well as professional life. The continuity dimension included balance and absence of frequent changes of managers and employees. These dimensions have then been traced back to fundamental ideas from the quality movement (Bank 2000; Bergman and Klefsjö 2003; Deming 1986; Juran 1989; Warrack and Sinha 1999) and shown to be in line with them. Other research pointing in a similar direction has found sustainable leadership for good health to be characterized by great humanity, a long-range perspective and a holistic view of management (Lagrosen and Bäckström 2005).

This study focuses not only on leadership but also on followership and leadership relationships, which are considered by some authors to be a neglected research area (Graen and Uhl-Bien 1995). The study has some limitations. The findings are from a Swedish production plant, and might be different in other contexts such as banks, stores or industry settings. In addition, data were collected from self-reported questionnaires that may include individual biases. Future research should be conducted to test the validity of the models, especially the ‘leadership commitment’ model in other settings and perhaps in different cultures. More research is also needed to further examine how the values of quality management affect employees’ perception of health and vice versa.
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Paper D

Leadership and Workplace Health Promotion - Successful organizations from a TQM perspective.


Submitted for publication.
Leadership and Workplace Health Promotion
- Successful organisations from a TQM perspective

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Abstract
There are a lot of organisations that have great problems with sickness absence and stress-related problems among their co-workers in the western world and especially in Sweden. At the same time there are organisations that have been awarded for showing excellence in leadership, internal partnership, working environment and profitability. This made us interested in examining how three Swedish organisations, successful in organisational performance and sustainable health, work and if their style of leadership conforms to Deming’s 14 points. The organisations studied are two manufacturing companies and one hospital. The paper presents and describes methodologies identified in these three organisations found to be critical for achieving these outcomes.

To find methodologies, data has been collected by brainstorming in groups of co-workers, structured in tree-diagrams and complemented with top management interviews. The methodologies were then analysed in relation to Deming’s 14 points to find correlations.

Main results are key-methodologies found in all three examined organisations. The methodologies correlate well with Deming’s 14 points and the established TQM factors and are described in the paper. Later, the TQM affect and contribution of good quality outcomes, good financial results and good health outcomes are discussed.

Keywords: TQM, health, leadership, health promotion, Deming’s 14 points, methodologies, performance, working conditions.

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Introduction

Sickness absence and stress-related problems have increased dramatically in several western countries during the last decade. Health promotion, as a process of enabling people to influence and improve their health, is often put forward as a way of reducing sickness absence. (WHO World Health Organization 1986) states that “to reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realise aspirations, to satisfy needs, and to change or cope with the environment.”

In Sweden, sickness absence increased by 150 per cent from 1995 to 2001. The costs for sickness benefit and disablement pension together were ten per cent of the Swedish Government total expenses at the end of this period (Utredningen om en handlingsplan för ökad hälsa i arbetslivet 2002). In 2002 the sickness absence curve started to decrease and has to some extent stabilised in recent years (Larsson et al. 2005), but is still on a high level. Sickness absence generates high cost for the organisations, for example in terms of recruitments for substitutes, productivity losses, etc. (Oxenburgh et al. 2004); (Årnonsson and Malmquist 2002). Besides immense costs, sickness absence has considerable impact on individuals, workplaces and societies (Bonato and Lusinyan 2004). In Sweden mental illness has increased from 18 per cent to 30 per cent between 1999 and 2003 (Riksförsäkringsverket 2004). According to (Janssen et al. 2003) the occurrence and causes of sickness absence are affected by several factors, including social, work-related, organisational and individual factors. This makes sickness absence a complex phenomenon.

Organisations that have reduced sickness absence and achieved sustainable health among their co-workers can witness increased organisational performance, see for instance (Harnesk et al. 2005). There is a well-known connection between a psychologically unsatisfactory working environment and a high frequency of sickness absence (Utredningen om en handlingsplan för ökad hälsa i arbetslivet 2002); (Dolbier et al. 2001). Work situations with little scope for self-determination, as regards one’s own work, and monotonous or non-qualified work tasks have been linked with poor mental well-being and physical health problems such as heart disorders (Karasek and Theorell 1990). (Arnetz 2002) states that the crucial points for organisational development and survival are competence, customer focus, motivation and capital.

Leadership values and approaches are often referred to as central components in health promoting activities. Some indications that leaders who adapt to Theory Y (McGregor 1960) have to some extent co-workers with better health have been noted (Larsson et al. 2006). According to (DuBrin 2004), the assumption underlying the study of leadership is that leaders affect organisational performance and that there is an abundance of research and opinion on
leadership based on the belief that leaders strongly influence organisational performance. According to (Shelley et al. 2002) an investigation of the impact of transactional (routine) and charismatic (inspirational) leadership on financial performance showed that transactional leadership was not significantly related to performance while charismatic leadership had a slight positive relationship with performance.

**Health Promotion and TQM**

Some studies also point to correlations between Total Quality Management (TQM) values and the co-workers’ perception of their health (Lagrosen 2004; Lagrosen and Bäckström 2005). Several researchers have also explored the connection between TQM and profitability, see for instance (Hendricks and Singhal 1999).

According to (Rahman 2004), the “softer dimensions” of TQM are much the same as the elements in the management theory. Rahman describes the soft factors as the behavioural aspects of management, such as leadership, human resource management, employee empowerment, training and education, loyalty and teamwork. Rahman also describes these soft factors as essentially human aspects. In the beginning of the 1980s, Dr. W. Edwards Deming presented a 14-point list that advocates a transformed approach to leadership (Deming 1986). According to (Anderson et al. 1994), some scholars have regarded the Deming’s management method as a new management theory. They also claim the 14 points are principles of transformation for improving the practice of management.

The 14 points are based on human values and ideals that are attractive even today and have been cited by many as very good examples of successful leadership (Bergman et al. 2003). Effective and human leadership is the key factor for successful organisations and the well-being of co-workers.

When we compiled and analyzed our results, we saw a high degree of human and relation-oriented aspects in the case-study organisations. This made us interested in examining how organisations, successful in organisational performance and sustainable health, work and if their style of leadership conforms to Deming’s 14 points.

The purpose of this paper is to present and describe methodologies identified in different organisations that have received awards for achieving sustainable health among their co-workers. The purpose is also to examine whether the identified key-methodologies support TQM according to W. Edwards Deming’s 14 points.
“The best workplace in Sweden”
The first step was to identify suitable case-study organisations. In Sweden an insurance company for occupational pensions, Alecta, is trying to turn the negative trend of sickness absence by instituting an award and a tool for organisational improvement aimed at stimulating health promotion. The award is entitled “The best workplace in Sweden” and is awarded to organisations that have shown excellence in leadership, internal partnership, working environment and profitability. Every year, one or several organisations in different categories are awarded the title of “The best workplace in Sweden” (www.alecta.se). They become best practice examples of healthy organisations that have attained sustainable health among their co-workers. The concept ‘sustainable health’ emphasises the subjectively graded well-being of co-workers in a sustainability perspective (Larsson 2004); (Bäckström et al. 2005). In this article, sickness absence figures are measured and presented. Other studies have shown correlations between subjectively graded health outcomes and sickness absence figures (Lindberg 2006).

Case descriptions
The examined organisations are Fresh AB, SÖS Emergency and Roxtec International AB. These organisations were selected since they have received the “Best workplace in Sweden” award and have therefore been recognised as successful organisations. They all implement long-term and strategic measures to promote sustainable health, decrease sickness absence and increase performance. The organisations have used a number of management methodologies, values and other systematic activities to reach their goals, as will be presented in the paper.

Case 1: Fresh AB
Fresh AB develops, manufactures and markets ventilation products for the indoor environment. The company was established in 1969 and has become a market leader in Sweden. The company is located in a little village called Gemla in the south of Sweden, not far from the town of Växjö. Its customers are wholesalers and retailers all over the world. In 2002, Fresh AB had 54 co-workers. Ninety-five per cent of the company is privately owned and the remaining 5 per cent is owned by a co-worker foundation. Fresh AB has made intentional efforts to have an equal mix between men and women and both young and older co-workers. More than 20 per cent are disabled in some way.

Fresh AB is a multi-national organisation with 15 co-workers in seven different countries. The average age is 40. All co-workers at Fresh AB are organised in customer teams. The teams are divided into customer-controlled teams, internal customer-controlled teams and leader teams. In addition, there are currently two persons working as executive managers. The leader teams and
the executive management are there to coach the other teams when they need help with bigger problems. All teams have full responsibility for activities from initial order to delivery and invoicing of customers. Together the members are responsible to their customers without any hierarchical levels.

The company is beautifully situated with a small river running almost through the middle of the factory and an open landscape around it. In addition, much work has been done to transform the redesigned mill building into a modern factory, with a specially designed interior. According to the co-workers, they have been very much involved in the development of the physical working environment at Fresh AB.

The present owner bought the company in 1990. The falling market nearly caused bankruptcy in 1993, and in 1994 a new executive manager was appointed. The new manager’s assignment was to make the company profitable in two years. Since 1995 the turnover has increased by 22 per cent on average every year, and in 2001, the company was designated “the best workplace in Sweden” by Alecta in the small organisation category. That year they had a sickness absence of only 8 days per person. The following year, a few co-workers had to stay home for a number of days because of accidents not related to their work, and the average days of sickness absence per person increased to 15 days. This is still low compared to the whole of Sweden where the average was 21 days per person (Riksförsäkringsverket 2002). In 2003, the average had decreased to less than 10 days per person at Fresh, but in the whole of Sweden the average was still 20 days per person (Riksförsäkringsverket 2002).

Case 2: The Department of Emergency and Accidents at South Stockholm General Hospital
South Stockholm General Hospital (’Södersjukhuset’) is a corporation owned by Stockholm County Council. The whole hospital has 3,600 co-workers. In the following text “SÖS Emergency” refers to the hospital’s accident and emergency department.

SÖS Emergency is the largest of its kind in northern Europe and every day, the department provides emergency medical care to more than one million people, who live or work in the centre of Stockholm. The department receives some 50 high-priority ambulance cases every day. In 2002 there were 397 full-time workers employed at SÖS Emergency.

The organisation at SÖS Emergency consists of one management group for the department, and four groups, each managed by one senior nurse. SÖS Emergency can be described as a flexible and flat organisation with short decision-making procedures due to delegated authority. All co-workers also participate in cross-functional work teams dealing with protection and development issues.
SÖS Emergency has deliberately chosen to have a diversified organisation. There are, for instance, speakers of 14 different languages in the department. In comparison with other departments at the hospital, there are more male co-workers. The department uses a work-time model that allows the co-workers to make their own work schedule. The work periods have different values and give full-time pay for part-time work.

The average number of days of sick leave at SÖS Emergency was around 15 days per person in 2001, 2002 and 2003. At the same time the average number of days of sick leave for the whole of Sweden was about 20 days per person (Riksfrälsningsverket 2002). In 2001 SÖS Emergency was nominated “the best workplace in Sweden” in the large organisation category.

Case 3: Roxtec International AB
Roxtec International AB is one of nine affiliated companies in the Roxtec group. Roxtec manufactures cable- and pipe-packing for three market areas: telecom, marine & offshore and industry. The company has three owners, all active in the management team. The Roxtec group employs 275 persons - 75 at Roxtec International AB which is suited in Karlskrona in the south of Sweden, 100 in other subsidiary companies and 100 in associated companies. Roxtec is a traditional hierarchical organisation, but the co-workers perceive the organisation as flat. This perception may be due to the fact that the co-workers have considerable authority to make own decisions and all co-workers have the opportunity to meet the customers in person.

Roxtec’s mission statement is “We seal the world” and it is a strongly value-based organisation with eight organisational core values; Market creators, Flexibility, Satisfaction, Profitable, Trust, Simplicity, Locally global and Rapid growth. These values were created in a process of co-worker participation in which all employees had the opportunity to discuss the organisational values in different seminars. The values are the foundation of Roxtec and serve as guidelines for all the co-workers in the organisation.

The financial results have been exceptionally good with an average growth of 36,5 per cent each year over the last decade. The net profit has increased by 240 per cent from 1998 to 2002, and the turnover was SEK 286 million (around USD 37 million) in 2002.

From 1998 to 2002, Roxtec showed very low sickness absence figures. In 1998, 2000 and 2002 the figures were 2, 5 and 3 days per person and year. Compared with other Swedish companies, Roxtec is significantly below average where the figures for the same years were 9, 12 and 13 days per person and year (Statistiska centralbyrå 2003). Roxtec in Sweden received the Alecta award for small organisations in 2003.
The research procedure
In TQM literature, the word methodology is used to denote an organisation’s approach, their way of working or their work procedure. According to (Bergman et al. 2003), methodologies and tools are needed to support the values and make them a part of the organisational culture.

To find out how successful organisations work, the three case organisations, recognised and awarded for their excellence in achieving sustainable health among their co-workers have been examined.

The research project started with study visits at each organisation to build up relationships, present the research project and to obtain an overview of the organisations. This was also the start of the data collection from relevant documents, articles and various documented studies. Next, data was collected by using brainstorming structured in tree-diagrams (Mizuno 1988) involving both groups of co-workers and the research team. To find the methodologies used by the organisations, we asked the co-workers; “why are you one of the best workplaces in Sweden”. Their different suggestions were then written down on post-it notes and placed on a white-board. Then the suggestions were discussed and when consensus was reached, the final suggestion was structured in the tree-diagram.

The next step was to further explore each of the suggestions to discover how it answered the first question. Continuing like this the idea was to, step by step, guide the group with new questions like “why?” “what is causing this?” and “how have you worked to achieve this?” The tree-diagram was concluded with an evaluation of the answers at the lowest level of the tree, the most detailed methodologies, to find out which issues were considered most important to the group. All documented data from the tree-diagrams were complemented by management interviews in all three organisations.

The aim has been to identify key methodologies that the three organisations have used and that are possible for other organisations to adopt. Thus, the tree-diagrams made by the co-workers and the leaders have been summarised and analysed. Sometimes it has been difficult however, to clearly separate methodologies from values and tools. Methodologies identified in more than one of the organisations were then analysed in the light of Deming’s 14 points to find correlations.

The importance of leadership
The importance of leadership and charismatic leaders has been discussed by many researchers over the years. Following this discussion, (DuBrin 2004) establishes that leadership deals with change, inspiration, motivation and influence. According to (Conger and Kanungo 1998) a charismatic leader has a special quality whose purposes, power and extraordinary determination
differentiate them from other leaders. Charisma is an important element of leadership as it lead to other behavioural outcomes such as commitment to the leaders, self-sacrifice and high performance (DuBrin 2004). DuBrin also states that a key dimension of charismatic leadership is that it involves a relationship or interaction between the leader and the people being led. So, the question is how a successful leadership can be characterised. In fact, (Nyberg et al. 2005) have made an attempt to summarise health-promoting factors in leadership and compared ‘bad’ leaders with ‘good’ leaders.

<table>
<thead>
<tr>
<th>With respect to health and job satisfaction</th>
<th><strong>‘Good’ leaders</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>show consideration towards subordinates;</td>
<td>Initiative structure when needed – especially in stressful situations;</td>
</tr>
<tr>
<td>initiate structure when needed – especially in stressful situations;</td>
<td>allow subordinates to control their work environment, give access to empowerment structures and opportunities for participation, autonomy and control;</td>
</tr>
<tr>
<td>inspire employees to see a broader meaning in their work;</td>
<td>provide intellectual stimulation;</td>
</tr>
<tr>
<td>are charismatic.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>With respect to health and job satisfaction</th>
<th><strong>‘Bad’ leaders</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>do not show consideration;</td>
<td>initiate structure without showing consideration, or deprive subordinates of participation, autonomy, and control;</td>
</tr>
<tr>
<td>initiate structure without showing consideration, or deprive subordinates of participation, autonomy, and control;</td>
<td>use only a transactional approach towards subordinates;</td>
</tr>
<tr>
<td>use only a transactional approach towards subordinates;</td>
<td>act in a laissez-faire way– do not respond to subordinates and do not monitor performance’.</td>
</tr>
</tbody>
</table>

The leadership in the three case organisations included all the health-promotion factors for a good leader as stated by (Nyberg et al. 2005). Both the workshops with the co-workers and the interviews with the top management indicated that the leaders show deep and genuine consideration towards subordinates. The leaders generally initiate structure at the work situation and in the organisations. The co-workers express this as ‘we know our work tasks’. At SOS Emergency, there is often a stressful situation where the patient’s life depends on the treatment the co-workers give and in such situation it’s very important to know what to do. We also found that the leaders allow subordinates to control their work environment, give access to empowerment structures and opportunities for participation, autonomy and control. One example of this is the statement made by some co-workers at Fresh; - “when we ask for
something to improve the physical environment, the leaders just ask when we want it. There’s never a discussion about whether we should have it’. The leaders inspire the co-workers to see a broader meaning in their work. At SÖS Emergency, this is natural as they save peoples lives and help injured people. At Fresh, the leaders state that their mission is to create values for others and at Roxtec the leaders have stated their mission as ‘We seal the world’ which has helped the co-workers to see their work in a wider perspective.

All three organisations provide intellectual stimulation through continuous education to all co-workers and through projects, cross-functional groups and systems for learning from each other. We can also establish that the leaders are charismatic not only by meeting and interviewing them but also because we can see that they engage with their co-workers.

**Identified key-methodologies**

In the book “Out of the Crisis”, Deming stressed the importance of top-management leadership, customer/supplier partnership and continuous improvement in product development and manufacturing processes. Deming showed mangers how to take their firms out of crises.

The first step in the transformation is to learn how to change by understanding the use of the 14 principles of transformation (see Table 1) and by handling the diseases and obstacles that stand in the way for the transformation, see (Deming 1986). Deadly diseases and obstacles stand in the way of transformation where the obstacles are easier to handle than the deadly diseases:

- Lack of constancy of purpose
- Emphasis on short-term profits
- Evaluation of performance, merit ration, or annual review
- Mobility of management
- Management by use only of known figures
- Excessive medical costs
- Excessive cots of liability.
### Table 1. Correlations between key-methodologies in each of the case-organisations and Deming’s 14 points.

<table>
<thead>
<tr>
<th>No.</th>
<th>Point</th>
<th>Case No.</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create constancy of purpose for improvement of product and service</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Adopt the new philosophy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cease dependence on mass inspection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>End the practice of awarding business on the basis of price tag alone.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Improve constantly and forever the system of production and service.</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Institute training</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Adopt and institute leadership</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Drive our fear</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Break down barriers between staff areas</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Eliminate slogans, exhortations, and targets for the work force</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Eliminate numerical quotas for the work force and numerical goals for people in management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Remove barriers that rob people of pride of workmanship.</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Encourage education and self improvement for everyone</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Take action to accomplish the transformation</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sum:** 87 1 0

The analysis shows that no methodologies for points one, four, ten, and eleven have been identified in the organisations. Although we haven’t identified any methodologies for point one, “create constancy of purpose for improvement of product and service” we can see the effects of working according to it as they all focus on long-term activities. The organisations are also working with constancy of purpose for improvements. Point four; “end the practice of awarding business on the basis of price tag alone” is a negative point and the fact that we didn’t find any methodologies supporting this point must be seen in a positive light. We have identified a good cooperation between customer and supplier at both Fresh AB and Roxtec International AB, and SOS Emergency cooperate with the whole society and take a holistic view thereof; all this is in accordance with Deming’s fourth point. Point ten, “eliminate slogans, exhortations, and targets for the work force” is also a negative point and the reason we couldn’t identify any methodologies for this point may be seen as proof that they actually have eliminated slogans, exhortations and targets for the work force. This could also be the reason regarding point eleven, “eliminate numerical quotas for the work force and numerical goals for people in management” as it is a negative point. The fact that we did not find any methodologies for point number eleven can be also an indication of earlier successful efforts to eliminate numerical quotas.
Do the organisations work according to Deming’s 14 points?
The organisations examined can be regarded as healthy organisations according to their attaining of sustainable health among co-workers and organisational performance. In fact, many of Deming’s management thoughts pervade the organisations in question and the fact that we did not find any methodologies for point four, eleven and twelve can be seen as a task already achieved as these points start with ‘end’ and ‘eliminate’.

Finally there’s just point one left without any methodologies supporting it but as we already have mentioned we have seen the results of working according to this point.

Identified key methodologies
The three organisations differ in several ways for example in terms of size, organisational form and ownership. Despite these different conditions, similar methodologies have been found in all of the three organisations. We call these key methodologies. The co-workers in all three organisations are aware of their customer; they know who they are there for and are creating value for. This gives the co-workers a holistic view of the organisations and sometimes the whole society and also a tendency towards cooperation.

All three organisations have a clear infrastructure for communication and information, with regular meetings in different constellations. Learning from each other is another methodology that was identified in all three organisations. There is job rotation, for example, where co-workers try out each others’ jobs, and the management also encourages work rotation in order to stimulate organisational learning. We have identified several projects and development groups set up with the aim of developing the organisation and the co-workers. The top leaders are charismatic and committed and have a good relationship with their co-workers. Further, the leaders care about and trust their co-workers. This gives the co-workers responsibility and authority to influence their work situation.

TQM and Health - Current Trends
Many articles about TQM have been published in the last decade. Most of them support the benefits of adopting the management philosophy in different organisations (Sila and Ebrahimpour 2002). Some have argued that TQM does not work but TQM seems to have survived this criticism since many organisations continue to implement it (Sila and Ebrahimpour 2002). In a study (Sebastianelli and Tamimi 2003) it is pointed out that most obstacles to TQM can be linked directly to ineffective change management. Many of the traditional core values and methods for TQM also seem to cover the social dimension to some extent (Bäckström et al. 2005). Recent studies also indicate this. These studies have pointed out statistical correlations between the values of the quality movement and the co-workers’ perception of their health.
(Lagrosen and Bäckström 2005). According to one study (Lagrosen et al. 2006), the most common factors for achieving healthy workplaces and creating efficient organisations is the commitment of managers; to maintaining the managers’ own commitment and inspiring managers on all levels to make ‘commitment to quality’ their first priority. Leadership for health promotion is an area where advancing knowledge could make valuable contributions to improving the health of populations (Andersson et al. 2005). The key is what capacity does an organisation have for health promotion. This is determined by both its will to act and the infrastructure in the organisation (Pearson et al. 1998). Organisations that demonstrate an overall democratic management style tend to plan and implement more workplace health promotion programs than those organisations demonstrating an overall authoritarian approach to management (Barret et al. 2005).

Below a discussion of different important TQM components in relation to other working life research will be presented. As several researchers emphasize, TQM has a strong participative component where every co-worker in the organisation should be involved in the quality work (Sila and Ebrahimpour 2002); (Bergman et al. 2003). This is well in line with research in the health field, where the demand-control-support model is a major finding which discusses the importance of the co-worker being able to control their own work situation (Karasek and Theorell 1990). Participation as a component also been shown to help improve both organisational outcomes (Eriksson et al. 2003); (Hendricks and Singhal 1999) and health outcomes (Karasek and Theorell 1990). Participation could be one important ground for TQM to develop further and incorporate findings from other research areas.

In a review from Sainfort et al. (2001) discussing Quality Improvement (QI) and Healthy Work Organizations (HWO), a proposal for integration of these two areas is made. The review concludes: “…by integrating Quality Improvements within the paradigm of the HWO paradigm, we will increase our understanding of the entire system and will be able to achieve greater improvements in the health…”. This type of integration is in our belief a must if we are to be able to create effective and healthy workplaces.

Working with process orientation is one of the cornerstones of TQM (Bergman et al. 2003) and could provide a better understanding of the whole system, especially together with a clear customer focus. A theory in the health area, Sense of Coherence (Antonovsky 1987), which has three different themes comprehensibility, manageability and meaningfulness, shows the connections between the different fields. However, too much of a focus on “sucking the air out of the system” in process-oriented concepts such as Lean Production could increase workload and reduce scope for recovery to such an extent that it produces negative health effects. This possible negative effect is well documented in the anthology of (Barklöf and Rådet för
Other studies have also showed results indicating no positive health outcomes from the implementation of TQM (Kivimäki et al. 1997) and also negative effects in the working environment (Bejerot and Hasselbladh 2002).

Continuous improvement could be both positive and negative where too much change could generate a feeling of worry which has been shown to cause ill-health (Szücs et al. 2003). At the same time change could be a motivational aspect and a challenge which could be positive for the co-worker and the organisation. We believe that job security for the co-workers should be seen as an important aspect to factor out the possible negative effects of continuous change programs.

The focus of the customer gives opportunities for recognition of the performed work and shows that the work is important for the customer. Another situation could be that a co-worker in contact with the customers is not able to give the quality level that he or she desires. This could be due for example to an organisational strategy with a low price and low quality segment focus, short-term revenue focus and providing scarce resources to the co-workers. The situation could lead to an internal value conflict between the co-worker and the organisational values, especially if the organisation proclaimed that service and quality is important but doesn’t follow that up in the everyday working situation. This has shown to be one factor which causes burn-out (Maslach and Leiter 1997). So once again quality and health aspects have common success factors, and a focus on high quality could be seen as positive for health outcomes.

Concerning the performance evaluation and the continuous improvement component in TQM, substantial contributions could be made to the health area by applying the tools that the quality area have used for such a long time to improve the quality outcomes. These tools could to a greater extent be used to improve the health outcomes, e.g. pareto chart or control charts.

To summarise we believe that TQM has the potential to provide organisations with knowledge on how to create organisations with a good quality outcomes, good financial results and good health outcomes. However, TQM has to be balanced and must continually incorporate research findings in other areas, such as for instance the health and healthy work organisation research areas discussed above. So a balanced and human TQM with an even greater focus on the internal customers and their health and working environment could be a desirable development of our research area.

Conclusions
Viewed through our analysis, it seams as though the three organisations examined are working according to W. Edwards Deming’s 14 points list. An investigation with 347 TQM articles written between 1989 and 2000, summarises the most frequent TQM factors; customer focus and satisfaction, employee training, leadership and top management commitment, teamwork,
employee involvement, continuous improvement and innovation, and quality information and performance measurement (Sila and Ebrahimpour 2002). All these established TQM factors also occur plainly in all three examined organisations. This can be evidence that the organisations are working according to TQM philosophy. The organisations have been recognised for their achievement in increasing health among their co-workers and that was the reason we picked them out for our research. Does this mean that working according to the TQM philosophy creates sustainable health among the co-workers? Insufficient research has been conducted to answer that question.

We can nevertheless establish that these three organisations are working with methodologies such as;

- customer orientation by giving the co-workers the opportunity to meet the customer in person and understand their own contribution to the customer
- creating an effective and personal infrastructure for communication and information
- providing all the co-workers with a holistic view through for example work rotation
- routines for learning from each other by for example improvement groups
- maintaining committed and charismatic leaders who give the co-workers responsibility and authority to influence their work.

Working with the methodologies described above, the three organisations have among other things improved co-worker health. Other organisations could probably adopt the methodologies and improve the health of their co-workers. We haven't identified any health-promoting activity as a key methodology in the organisations although we have spotted some health-promotion activities during our visits and research at the organisations. One probable reason for why we didn't find health-promoting activities as key-methodologies is that in our research we didn't specifically ask or search for such activities. We asked for important methodologies helping the organisations to become one of “the best workplace in Sweden”. Another reason for the lack of findings regarding health-promotion activities may be that they had become a natural part of the organisations and therefore the co-workers didn’t emphasise them. It is however reasonable to assume that the organisations have the will and the infrastructure for health-promotion activities. Most likely there are also other factors influencing the health of the co-workers and we realise that more research has to be done be able to draw conclusions on the connections between TQM and co-worker health.
References


Appendix 1

Descriptions of the studied organizations.
APPENDIX 1

Descriptions of the 5 studied organizations.
The descriptions of the organizations were carried out when the case study was made.

Organization 1: Fresh AB
Fresh AB develops, manufactures and markets ventilation products for the indoor environment. The company was established in 1969 and has become a market leader in Sweden. The company is located in a little village called Gemla in the south of Sweden, not far from the town of Växjö. Its customers are wholesalers and retailers all over the world. Ninety-five per cent of the company is privately owned and the remaining 5 per cent is owned by a co-worker foundation. In 2002, Fresh AB had 54 co-workers and the company has made deliberate efforts to have an equal mix between men and women and both younger and older co-workers. More than 20 per cent are disabled in some way.

All co-workers at Fresh AB are organized in customer teams. The teams are divided into customer-controlled teams, internal customer-controlled teams, and leader teams. In addition, there are currently two people working as executive managers. The leader teams and the executive management are there to coach the other teams when they need help with bigger problems. All teams have full responsibility for activities from initial order to delivery and invoicing of customers. Together, the members are responsible to their customers without any hierarchical levels.

The company is beautifully situated with a small river running almost through the middle of the factory and an open landscape around it. In addition, much work has been done to transform the redesigned mill building into a modern factory with a specially designed interior. According to the co-workers, they have been very much involved in the development of the physical working environment at Fresh AB.
The present owner bought the company in 1990. The falling market nearly caused bankruptcy in 1993, and in 1994, a new executive manager was appointed. The new manager’s assignment was to make the company profitable in two years. Since 1995 the turnover has increased by 22 per cent on average every year, and in 2001, the company was designated “the best workplace in Sweden” by Alecta in the small organization category. That year, they had a sickness absence of only 8 days per person. The following year, a few co-workers had to stay home for a number of days because of accidents not related to their work, and the average days of sickness absence per person increased to 15 days. This is still low compared to the whole of Sweden where the average was 21 days per person the same year, (Riksförsäkringsverket - Swedish Social Insurance Administration, 2002). In 2003, the average at Fresh had decreased to less than 10 days per person while the average in the whole of Sweden was still 20 days per person (Riksförsäkringsverket - Swedish Social Insurance Administration, 2002).

Organization 2: The Department of Emergency and Accidents at South Stockholm General Hospital

South Stockholm General Hospital (‘Södersjukhuset’) is a corporation owned by Stockholm County Council. The whole hospital has 3,600 co-workers. In the following text “SÖS Emergency” refers to the hospital’s accident and emergency department.

SÖS Emergency is the largest of its kind in northern Europe and every day, the department provides emergency medical care to more than one million people who live or work in the centre of Stockholm. The department receives some 50 high-priority ambulance cases every day. In 2002, there were 397 full-time workers employed at SÖS Emergency. The organization at SÖS Emergency consists of one management group for the department and four groups of co-workers each managed by one senior nurse. SÖS Emergency can be described as a flexible and flat organization with short decision-making procedures due to delegated authority. All co-workers also participate in cross-functional work teams dealing with protection and development issues.
SÖS Emergency has deliberately chosen to have a diversified
organization. There are, for instance, speakers of 14 different languages
in the department which also has more male co-workers than other
departments at the hospital. The department uses a work-time model
that allows the co-workers to make their own work schedule. The work
periods have different values and give full-time pay for part-time work.

The average number of sick leave days at SÖS Emergency was around 15
days per person in 2001, 2002 and 2003. At the same time the average
number of days of sick leave for the whole of Sweden was about 20 days
per person (Swedish Social Insurance Administration, 2002). In 2001,
SÖS Emergency was nominated “the best workplace in Sweden” in the
large organization category.

Organization 3: The maternity clinic of Motala Hospital
Motala Hospital has about 1,400 co-workers including 100 doctors. They
serve five municipalities with a total of 88,000 inhabitants with medical
care. Furthermore, they also offer preventive health care along with
education for student nurses. The maternity clinic offers service for
examination and treatment of gynaecological disease, pregnancy
supervision, delivery and maternity care and prevention, and they are
organized into two departments; one for obstetrics and one for
gynaecological disease. They have adopted a process-oriented approach
to their organization, a process that is focused on the patients. It is based
on the concept of the “care chain” which includes all activities seen from
the patient’s perspective. Three such care chains have been identified, all
in line with the three services offered, and the personnel and resources
have been organized in order to serve these chains. The quality work
started with a project in 1994 when the director, one middle manager
and one doctor received training as examiners for the Swedish Quality
Award. Since then, they have tried to implement TQM in the
organization.

Organization 4: An anonymous manufacturing plant
The studied company is an internationally active manufacturing
company with production and sales in approximately 100 different
countries. The plant performs contract manufacturing for customers in
Sweden, Netherlands, France and Poland. The plant has about 700 co-workers and the production operations are divided into two main areas: machining and assembly. In the machining unit, most of the operations are carried out in machining-centers supplied with automatic article handling. Assembly operations take place in manual lines fitted with modern equipment. The work at the machining unit is more technically advanced with programming of the machines etc. and the operators need a high level of education to work here, which is not the case at the line in the assembly unit. There are more women at the machining unit, 17% compared with 5% for the assembly unit, and the co-workers are somewhat older at that department. The personnel turnover 2004 was 5.5 % at the assembly unit while the machining had only 2.5 %. The priorities in everyday work are: safety and the environment, quality, delivery reliability, and costs. The common features that they focus on in their quality work concerning the whole company are: continuous improvements with improvement groups, standardized ways of working, visible leadership, customer-focus with the attitude that the customers come first, and a common quality assurance production system with capable processes and numerous ratios that are measured and followed up.

The overall sick leave of the company is relatively low. Compared with the industry sector it operates in, its overall sick leave is among the lowest with a 4.3 % sick leave for 2004. The company prefers to focus on a positive language and talks about the opposite to sick leave, which they call health presence. The health presence differs between the two main units machining and assembly. Several years ago, the assembly unit had lower health presence than the machining unit. In 2004, the machining unit had a health presence of 94,5 % compared with the assembly unit that had 92,5 %. For 2003, the numbers were 93,5 % compared to 91 % and in 2002, it was 93,2 % compared to 91 %.
The company has made calculations over the costs caused by the sick leave. The calculations are based on the average annual salary for 2004 and the absence hours of the company. The cost for temporary personnel and stand in staff and costs for social costs are included. The total costs for the whole company caused by sick leaves is calculated at 1 162 000 € per year. For machining, this calculated cost is 318 00 € and for the assembly unit, the calculated cost is 674 000 €.

**Organization 5: Roxtec International AB**

Roxtec International AB is one of nine affiliated companies in the Roxtec group. Roxtec manufactures cable- and pipe-packing for three market areas: telecom, marine & offshore, and industry. The company has three owners, all active in the management team. The Roxtec group employs 275 staff; 75 at Roxtec International AB which is situated in Karlskrona in the south of Sweden, 100 in other subsidiary companies, and 100 in associated companies. Roxtec is a traditional hierarchical organization, but the co-workers perceive the organization as flat. This perception may be due to the fact that the co-workers have considerable authority to make own decisions and all co-workers have the opportunity to meet the customers in person.

Roxtec’s mission statement is “*We seal the world*” and it is a strongly value-based organization with eight organizational core values; Market creators, Flexibility, Satisfaction, Profitable, Trust, Simplicity, Locally global, and Rapid growth. These values were created in a process of co-worker participation in which all co-workers had the opportunity to discuss the organizational values in different seminars. The values are
the foundation of Roxtec and serve as guidelines for all the co-workers in the organization.
The financial results have been exceptionally good with an average growth of 36.5 per cent each year over the last decade. The net profit has increased by 240 per cent from 1998 to 2002, and the turnover was SEK 286 million (around USD 37 million) in 2002.

From 1998 to 2002, Roxtec showed very low sickness absence figures. In 1998, 2000, and 2002, the figures were 2, 5, and 3 days per person and year. Compared with other Swedish companies, Roxtec’s sickness absence figures are significantly lower; the national average during the same years was 9, 12, and 13 days per person and year (Statistiska centralbyrå - Statistics Sweden, 2003). Roxtec in Sweden received the Alecta award for small organizations in 2003.
Appendix 2

Questionnaire
Frågeformulär

Ta ställning till hur nedanstående påståenden stämmer in på Dig och Dina arbetsförhållanden.
Svaren anger Du genom att ringa in siffror på en sjugradig skala (1-7).

<table>
<thead>
<tr>
<th></th>
<th>Instämmer inte alls</th>
<th>Instämmer helt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Jag känner mig stolt över kvaliteten på produkterna vi tillverkar.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2 Jag är nästan aldrig sjuk.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3 Jag har fullt ansvar och befogenheter att utföra mina arbetsuppgifter på mitt eget sätt.</td>
<td>1 2 3 4 5 6 7</td>
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<tr>
<td>4 Jag blir sedd och får stöd av mina chefer.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5 Här finns en atmosfär som stimulerar till kreativa förslag och nya idéer.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
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<tr>
<td>6 Vårt företag är organiserat runt de viktigaste aktiviteterna utan att hindras av formella gränser och positioner.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>7 Vårt företag har tydliga och mätbara mål som följs upp.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>8 Jag tror att våra kunder är nöjda med produkterna vi producerar.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>9 Jag är sällan trött.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>10 Jag känner att jag kan påverka min arbetssituation.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>11 Här har vi ett aktivt och synligt engagemang från ledningen.</td>
<td>1 2 3 4 5 6 7</td>
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<tr>
<td>12 Vi försöker alltid att utföra vårt arbete på bästa möjliga sätt även om det innebär att vi ofta måste byta arbetssätt eller omorganisera oss.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>13 Mina arbetsuppgifter baseras på verksamhetens behov utan att hindras av onödiga byråkrati.</td>
<td>1 2 3 4 5 6 7</td>
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</tr>
<tr>
<td>14 Ledningen för vårt företag baserar sina beslut på fakta.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
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<tr>
<td>15 Jag gör alltid mitt bästa för att underlätta mina arbetskamraters arbete.</td>
<td>1 2 3 4 5 6 7</td>
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<tr>
<td>16 Jag tycker att min hälsa är mycket god.</td>
<td>1 2 3 4 5 6 7</td>
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<tr>
<td>17 Jag kan påverka beslut som tas gällande företaget.</td>
<td>1 2 3 4 5 6 7</td>
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<tr>
<td>18 Vår ledning är ett föredöme när det gäller kvalitet.</td>
<td>1 2 3 4 5 6 7</td>
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<tr>
<td>19 Ständiga förbättringar utmärker företaget.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>20 Det är alltid någon som tar ansvar för varje del av vår verksamhet (dvs. ingenting faller mellan stolarna).</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>21 Jag har goda möjligheter att mäta och bedöma hur väl mitt arbete fungerar.</td>
<td>1 2 3 4 5 6 7</td>
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</tbody>
</table>

*This questionnaire was handed out to the co-workers at one of the manufacturing organizations, the questions were modified to each organization.*
<table>
<thead>
<tr>
<th>Nummer</th>
<th>Fråga</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>22</td>
<td>Min fysiska arbetsmiljö är bra.</td>
<td>1</td>
<td>2</td>
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<tr>
<td>23</td>
<td>Jag har god tillgång till förebyggande hälsovård.</td>
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<tr>
<td>24</td>
<td>Jag har tillräckligt flexibla arbetstider.</td>
<td>1</td>
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<tr>
<td>25</td>
<td>Mina utvecklingssamtal känns meningsfulla.</td>
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<td>5</td>
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<td>7</td>
</tr>
<tr>
<td>26</td>
<td>Jag trivs bra på mitt arbete.</td>
<td>1</td>
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<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>27</td>
<td>Jag får tillräckliga möjligheter att utveckla min kompetens.</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>28</td>
<td>Kommunikationen inom företaget fungerar bra.</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>29</td>
<td>Vi har en bra organisationsstruktur.</td>
<td>1</td>
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<td>7</td>
</tr>
<tr>
<td>30</td>
<td>Jag får goda möjligheter till personlig utveckling.</td>
<td>1</td>
<td>2</td>
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<td>7</td>
</tr>
<tr>
<td>31</td>
<td>Jag har ett varierande arbete.</td>
<td>1</td>
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<td>7</td>
</tr>
<tr>
<td>32</td>
<td>Stämningen är positiv på min arbetsplats.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>33</td>
<td>Min självkänsla är god.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>34</td>
<td>Alla förslag till förbättringar bedöms på ett bra sätt.</td>
<td>1</td>
<td>2</td>
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<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>35</td>
<td>De gemensamma aktiviteter vi har utanför arbetet är trevliga.</td>
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</tr>
<tr>
<td>36</td>
<td>Jag känner mig sällan stressad.</td>
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<td>3</td>
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<tr>
<td>37</td>
<td>Vi har goda möjligheter att se hur andra företag har det genom studiebesök och liknande.</td>
<td>1</td>
<td>2</td>
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