

Thesis 1160.

**AN ANALYSIS OF THE ROLE OF ORGANISATIONAL CLIMATE
UPON TRAINING EFFECTIVENESS:
A STUDY OF SMALL AND MEDIUM SIZED FIRMS
IN
BRAZIL**

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by

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ABSTRACT

AN ANALYSIS OF THE ROLE OF ORGANISATIONAL CLIMATE UPON TRAINING EFFECTIVENESS: A STUDY OF SMALL AND MEDIUM SIZED FIRMS IN BRAZIL

This study examines the influence of organisational climate upon training effectiveness, and to a lesser extent, considers the impact of organisational climate upon business performance. This impact will be considered in relation to the results of employees' training, as assessed by themselves and by supervisors and managers of the firms concerned in the Minas Gerais state of Brazil, the third most important economic region in the southeast part of Brazil. In addition, this study also examines the relationship between training effectiveness and business performance, as assessed by managers and deputy managers.

A survey was undertaken with forty-five small and medium-sized metal, pharmaceutical and electronic firms and a total of 225 workers, 90 supervisors and managers were interviewed for this study.

Based on the correlational analysis performed, the results of this research indicate that a favourable and positive organisational climate as perceived by workers, does account for training effectiveness, in terms of results of workers' training, as assessed by themselves, supervisors and managers alike. Also, the findings of the

research indicate that a favourable and positive organisational climate greatly accounts for business performance, as assessed by managers only. Finally, the study concludes that training effectiveness and business performance are related, but not as strongly as it could be expected.

The area covered in the survey was the capital city of the Minas Gerais state, Belo Horizonte; the industrial city of Contagem, the second most important city in economic terms near Belo Horizonte, and finally, the industrial cities of Itauna and Divinopolis, in the southwest part of the Minas Gerais state.

The study raises a number of practical issues: firstly, at the level of national Training Policies, the Brazilian Government might like to re-direct its training policies and strategies, in terms of the effectiveness of training courses/programmes; secondly, at an organisation level, the managers and entrepreneurs need to give more emphasis to organisational climate; thirdly, at the level of the workforce, the employees of the industry need to be more aware of the benefits of a positive organisational climate within the firms in which they work. Finally, at the level of researchers and writers, this study gives an opportunity to either replicate the conclusions reached or to widen the field by doing further studies in this area.

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CHAPTER 1: INTRODUCTION

1.1 Research Background

The study of the role of organisational climate upon training effectiveness in small and medium sized firms in Brazil, is an important area of research, mainly because of the importance of these firms to the Brazilian economy. More than 90 per cent of Brazilian firms are small and medium sized, which means that these firms are responsible for the generation of jobs and profits, they help preserve the market economy, by preventing unemployment in Brazil. To conclude, these firms are finally important because they have a much lower cost per created job than the large firms.

The author intends to analyse the influence of organisational climate upon training effectiveness, as the main focus, and upon business performance in small and medium sized firms in three industrial settings, mainly because it is expected that the effects of organisational climate on the results of workers' training and business performance will be different.

1.2 The General Problem Area

The general area of this study concerns

Organisational Behaviour and Personnel Management (Training) and the setting for this study is that area of small and medium sized metal, pharmaceutical and electronic industries in the Minas Gerais state of Brazil, in the southeast region of Brazil, a very dense industrial area.

The area to be covered in the survey will be the capital city of the Minas Gerais state, Belo Horizonte, with a population of around three million people and the city of Contagem, the second most important city in economic terms. Finally, the area of the survey will include two other industrial cities in the southwest of the Minas Gerais state, namely Itauna and Divinopolis respectively.

1.3 Research Objectives

The objectives of this study are broadly managerial and behavioural, as well as attempting to know more about the relationships between factors affecting training effectiveness and business performance.

Specifically, this research will investigate whether organisational climate affects the results of workers' training (training effectiveness) in terms of behaviour

change and final results, and whether or not organisational climate affects business performance. Also, the research will investigate to what extent training effectiveness and business performance are linked.

If organisational climate does affect training effectiveness and business performance, the research will attempt to discover the nature, extent and significance of such an influence.

1.4 Significance of the Research

In this section, consideration will be given to the findings of earlier investigations into the effect of organisational climate upon training effectiveness and business performance, as a framework to justify the importance of this research. Furthermore, the findings of earlier research are seen as full support for the significance of this study. In addition, this section is also aimed at stressing that this specific piece of work is additive to the bulk of the literature associating results of training (training effectiveness) and business performance, and organisational climate and results of training.

Before showing the contribution of this study to the

current level of knowledge about the relationship between results of training and business performance, and organisational climate and results of training, it is useful to begin by reviewing the studies conducted in this field. The main reason for that is to give an overview about this issue, because there is an extensive body of literature in this area.

The first part reviews the findings of preliminary research associating results of training and business performance.

To begin with, preliminary research suggested that there is a link between results of training and business performance, indicating therefore that business performance and training go hand in hand. This has recently been confirmed by the 'Small Firms Survey' (1986), conducted by the Manpower Services Commission. In addition, Negandhi and Prasad (1971) found that the more 'positive' a particular management philosophy, the more effective in both financial and behavioural terms, the firm appeared to be.

With regard to this issue, Nicholas (1980) found that two of the industry firms of his study (electronic, textile, pharmaceutical and services industries) were deemed to be 'successful' and in both of these, the

prevailing organisational climate was associated with a marked perceived feeling of employee confidence in a committed management, able to show effective performance together with a sense of belonging to a well-considered firm.

Next, is presented a review of preliminary research related to the role of organisational climate upon training effectiveness. Bearing in mind the link between organisational climate and results of training programmes, there are numerous examples of studies conducted in this area, whose illustrations are presented below.

Baumgartel et al (1984) report the findings of a research programme aimed to assess the role of selected personality variables and organisational climate in moderating the effects of training, involving 260 individuals and 246 Indian managers. Building on the results, they found that, irrespective of the quality of the educational programme attended, employees who were relatively high in need for achievement and who believed in the value of management education, were more likely than others to apply new knowledge and skills on the job. Also, they found that organisational climate affected the extent to which this knowledge was applied. The authors conclude that the most favourable organisational climate was characterized by appreciation of performance and

innovation, a rational evaluation and reward system and openness in relationships among managers.

Baumgartel et al (1978), in another study of this issue, point out that employees in a favourable organisational climate, i.e. freedom to achieve personal performance goals, encouragement to take risks and goal-oriented, are most likely to apply new knowledge. In addition, employees who have innovative skills, i.e. high need achievement and high activity levels, among others, are most likely to adopt new practices. In short, their findings seem to indicate that the more favourable the climate, the better the employees' performance is likely to be.

The study conducted by Lindley (1984), in which he associates the relationship of organisational climate to employees' performance, suggests that a favourable organisational climate will motivate the employee to reach the highest potential of effectiveness. This author also found a favourable organisational climate will release the potential within employees, under a participative management and other means of positively involving employees.

Bell and Margolis (1985) found that organisational climate is vital to adult learning in a training

situation, because a supportive and encouraging organisational climate encourages risk taking and experimentation, which are essential to productive growth. On the basis of that, the authors suggest that such an organisational climate emerges through the trainer's words and actions. Also, the authors present suggestions to create a productive and positive climate, by focusing on before and during the session and on the leader's attitude and language.

With regard to this issue, Bell and Kerr (1987) report the results of a study of 96 participants (secretarial staff) in a training programme, designed to determine whether trainees learned the skills presented in the programme under favourable conditions (participation and openness). On the basis of the results, they found that the majority of the participants reported that the techniques and principles learned during the training, helped them perform their jobs more efficiently and that the relationship with their supervisor improved as a result of the programme attended.

Hand, Richard and Slocum (1973) present the results of a longitudinal study, related to a human relations programme that taught a consultative approach to management. They employed two experimental groups: one who perceived their organisational climate as favouring a 'consultative' approach and the other who viewed their

organisation as less democratic and more structured. Eighteen months after the course, the results showed that the group from 'consultative' organisations had received significantly higher performance ratings than the other training group. The authors conclude that the 'consultative' group had returned to an organisational environment that supported the attitudes and behaviour learned in the training, while the other group returned to a less reinforcing organisational environment. Furthermore, the more supportive the climate, the better the results of training.

Nicholas (1980) found that organisational climate and the nature of the job were important correlates of job satisfaction, with organisational climate being the most important.

With respect to the relationship between a supportive organisational climate and effective organisation's outcomes, Heller et al (1982) found the more positive the climate, the more effective is the work or work unit. In addition, they also found that firms high on climate, also tend to have participative systems, which can indicate that a positive and favourable organisational climate tends to lead to more effective organisational outcomes.

Bearing in mind the link between climate and success

of management training, Clement and Aranda (1982) point out that the organisational setting to which the trainee returns, is an important factor which accounts for the success of management training, in the sense that the organisational climate in which the trainee works can have marked influences on a manager's attempt to apply concepts learned in a training programme.

With respect to the relationship between climate and training, Clement (1981) points out that organisational climate probably affects the outcomes of training, that is the climate to which a trainee returns probably influences the extent to which the trainee is able to use the knowledge, skills and attitudes learned in the training.

Regarding the same issue, House (1968), in a study on leadership behaviour, found there are three factors that account for the transfer of training to the job, as follows:-

- a) the formal authority system within the firm, i.e. the objectives, policies and practices established by management, by which the trainee must abide;
- b) the immediate superior's right to administer rewards and punishment: for instance, the way the superior encourages the trainee to apply principles learned in a training programme, will foster the training to be more likely to transfer to on-the-job setting;
- c) the trainee's primary work group, that is expectations

of co-workers and the immediate subordinates of the trainee.

Apart from these recent studies relating organisational climate and results of training, there are also a few studies conducted in the 1950s, reporting the same kind of relationship.

To illustrate a few, Hariton (1951), quoted by Clement (1978), studied the reactions, learning and improvements in job behaviour of trainees in a course in human relations principles, by employing experimental and control groups. The author found foremen from the experimental division in which subordinate satisfaction improved (level three), perceived their organisational environment to be more supportive of the training principles than did the foremen from the experimental division where subordinate satisfaction decreased. This means that training foremen in new human relations techniques is most effective when they are motivated to change, when the environment (climate) within which they work leads to change and when the attitudes and practices of higher levels of supervision, are consistent with the content of the training programme.

Bearing this in mind, Goodacre (1955) demonstrated that improvements in job behaviour were influenced by organisational variables external to the training, such as

the leadership style of the trainees' superior, the leadership expectations of the trainees' primary work group, the formal properties of the organisation and the motivation of the trainee regarding the intended improvements in job behaviour.

In order to conclude the review of the studies about the influence of organisational climate upon training effectiveness, Fleishman (1953), in a classical study conducted in this field, found that both favourable reactions and resultant learning occurred after a human relations course that taught foremen to be more considerate to their subordinates. In addition, the results of this before-and-after evaluation showed 'a general increase in "consideration" attitudes during the course' (p. 212).

With regard to the findings of this study, Fleishman (1953) notes the new attitudes depended upon the supervisory style of the trainees' superiors and the leadership expectations of the trainees' subordinates. It was also found that the behaviour of foremen who returned to 'climates' consistent with what was taught in training, conformed more closely to the leadership expectation of their work groups. On the other hand, no such improvement was found among foremen who returned to climates 'at variance with the training course' (p. 220).

Other studies have shown that the more supportive the organisational climate, the better the job performance, productivity and job satisfaction. In order to illustrate this point, it is very useful indeed, to report the findings of Kaczka and Kirk (1968), who found that performance of the firm is significantly affected by organisational climate, and therefore concluding by affirming that 'the most efficient levels of performance result are achieved when concern for cost effectiveness is combined with concern for the employees of the organization' (p. 277).

With regard to that, Fredericksen (1966) found that employees who were subject to a climate which was perceived to encourage innovation, problem-solving and the adoption of new ideas, produced greater productivity than one where procedural rules and regulations were predominant. The author also demonstrated that inconsistency in climate perceptions was associated with lower predictability of organisational performance.

Bearing this in mind, Friedlander and Greengerg (1971) found workers who perceived their climate as supportive, had a higher level of performance than those who perceived it to be less supportive. Likewise, those who perceived the climate as more supportive, were assessed by their trainers to be more competent, with a

tendency to achieve a higher level of performance.

The study conducted by Hall and Lawler (1969) showed that better results were more likely where the climate was perceived as dominant, active, tough and competitive, whilst Cawsey (1973) found that salesmen were rated by their supervisors as higher performers if they perceived their organisation to be achievement-oriented.

Fritchard and Karasick (1973) found that a highly supportive climate was 'likely to be associated with higher satisfaction' (p. 143) and the authors conclude that high job satisfaction, irrespective of the respondents' individual difference, was most likely to be related to a highly supportive climate. Similarly, Downey, Hellriegel and Slocum (1975) found that individuals who perceived their climate as having a reward system characterized by encouragement, lack of threats and generally slanted towards good human relations, performed better than did those who perceived their climate in a similar fashion but who were less sociable. Friedlander and Margulies (1969), on the other hand, indicated that organisational climate is a major determinant of individual job satisfaction.

The study conducted by Hitt (1976) indicated that the climate most predictive of effective intensive technology

was found to be one high in warmth and friendliness, with standards of performance and challenging assignments, one that emphasizes positive rewards for good performance. Finally, Peterson (1975) found that employees under a more supportive leadership style and employee-oriented, for both process and unit technologies, both intrinsic and extrinsic motivation, were greater than the case for production under conditions of mass assembly.

In conclusion: from the above review, there appears to be no doubt that an individual's perception of his organisational climate has influence on the results of training (training effectiveness), business performance, job satisfaction and performance, and as such, these findings are seen as full support for the significance of this study.

This study is concerned with metal, pharmaceutical and electronic industries because, among other reasons, these industries have something in common and, due to technological requirements, nature of work and specific skills, they use intensively training programmes as a tool to prepare and maintain manpower to accomplish specific goals and to stimulate people to work better.

The research aims in this way to contribute to both the academic and practical aspects of management, not only in terms of the firms concerned, but also in terms of

contribution for the government, employees, trainers and researchers (the scientific forum).

Many studies have focused on the importance of organisational climate and its relationships with training, productivity, job performance and satisfaction.

This research attempts first of all to analyse the role of organisational climate upon training effectiveness, and secondly, upon business performance. In doing so, this research is seen as significant for the following reasons:-

- 1) The importance of the organisational climate concept to practical management.
- 2) The role of employee training, not only as an investment in the workforce, but also as a tool to prepare people more effectively to perform their working tasks.
- 3) The transfer of training to job performance, depends on the existence of a climate in which workers are encouraged to put their training into practice on return to-the-job setting and this can only be achieved if there are effective working relationships between supervisors, trainees (workers) and trainers.
- 4) Business performance is seen more as the interaction of individuals within the firm and the organisational processes/procedures/techniques, rather than the consequence of efficiency, profit maximization and

effective management policies and strategies only.

The purpose of this research is to investigate the influence of organisational climate on the results of workers' training programmes (training effectiveness) and business performance, to associate the results of workers' training programmes with business performance and, on the basis of that, to make recommendations for further research related to this area. Also, the methodological limitations, the main implications of this study and the usefulness and importance of organisational climate, as a concept, to practical management, will also be critically assessed.

1.5 Research Themes

By operationalizing the research questions into a research design, to generate empirical data and analytical results, the author hopes to:

- establish an understanding of what kind of influence organisational climate has on the results of workers' training programmes (training effectiveness), as the main focus, and thereafter on business performance;
- identify if there is a strong and positive link between the results of workers' training (training effectiveness) and business performance;
- determine if there is a differential impact of

organisational climate upon the results of workers' training (training effectiveness) and business performance.

1.6 Methodological Limitations of the Study

The scope of this study is to examine current opinion on the relationship between a supportive and positive organisational climate as perceived by workers, and the results of training (training effectiveness) and business performance. In other words, the primary purpose of this study is concerned with the use of measures of climate in the prediction of industrial training effectiveness and in the prediction of business performance.

The prime concern of this study is with the correlates of organisational climate and training effectiveness, in terms of the results of workers' training, as the main focus, and secondly, with the correlates of organisational climate and business performance, training effectiveness and business performance, over a comparatively short period of time, two years.

This study is concerned with the following key variables organisational climate, training effectiveness

and business performance. This research does not state that there are no other key variables, nor is there any claim to identify all the factors exercising a constant or semi-constant influence on the results of workers' training programmes (training effectiveness) and business performance.

The present study is designed to take a snapshot of the industries under consideration at one given time; it does not allow more than one test and there is no control group against which it is possible to compare an experimental group. Likewise, the research strategy does not incorporate any before-and-after techniques and hence it is not possible to determine any time sequence of variables, nor, as a direct consequence, to draw any causality inferences.

The research considered only the industries which have invested on workforce training and as such, the effectiveness of training was assessed on the basis of the amount of money spent on training. Consequently, no attempt was made to compare the industries which have invested on training with those which have not, and hence it was not possible to assess the effectiveness of training and business performance on the basis of that comparison.

The findings and conclusions drawn from the empirical

study are based on respondents' views and limited only to the effectiveness of the results of workers' training of the participating industries.

Within the research programme considerable effort, in fact the major effort, is slanted towards establishing the extent of any association between the independent variable (organisational climate) and the dependent variables (training effectiveness and business performance).

1.7 Organisation of the Study

This study is divided into six chapters, Chapter 1, 'Introduction', presents the research background, the general problem area, the research objective, the significance of the research, the research themes, the methodological limitations of the research and finally, an organisation of the study.

In Chapter 2, 'Organisational Climate', the importance of organisational climate in terms of both the definition and construct is examined, not only as an independent/intervening variable, but also as a moderating/dependent variable. In addition, attention is drawn to previous research on climate and the most used measure of organisational climate, as perceived by workers

in small and medium sized firms in Brazil is presented and explained.

Chapter 3, 'Evaluation of Training', outlines the importance of personnel training, presents the definition of training to be used, highlights the importance and definition of training evaluation, gives an overview of previous research on the evaluation of training, discusses the approach to be adopted so as to evaluate the results of workers' training and finally, presents the strategy to assess training effectiveness.

Chapter 4, 'Research Methodology', outlines the research strategy/design adopted and discusses the general approach to hypotheses testing, in terms of sampling, data collection, timing of data collection, coding and the whole analytic procedures and techniques used to analyse the empirical data of this research.

Chapter 5, 'Analysis and Discussion of Results', gives details of the results generated by the research and the testing of hypotheses. In addition, systematic statistical analysis is performed on the data generated from the survey, by using mainly non-parametric correlation techniques. Specific use is made of the Statistical Package for the Social Sciences (SPSSX).

The last chapter, Chapter 6, 'Conclusions and

Recommendations', considers the research results with respect to the theoretical framework. Conclusions are reached and recommendations are made for further studies, on the basis of the author's findings. In addition, the methodological limitations and the main implications of the study are outlined and the usefulness and importance of organisational climate, as a concept, for practical management, is presented.

Next, will be presented and discussed in detail the content of Chapter 2, 'Organisational Climate'.

CHAPTER 2: ORGANISATIONAL CLIMATE

This Chapter embarks on an examination of the current literature on the importance of organisational climate, in terms of both definition and concept (construct). Organisational climate is considered both as an independent and intervening / moderating variable, and as dependent variable. In addition, considerable attention is given to previous research on organisational climate and the advantages and disadvantages of particular measures of climate which are revealed in previous studies. Finally, the survey instruments (questionnaire) to be used in this study as the measure of organisational climate, as perceived by workers, in small and medium sized firms in Brazil will be introduced and justified.

The whole development of this Chapter is therefore geared to presenting, discussing and building up a theoretical background which supports the independent variable of this study, namely organisational climate itself.

Next, the first section outlines the importance of organisational climate, by presenting and discussing the major definitions of climate.

2.1 Introduction

First of all, it is an assumption of this study that employees, as a whole, regardless of other motives and reasons, form opinions and attitudes, in connection with their jobs, and base their actions on the understanding of their position. This means that the way employees perceive their working situation, is crucial in determining the type of behaviour they will adopt in the organisation. To illustrate this, it is interesting to observe that changes in organisational structure, for example, policies and practices leading to greater participation and changes in personal policies increasing the degree of autonomy and freedom, will have profound effects on both individuals and the organisation.

Within the literature organisational climate, although influenced by external factors / images and reputation of the organisation, marketing policies and strategies, among others / is described mainly as being a part of the whole organisational environment. It is regarded primarily as an internal characteristic of the firm reflecting, therefore, the 'net outcome' of both the organisational and individual interactions that take place. Hence, it is capable of change which simply means that a positive change in organisational climate can bring about positive results not only in terms of organisational

effectiveness, but also in terms of enhancement in employee attitudes and behavioural responses within the organisation.

Some studies have shown that individual behaviour is influenced in some way by the environment. Forehand and Gilmer (1964) found that environmental characteristics, such as organisational structures, economic conditions of the firm and management attitudes can considerably affect employees. For instance, they can limit employee behaviour in the case of autonomy, forms of reward, punishment, modes of managerial behaviour, among others. In addition, Litwin and Stringer (1966) found that different situations cause or arouse different needs and that the actual environment (organisational climate) can work in different ways depending upon the different individual needs present within the firm. Also, the same authors, in a stimulating study (1968) found that different leadership styles cause different organisational climates and that the positive differences / favourable and encouraging climate / resulted in better productivity, better group attitudes and increased job satisfaction.

With respect to this same issue, Frederickson (1966) used climates created independently by the so-called 'in-basket' technique, whose main features consist in creating different climates by manipulating administrative procedures, for instance, to create firms that compete in

a simulated business game. Building on the results, he found that climates created in this way were good predictors of task performance, innovation and problem-solving. In addition, he also found in another study (1968) that inconsistent climates had a negative result on productivity. A restrictive climate, for instance, tended to lead to merely formal and bureaucratic procedures.

Regarding the same issue, Sorcher and Danzig (1969) found a strong association between work group and feedback processes, whilst Cawsey (1973) demonstrated that employees who favourably perceived their climate tended to be higher performers than those who perceived their climate less favourably. In addition, Pritchard and Karasick (1973) concluded that a supportive climate is likely to be linked with the enhancement of job satisfaction, regardless of the employee's personality characteristics.

The next section will present and discuss the main definitions of organisational climate and on that basis the definition of climate to be used in this study will be put forward.

2.1.1 Organisational Climate Definition

Organisational climate plays an important role in organisational behaviour and as such, has been studied by

many writers and researchers. Based on the literature on climate since the end of the 1950's, it is possible to identify what appears to be a common feature among writers and researchers: namely climate is viewed through the individual's perceptions of the various dimensions/characteristics/factors of the internal environment of an organisation.

There are many definitions of climate but the most widely cited in the literature are those of Forehand and Gilmer (1964), Tagiuri and Litwin (1968) and Schneider (1970, 1975). In general, the various definitions of organisational climate stress that it is a relatively enduring quality of the internal environment, it is perceived by the members of an organisation, it is distinct from one organisation to another and it is descriptive of systemic conditions and practices. Moreover, as Drexler (1974, 1977) has empirically demonstrated, organisational climate is different from other environmental variables and consequently, it is a real property of the organisations. Climate, then, is an attribute of organisations (Schneider and Reichers, 1983) and it is in this sense that it will be considered here.

Bearing in mind the nature and purpose of this study, organisational climate will be defined in connection with the research instrument to be chosen to measure climate as perceived by workers in small and medium sized firms in

the Minas Gerais state of Brazil. Consequently, the type of definition presented here will be that employed in the 'Survey of Organizations - SOO' Questionnaire (A4 - 1969 Questionnaire, Taylor and Bowers, 1972), complemented by Bowers (1973), whose specific and full details will be highlighted in the appropriate section of this Chapter, called 'measures of organisational climate', in section 2.3.

Taking the above considerations into account, the concept of organisational climate is defined as an enduring set of conditions and practices characterizing an organisation which is experienced by its members and which influences their behaviour. In addition, the operationalization of this definition of organisational climate will include the following four dimensions:

- a) Human Resources Primacy:- the importance the organisation is seen as placing on its employees;
- b) Communication Flow:- The manner and extent of information flow (vertically, diagonally and horizontally);
- c) Motivational Conditions:- the system of rewards present in the organisation for motivating individuals and the relative supportiveness of the systemic environment itself;
- d) Decision-making Practices:- whether decisions are made unilaterally or with input from affected parts in the

organisation.

As previously stated, the reasons for adopting such a definition of climate will be given in section 2.3 and the complete operationalization of this definition will be presented in more detail in Chapter 4: Research Methodology, in the section related to the analysis procedures.

Next, some consideration will be given to the concept of organisational climate and its importance throughout the literature.

2.1.2 The concept of Organisational Climate

A survey of the literature on climate indicates that by the beginning of the 1970's, the concept had received widespread attention, mainly due to its relationships found with job performance, job satisfaction, productivity, leadership, training and personality factors. In addition, it was recognized that it is a difficult concept to define adequately and an even more difficult one to measure.

With regard to this issue, Campbell et al (1970), in an attempt to rationally develop the concept of organisational climate, grouped a set of variables called 'situational' or 'environmental' under four categories, namely structural properties (variations in technology

employed), environmental characteristics, organisational climate and formal role characteristics. On the basis of this typology, organisational climate is seen as only one of the four situational variables. However, organisational climate is more than a mere situational factor, because, among other reasons, any change in the environment, i.e. a change in the competitive position of the firm or the adoption of a more centralized style of management, for instance, will certainly have profound effects on the existing organisational climate.

According to Payne and Mansfield (1978), 'in recent years considerable attention has been focused on the concept of organizational climate in an attempt to understand the processes by which organizational structure and managerial strategies affect the motivation and attitudes of individual employees' (p. 209). This fact shows by itself the importance of the concept of climate to practical management hitherto.

Field and Abelson (1982) note that 'over the past twenty-five years there has been a great deal of research published concerning organizational climate' (p. 181). In addition, they also add that the concept of climate is important because it shows a conceptual relationship between analysis at both the organisational and individual level and that various studies have suggested that climate

influences the attitudes and behaviours of people in organisations. Bearing this in mind, they point out that climate is independent both conceptually and methodologically of other constructs. In addition, there is empirical evidence of the links between climate and other variables and climate may be worthwhile for organisational development efforts. With respect to this, the authors finally observe that 'climate is an important construct to be integrated into organizational behaviour systems theory' (p. 192) and that as a result, 'climate is seen as a very useful construct' (p. 194).

Similarly, Schnake (1983) points out that 'organizational climate had received a great deal of attention over the past twenty-five years' (p. 791), mainly due to its suggested links with other organisational issues found in several studies in this field, namely organisational climate and job satisfaction, organisational climate and job performance, organisational climate and leadership behaviours and finally, climate and the quality of work group interaction.

Regarding the same matter, Schneider and Reichers (1983) observe that 'organizational climate has been a popular concept for theorizing and research for some time' (p. 19). In addition, they add that the recent methodological advancements in climate work tend to indicate 'that the climate construct provides a useful

alternative to motivational explanations of behavior at work, adds a needed emphasis on the importance of group phenomena in organizational research, and has resulted in some clarification and refinement of the construct itself' (p. 20). They conclude that 'climate emerges out of the interactions that members of a work group have with each other' (p. 30). Finally, Glick (1985) mentions that 'organizational climate research had a prominent, if not glorious, history in organizational science' (p. 601).

As a final comment on this topic, it is useful to point out that organisational climate has been studied not only as an independent or intervening/moderating variable, but also as a dependent variable. This topic will be discussed in more detail in the following section, entitled 'previous research on climate', which examines some studies which employ the concept firstly as an independent variable and thereafter, as an intervening/moderating and as a dependent variable, too.

2.2 Previous Research on Organisational Climate

The first studies about climate were conducted in laboratories simulating industrial firms that employed climate dimensions as independent/intervening variables. Frederickson (1966) was first in the field and found that

innovative climates brought about greater productivity and more predictable task performance. Employees working in a consistent climate had more predictable performance than those working in non-consistent climate and that employees used different work methods, depending upon the climate in which they worked. Litwin and Stringer (1968), on the other hand, studied the influence of leadership on the motivation and behaviour of organisations and found that different styles of leadership can create different climates and once created, such climates affect motivation and correspondingly performance and job satisfaction. In the former example, the authors used climate as an intervening variable.

Various studies using organisational climate as an independent variable, emphasizing organisational procedures and practices indicate that it affects job satisfaction, job performance and productivity. With respect to job satisfaction, the studies conducted by Litwin and Stringer (1968), Kaczka and Kirk (1968), Friedlander and Margulies (1969), Schneider (1972, 1973), Pritchard and Karasick (1973), Downey, Hellriegel, Phelps and Slocum (1975), Schneider and Synder (1975), among others, have all reported that an employee's job satisfaction changes according to his perception of his organisational climate. In addition, Frederickson (1966 and 1968), Kaczka and Kirk (1968), Hall and Lawler (1969), Friedlander and Greenberg (1971), Schneider and Hall

(1972), Schneider (1973) and Nicholas (1980), also have shown evidence that climate and performance, and as a result, productivity, are related.

As a general conclusion, from the above literature survey there appears to be strong evidence that an employee's perception of organisational climate has marked influence on job satisfaction, job performance and productivity.

A few studies have employed organisational climate as an intervening variable and have investigated the relationships between human relations training programmes, oriented towards leadership styles, managers' personality needs and their relationships to job performance and satisfaction. In addition, these studies also have concentrated on co-worker behaviour, tasks and activities undertaken.

The studies undertaken by Watson (1973), Schneider (1973), Holloman (1973), Marrow, Bower and Seashore (1967), Hand, Richard and Slocum (1973), Costley Downey and Blumberg (1973) can be seen as illustrations of empirical research employing climate principally as an intervening variable, where, human relations programmes, leadership styles, co-worker behaviours, tasks and activities undertaken and managers' personality needs,

were used as independent variables and job performance or satisfaction, as dependent variables.

Regarding this issue, Schneider and Hall (1972), Lawler, Hall and Oldham (1974) conclude that organisational climate seems to be affected by factors which directly affect an employee's daily experience (tasks/activities). Newman (1975), on the other hand, found that perceived work environment can actually be seen as an intervening variable that can explain the relationships between objective organisational structure characteristics and job attitudes.

Organisational climate has also been employed as a moderating variable which exercises an influence over the attribute-predictor relationship in human response. In addition, the work of Schneider (1975), Schneider and Hall (1972), Lawler, Hall and Oldham (1974) and that conducted by Newman (1975) can be seen as examples of studies of climate as a moderating variable, whose findings, as a whole, lead to the conclusion that individuals form a generalized perception of their organisation as a result of experiences within that organisation and that, generally speaking, perceived job attitudes are related to those perceptions.

The bulk of the literature regards climate in terms of attributes perceived by individuals and, in addition,

these attributes have nearly always been focused on some aspects of organisational life, for example, personal relationships, responsibility, rules and orientation, autonomy and resolution of conflict. In this sense, climate as a moderating variable, assessed against descriptions of organisational practices and produres, is seen as a moderating influence over the attribute-predictor relationship in human response.

From the above examples, it appears quite clear that climate intervenes, or moderates the effects of human relations programmes, leadership styles, managers' personality needs, organisational structures, co-worker behaviours and tasks and activities done (job activity).

Organisational climate has also been employed as a dependent variable, as an understanding of the causes of climate perceptions. This is illustrated by the work of Dieterly and Schneider (1974) who found that, in relation to T-group training programmes, climate is affected by the position level, degree of participation in decision-making and orientation toward customer. George and Bishop (1971) showed that climate is affected by structural properties of the organisation (formalization and centralization). Holloman (1973), on the other hand, indicated that climate is affected by training programmes in terms of problem-solving effectiveness. Finally, Payne and Phesey (1971), Schneider and Bartlet (1970), Schneider and Hall (1972),

Sorcher and Danzig (1969) and Stimson and LaBelle (1971), Litwin and Stringer (1968), among others, also employed climate as a dependent variable, and they found that climate is affected by feedback process, organisational structures, leadership style, amount of activity performed and change in management.

To conclude, on the basis of the current literature on climate, it is quite evident that climate, as an understanding of the causes of climate perceptions in relation to T-group training, is affected in various ways in terms of more or less formalization and centralization, degree of participation and problem-solving.

As a general conclusion of this section, Table 1-A, below, summarizes the organisational climate studies, by showing how different researchers treated climate as an independent, intervening, a moderating and dependent variable.

TABLE 1-A: SUMMARY OF ORGANISATIONAL CLIMATE RESEARCH

Variable	Research Paradigm		No. of Studies
	Main Focus	Findings	
Independent	procedure and practices in terms of interpersonal relations, a cause of attitudes or behaviour.	climate affects job satisfaction, job performance and productivity.	17

Intervening	relationships between T-group training programmes, slanted towards leadership styles, managers' personality needs and their relationships to job performance and satisfaction and co-worker behaviour, tasks and activities undertaken.	climate is affected by factors which markedly affect employee's daily tasks and activities.	9
Moderating	potential importance of climate as a moderating influence over the attribute-predictor relationship in human response.	individual's perception of their organisation are derived from the experiences found within that organisation and hence job attitudes are related to this perception.	4
Dependent	an understanding of the causes of climate perceptions.	climate is affected by these factors: position level, degree of participation, the structural properties of the organisation, training programmes in terms of problem-solving effectiveness, feedback process, organisational structures, leadership type, amount of activity performed and change in management.	9

Source: Section 2.2, Chapter 2.

In the next section there will be a detailed discussion of the most frequently employed measures of organisational climate, in terms their merits and demerits and, in addition, the instrument (questionnaire) to be used to measure climate will be presented, taking into consideration the nature and purpose of this study.

2.3 Measures of Organisational Climate

As said previously, organisational climate has received much attention over the past twenty-eight years, mainly because of its importance in terms of its proposed relationships to various organisational phenomena, especially in the case of job satisfaction, job performance, productivity, training, leadership behaviour and work group interaction.

The most widely used measures of climate are perceptual, probably because objective characteristics are not easy to pinpoint, are somewhat remote from behaviour and, affect organisational members only indirectly. In addition, these perceptual measures of climate seem to vary considerably in the number of dimensions of factors they are purported to measure, ranging from four (1 - autonomy, 2 - structure, 3 - reward and 4 - consideration, warmth and support), according to Campbell et al (1970), to

twenty-four dimensions (Payne and Pheseey, 1971).

According to the current literature on this matter, although the major climate instruments are perceptual, they are clearly intended to be descriptive, rather than evaluative and, as Taylor and Bowers (1972) point out, the intent of the organisational climate scales is to ...

"... clearly evoke perceptual rather than attitudinal of other types of response; that is, they stimulate, or are intended to stimulate, the responding participant to orient himself with the specific facts and express his opinion as to how he perceives those facts, not whether he 'likes' them or not" (p. 63).

Likewise, as Hellriegel and Slocum (1974) properly point out, 'climate instruments allege to describe work environment whereas satisfaction instruments serve to evaluate them' (p. 256-257), and on the basis of that, it seems reasonable to conclude that the instruments employed to measure climate, according to the literature, are quite different from those intended to measure job satisfaction, whose main intent, in this case, is to evaluate, rather than describe work environment.

With regard to this issue, Howe (1977) found that descriptions of situations usually differed from

evaluations of situations and in this sense, he comes to the same conclusions reached by Hellriegel and Slocum (1974), and Taylor and Bowers (1972).

Based on the literature review (Woodman/King, 1978, Schnake, 1983), it is quite evident the instruments most frequently employed to measure the organisational climate of an organisation, are Halpin and Croft's (1963) Organizational Climate Description Questionnaire, best known as OCDQ; then, Likert's (1967) Profile of Organizational Characteristics - POC; Litwin and Stringer's (1968) Organization Climate Questionnaire - OCQ; Campbell and Pritchard's (1969) Organizational Climate Questionnaire: Experimental Form; Payne and Phesey's (1971) Business Organization Climate Index - BOIC; Schneider and Bartlett's (1968, 1970) Agency Climate Questionnaire - ACQ and finally, Taylor and Bowers (1972) Survey of Organizations Questionnaire - SOO.

The choice of the climate instruments to be used to study workers in small and medium sized firms in the Minas Gerais state of Brazil, will be based upon the discussion of these instruments, taking into consideration their frequency of use, reliability, validity, and their original purpose.

Next, a detailed analysis and discussion is presented

on the instruments most widely used to measure organisational climate.

2.3.1 Analysis and Discussion of the Instruments

A. Halpin and Croft's OCDQ

This instrument was designed originally to assess climate in school, and as such, the item content clearly reflects this original purpose. It has sixty-four items, geared to describing statements about the organisation and they are then distributed into eight scales, namely disengagement (ten items), hindrance (six items), esprit (ten items), intimacy (seven items), aloofness (nine items), production emphasis (seven items), thrust (nine items) and consideration (six items). In addition, the first four scales refer to teacher's behaviour and experience whilst the last four ones, on the other hand, refer to principal's behaviour.

This measure was originally used to assess the extent to which each of eight organisational climate dimensions exists within a public school organisation. In addition, Margulies (1965) revised this OCDQ instrument so that each of the items within the eight climate dimensions was applicable to any organisational setting. Later, Friedlander and Margulies (1969), made another review of this instrument, trying to adapt the first four scales so as to describe work group members', whilst the last four were intended to describe supervisory behaviour. The

authors used this measure with the adaptation in a study of 95 production workers, aimed at assessing the relationship between organisational climate and job satisfaction. Also, George and Bishop (1971) employed Halpin and Croft's instrument in a study of 296 teachers climate of the school. Earlier research with this instrument is reviewed by Lake and Miles (1973) and used in schools and thereafter its use was extended to hospitals in the work of Lyon and Ivancevich (1974), Wallace, Ivanévich and Lyon (1975). Finally, it was extended to R and D organisations, through the study undertaken by Waters et al (1974), who factor analysed the eight OCDQ scales, revised by Friedlander and Margulies (1969) and they found that the internal consistency of the scales was reasonable, ranging, on average, from .51 to .80.

Conclusion: the frequent use of this OCDQ instrument in measuring organisational climate, reveals its importance as a reliable instrument. However, it is limited in scope (school), it also covers only a few dimensions of climate and above all, due to its original purpose, it is therefore barely viable to conclude it can be extended to any organisational setting, as Margulies (1965) suggests. Likewise, it is not recommended in this study (three industrial sectors) because, among other reasons, its dimensions are not particularly useful in

measuring the climate perceived by workers in small and medium sized firms. In addition, the dimensions of OCDQ measure, appear to tap, as a whole, mainly individual characteristics, rather than organisational properties.

B. Likert's Profile of Organisation Characteristics - POC

Likert's (1967) designed his POC instrument to classify management systems. In this instrument, each of its fifty-one item, has a 20-point response continuum worded so as to represent the four systems, namely exploitive and authoritative (System 1), benevolent authoritative (System 2), consultative (System 3) and participative (System 4). In addition, in this instrument the items form eight main categories, aimed at measuring perceptions of leadership process used, character of: motivational forces, communication process, interaction-influence process, decision-making process, goal setting or ordering and control processes and finally, performance goals and training (Likert, 1967, p. 197-211).

. Likert's POC attempts to measure causal factors which help, in turn, to establish the organisational climate and, in the end, to bring about effectiveness in the form of high productivity and satisfaction and , as hoped, low absenteeism and labour turnover. In addition, according to Hodgets and Altman (1979), by employing the POC instrument, an organisation has an initial point for determining, among others, (a) the climate that actually

prevails in each category, (b) what it should be and finally, (c) the types of changes that have to be taken to achieve the described profile.

In short, this instrument consists of a comprehensive set of statements about the functioning of an organisation, to which employees are stimulated to respond on a five-point Likert-type scale. Also, this measure was devised principally for use with managers and supervisors. In addition, this POC measure is based upon Likert's view about participation and as such, is based upon his System 4, participative group, which is seen to perform the best job by employing the firm's human assets and, therefore, by bringing about greater employee motivation and more favourable attitudes will, according to Hamblin (1974), yield more effective organisational performance.

In order to get an overview of Likert's metatheory, Table 1-B, below, outlines the main points of Likert's four Systems schema.

TABLE 1-B SUMMARY OF ORGANISATIONAL AND PERFORMANACE CHARACTERISTICS OF LIKERT'S DIFFERENT MANAGEMENT SYSTEMS

Organisa- tional Variable	System 1	System 2	System 3	System 4
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1. Leader- ship pro- cess used (confidence /trust)	no confid- ence/trust in sub- ordinate	condescen- ding con- fidence/ trust in sub- ordinate	not com- plete con- fidence/ trust in sub- ordinate	complete confidence/ trust in subordinate
(freedom to discuss)	no freedom to discuss	not much freedom to discuss	a bit of freedom to discuss	complete freedom to discuss
2. Charac- ter of mo- tivational forces (motives)	fear, threats, punishment and occa- sional re- wards	rewards and some actual/ potential punishment	rewards, occasional punishment and some involve- ment	rewards based on compensation via parti- cipation
(responsib- eibility)	the lower the level, the lesser the res- ponsibility	little responsi- bility	some sug- gestions accepted and used	suggestions always accepted and used
3. Charac- ter of com- munication process (interac- tion)	very little	little	quite a bit	much, with both indi- viduals/ groups
(direction)	downward	mostly downward	down and up	down, up and with peers
4. Charac- ter of in- teraction- influence process (inter- action)	little and always with fear and distrust	little, usually with some condescen- sion, fear and caution	moderate interac - tion, often with fair con- fidence and trust	extensive, friendly interaction and high degree of confidence and trust
(cooperat- ion)	none	relatively little	moderate	very much in the whole orga- nisation
5. Charac- ter of decision-	mostly at top of or- ganisation	policy at top and other de-	general policy and decisions	decisions made via overlapping

making process (level)		decisions made at lower levels	made at top, more specific decisions at lower levels	groups in the whole organisation
(involvement)	not at all	no involvement, only occasional consultations	usual consultations but no involvement in the decision-making	full involvement in all decisions related to work
6. Character of goal setting/ordering (manner)	orders issued	orders issued, with little or no comment on them	goals/orders issued after discussion with involved parts	goals generally established via group participation
(acceptance)	goals openly accepted but in fact strongly resisted	goals openly accepted but in fact resisted to a moderate degree	goals openly accepted but sometimes with not declared resistance	goals fully and clearly accepted
7. Character of process (degree of concentration)	highly concentrated in top management	relatively highly concentrated, some delegation at middle/lower levels.	moderate downward delegation of review and control between lower and high levels	general responsibility for review and control at all levels
(informal organisation)	it is present and opposes goals of formal organisation	it is usually present and partially resists goals	it may be present and can either support or partially resist goals of formal	formal/informal organisation well integrated and unique: all efforts made to achieve organisational

Source: Likert (1967), pp 4-10, Table 2-1.

With regard to this issue, Hamblin (1974) points out that Likert believes that a participative organisation is inherently better than an authoritarian one. Likert thinks this type of organisation is both more acceptable to employees and also more effective. Also, the replies to Likert's POC seem to ratify this point: they are scored on a scale ranging from System 1 to System 4 and as such, a change in direction of System 4 is regarded to be a change for the better.

Despite the fact the Likert's POC has been designed to classify management systems in his System 4 schema, this instrument has, according to Woodman and King (1978) been frequently used as measure of organisational climate. In addition, it has also been employed to assess changes resulting from evaluations of organisational development programmes and in some human relations training programmes, too.

Golembiewski and Carrigan (1970) employed Likert's POC in a laboratory study of T-group training, involving 96 salesmen, by using climate as a dependent variable. The results seem to indicate the usefulness of the Likert POC instrument, for assessing change in organisation

climate. However, the authors observe that further and more detailed analysis is needed to ascertain whether organisations differ significantly, so that the laboratory study is most suitable for one system of management, as measured by the Likert POC, but not another. Incidentally, Golembiewski et al (1971) also employed the Likert POC to measure organisational climate as a dependent variable in a T-group training, with 96 salesmen and they found that employee's perceptions of the climate were affected by training. In addition, Golembiewsky (1970) also employed Likert's instrument to assess changes resulting from T-group training.

With regard to this issue, Hand Richards and Slocum (1973) also employed Likert POC in a study of organisational climate, by using climate as an intervening variable, with 42 middle managers after eighteen months of a human relations training course. They found employees who perceived the organisation as 'consultative' and who participated in a human relations training course, had greatly enhanced their performance, as compared to employees who perceived the organisation as autocratic.

Holloman (1973) used the Likert POC in a study of 21 city managers, employing climate as a dependent variable and found that significant changes took place in their problem-solving effectiveness and that by providing an

atmosphere of sincere acceptance and mutual support, the climate was changed so as to look like System 4.

Bearing this in mind, Marrow et al (1967) employed the Likert POC in a study comprising 27 managers and supervisors, using climate as an intervening variable, found the climate of the organisation changed to become directed toward System 4 after the change in top management. This change in climate was followed by enhancement in productivity, reduction in costs and in manpower turnover and finally, by reduction in time it took to train employees. Watson (1973), on the other hand, also employed Likert POC in a study of 30 managers, by using climate as an intervening variable. He found that employees who perceived the firm as 'consultative' and who participated in the training programme, were not assessed significantly better performers by the supervisors and workers than those employees who perceived the climate to be less participative.

With regard to this matter, Hollmann (1976) employed a reduced version (eighteen items of the Likert's POC) in a study of 111 managers in three main departments of a western utility firm and found that 'organizational climate and managerial assessment of MBO effectiveness are positively related' (p. 570). In this study, the instrument, according to the author, presented acceptable reliability and reasonable construct validity, with a

corrected reliability coefficient of .93.

Although frequently used as a measure of organisational climate, the Likert POC instrument has not been submitted to much scrutiny or analysis of the measuring instrument. In addition, despite the fact that none of the other users of the instrument, as far as the literature on this issue is concerned, apart from Hollmann (1976), had provided reliability or validity data. Also, Likert reports on the reliability data only when he mentions corrected split-half reliabilities (Spearman-Brown) of .90, .97 and .99 respectively, for groups of 78, 70 and 61 managers (Likert, 1967, p. 122). In addition, he also refers to factor analytic work undertaken to identify the main dimensions of the questionnaire, but even in this case, he gives no evidence of any reliability data, and as such, his instrument remains highly vulnerable to criticism, in terms of an statistically reliable instrument.

Bearing this in mind, Likert's POC has therefore been questioned in its validity and in Likert's key belief according to which individuals everywhere, have the SAME views about the BEST organisational climate. In order to illustrate this point, Golembiewski and Munzenrider (1975) employed the Likert POC as a descriptive measure of interpersonal and intergroup climate of work sections.

The learning designs seemed to lead to System 4, sometimes with a great emphasis. However, on the basis of the self-reported profile data, respondents under System 4 prescores DID not increase or even maintain their scores and the authors conclude that respondents who attributed System 4 to their firm, have scored higher on an independent measure of social desirability factor than respondents who described their organisational climate in terms of other systems. Finally, the authors note that this intriguing result is a clear evidence of criticism for Likert's POC instrument, in statistical terms, that is as an empirically reliable instrument.

Following the same reasoning, Rackham et al (1971), quoted by Hamblin (1974), in a study using samples of managers in large firms which was aimed at assessing their most effective and least effective subordinates in terms of 86 behavioural characteristics, found that there were considerable climate differences between companies, together with a generalized difference between Britain and USA. Building on the findings, the authors properly observe that this fact clearly appears to contradict Likert's POC instrument in terms of his views of System 4. In addition, Butterfield and Farris (1977), in a study of 256 employees in 13 Brazilian development banks, found that whilst the employees want participative methods they recognized that their organisation employs autocratic or consultative methods. In addition, factor analyses did

not bring about the first six dimensions proposed by Likert's theory and as a result, factors were only partially consistent over time and for different hierarchical levels. On the face of this data the authors conclude by saying that Likert's Organization Profile scores were unrelated in terms of objective measures of organisational effectiveness but were positively related to employee satisfaction and as such, the theory of Likert's four System measured by POC, was only partially supported.

Payne and Pugh (1976) note Likert POC did not use his brilliant differentiation among causal, intervening and end-result variables and in order to give evidence of that, the authors classified nineteen of the twenty-one of Likert POC items as causal variables and they add that this fact alone demonstrates some degree of inconsistency with Likert's grouping of the variables. In addition, the authors classified these causal variables as measures of organisation, rather than measures of organisational climate. Finally, the researchers conclude that Likert's measures were inadequate to test hypotheses which related structural and climate variables and as such, Likert's POC is highly open to criticism. In addition, Beehr (1977) tested the theoretical dimensions of the Likert POC instrument in order to check whether or not it could be replicated empirically, by employing the cluster analysis

technique in a study with 592 employees of a Canadian continuous process firm. The results indicated that the hierarchical cluster analysis DID not replicate all the theoretical dimensions of Likert POC, which means that only leadership, communication and control clusters, included the majority of the items in the corresponding theoretical dimensions. Furthermore, the author concludes by saying that the other dimensions of Likert POC require significantly more attention and consideration.

Conclusion: from the above survey, it is clear that Likert's POC has been largely employed to measure his theory of participation (System 4). Our survey of its use, through the examples presented, reveals that it is clearly directed toward managers, supervisors and salesmen/bank employees. As such it is a positive instrument in the sense that it measures what it was supposed to measure. However, taking into consideration some inadequacies of this instrument (criticisms) which emerged and bearing in mind that it was not originally designed to measure organisational climate, it is clear that this instrument is not the most appropriate to be used to measure organisational climate as perceived by workers in small and medium sized firms. Consequently, it will not be used in this study.

C. Litwin and Stringer's Organisation Climate

Questionnaire- OCQ

Litwin and Stringer (1968) designed the OCQ instrument to collect member's perceptions of, and subjective responses to, the organisational environment. In this case, the climate of an organisation was defined as the sum of perceptions of individuals working in that organisation. In the OCQ instrument, organisational climate is considered as an intervening variable, mediating the relationship between organisational factors and motivation tendencies. In addition, the OCQ model was first employed in laboratory experiments, whose final results showed that different organisational climates could be created through the process of using a variety of leadership styles. Also, this OCQ model was developed to test the hypothesis according to which different environments require or arouse different types of motivation and in this specific case, the authors of the OCQ model based their motivational theory upon the work of Atkinson (1964) and McClelland et al (1953). In order to test their motivational theory, Litwin and Stringer (1968) used groups of individuals playing a business game and, by experimentally manipulating leadership style, they were able to bring about different climates which aroused, as a consequence, different needs and that success in these different climates was then dependent upon arousal of the appropriate types of motivation. Finally, the authors conclude that the main purpose of the OCQ instrument was

to measure individual perceptions of the organisational climate.

The OCQ instrument contains a total of fifty items about an organisation in general, geared to asking the respondent to reply by employing a scale ranging from 'Definitely Agree' to 'Definitely Disagree' in a Likert-type response mode.

The Litwin and Stringer's questionnaire was divided into nine separate a priori scales, namely structure (eight items), responsibility (seven items), standards (six items), reward (six items), risk (five items), warmth (five items), support (five items), conflict (four items) and identity (four items).

With regard to statistical reliability, the authors report that seven of the nine scales showed good scale consistency and that only the reward and conflict scales have shown low consistency. In addition, in order to validate this instrument, over a period of time the authors designed an improved version of the OCQ model, called Form B, geared to measuring the nine dimensions and administered it to around 500 managers, supervisors, technicians, specialists and salesmen in a wide range of firms. Based on the results conclude that the OCQ instrument had reasonable scale consistency, with mean

intercorrelation ranging from .19 to .49. Also, they add that the conflict scale was not employed in this study, because, among other reasons, it was reported to be measuring different properties of climate and as such, it was not consistent with the other climate scales. Finally, scale independency was good, although the warmth, identity and suport scales have shown highly strong inter-correlations (ranging from .57 to .69, respectively) and on the face of that, the authors conclude from their validation studies that 'their OCQ instrument has considerable empirical validity' (p. 187).

With respect to statistical analysis, previous factor analytic studies of the OCQ model have not given sufficient support to the nine a priori dimensions of this instrument. Bearing this in mind, Sims and LaFollette (1975) employed the OCQ instrument in a study aimed at assessing the organisational climate of a medical centre (a Midwestern medical complex), with 961 individuals of all levels and the results of this instrument were submitted to both factor analysis and tests of statistical reliability of both the original nine a priori scales and of the derived factors. After factor analysing the results, the authors concluded that the majority of items in the Litwin and Stringer's questionnaire (OCQ) collapsed into two broad general factors, namely 'Affect Tone towards People' and 'Affect Tone towards Management', which, according to the authors, 'appears to capture the

essence of what the climate instrument is actually trying to measure or describe' (p. 35). They also observe that this fact would tend to confirm that this instrument puts a strong emphasis on 'people' in the organisations.

Sims and LaFollette (1975) also examined the statistical reliability of their findings and compared them with original nine a priori scales. The analysis performed showed that the two main factors, namely 'Affect Tone towards People' and 'Affect Tone towards Management' presented high reliability levels indeed (where $r=.92$ and $.82$, respectively). The two other factors, namely 'Policy and Promotion Clarity' and 'Openness of Upward Communication', on the other hand, have shown very acceptable reliability criteria, whilst the two last factors, namely 'Job Pressure and Standards' and 'Risk in Decision-making' had quite low reliabilities. In general, the authors add, the derived climate factors brought about higher reliabilities than did the original Litwin and Stringer's scales and they conclude that in fact, four of the nine a priori dimensions, namely responsibility, risk, standards and conflict had reliabilities far below an acceptable level.

With regard to this issue, Muchinsky (1976) repeated not only the work of Sims and LaFollette (1975), but also expanded the theoretical and practical implications of

organisational climate research, by analysing the data from two similar studies (Litwin and Stringer and Sims and LaFollette's work). He used in his study the B Form of Litwin and Stringer (1968) OCQ and, from a total possible sample of 8000 people in a large public utility organisation, 695 employees were then selected at random and their responses used in the subsequent analysis. By employing the same statistical technique used by Sims and LaFollette (factor analysis), the author observed that the factor structure was most representative of the data, together with each of the following dimensions: General Affective Tone towards Management, Organisational Structure and procedures, Standards, Organisational Identification, Interpersonal Milieu and Responsibility. Also, the author adds that these six derived factors accounted cumulatively for 55% of the total variance whilst the three initial factors represented 18%, 11% and 17% respectively, of the total.

With respect to statistical reliability, he compared his results not only to the a priori dimensions of the original Litwin and Stringer scale, but also with the reliability findings of Sims and LaFollette and found that the internal consistency reliabilities for the three of his derived factors had a very high reliability indeed ($r=.91$, $.82$ and $.82$ respectively). He also showed, as Sims and Lafollette (1975) that the reliability of the derived factors were higher than for the dimensions of the

original Litwin and Stringer's scale.

As a final conclusion, both studies have shown that the same a priori scales, namely responsibility, risk, standards and conflict, respectively had reliabilities below an acceptable level, which means that, as a whole, the OCQ instrument is not a very reliable model. To reinforce this point, Muchinsky (1976) finally points out that 'the findings suggest that it may be very difficult to arrive at some 'standardized' climate inventory that will manifest high scale validity across the different organizations' (p. 387).

Regarding the same matter, Downey et al (1974), in a study of 104 personnel from the management of a speciality firm, factor analysed the OCQ nine a priori dimensions and concluded that low correlations were found among dimensions and make similar criticisms about the level of reliability of the OCQ instrument. Finally, even Litwin and Stringer questioned their own questionnaire, in terms of reliability and validity (Litwin and Stringer, 1968, p. 88-92).

Conclusion: from the above survey, taking into consideration the fact that OCQ instrument has been submitted to validation studies and also bearing in mind that the authors of this questionnaire have questioned its

validity and reliability, together with the problems posed by Sims and LaFollette (1975), Muchinsky (1976) and Downey et al (1974), concerning its statistical reliability, it does not appear reasonable to suggest its use to measure the organisational climate perceived by workers in small and medium sized firms. Consequently, it is discarded here.

D. Schneider and Bartlett's Agency Climate Questionnaire
- ACQ

The origin of Agency Climate Questionnaire - ACQ stems from the attempt made by Schneider and Bartlett (1968) to study the ability and situational measures in combination with the interaction between the individual and the situation. In order to do that, they conducted a long-term study, aimed at measuring and assessing the influence of different organisational climate upon different individuals. In addition, a sample of life insurance agencies was used in the study because, according to the authors, these firms are reasonably autonomous organisations, they have a comprehensive and well-known selection programme, they also have a practical definition of success / turnover and sales production per agent / and finally, there was financial support from the life insurance industry to undertake the study.

This Questionnaire was designed specifically for use in measuring organisational climate in agencies, as a

measure of the situation. Its original form contained 299 items, aimed at representing what managers do in agencies, what agents do in the agencies, how people are treated and what kinds of people are in the agency. In addition, Schneider and Bartlett (1968) administered the 299 items to 143 managers, describing their own agencies. Building on the responses, they factor-analysed the 299 items to determine the dimensions of organisational climate, and as a result, six factors were obtained, three of which, namely Managerial Support, Managerial Structure and New Employee Concern were considered managerial variables / what managers do /, whilst the remaining three, namely Intra-agency Conflict, Agent Independence and General Satisfaction were considered agent factors.

The final revised version of this questionnaire has a total of 80 items for the six factors, ranging from 11 items to 15 items, and was administered to all agency management personnel in two firms, involving 1500 managers and agents and 2000 new agents. In this study, both agents and managers were asked to respond to the items as how well they characterize the climate in their agency. In addition, the authors point out that the main purpose of their study was to use the climate measures in the prediction of agent success / the continued employment for at least one year after contract and production in the upper half of the surviving agents employed during that

year.

In another study, Schneider and Bartlett (1970) note that, with respect to the six factors selected as the measure of organisational climate, the derived factors 'appear to have enough overlap with other studies (Litwin and Stringer, 1968; Hall and Lawler, 1968; Schneider and Hall, 1970; Campbell, 1968; Friedlander and Margulies, 1969) to conclude that generality has been achieved' (p. 495).

Schneider and Bartlett (1970) administered the ACQ in a study of 69 life insurance agencies, comprising 125 managerial and 386 agent personnel. Each item in the questionnaire was responded to in relation to a five-point scale, ranging from 1 (never) to 5 (always characteristic), as how characteristic, in general, the statement is as a description of the firm.

With respect to statistical reliability (Spearman-Brown), the internal consistency estimates, in the case of Agents ranged from .52 to .90, whilst in the case of managers, the internal consistency estimates ranged from .56 to .90. Based on these results, the authors of ACQ measure point out that although the scales have presented good internal consistency reliability and scale independence for Agents and Managers, both results were considered as moderate. However, the same authors also

note that two other studies (Litwin and Stringer, 1968, p. 207, and Bowen, 1969) report similar internal consistency reliabilities for a measure of organisational climate and as such, these results are seen as reinforcing Schneider and Bartlett's (1970) findings.

Regarding the final results of their study, the authors of ACQ measure conclude that 'the results reported in the present paper strongly suggest that the adoption of a single measure of perceived environment should be done with great caution' (Schneider and Bartlett, 1970, p. 510). Finally, there is little agreement between levels on the way life insurance firms behave, there is also a total lack of agreement in the perception of the organisational climate in respect to the managers and the assistant managers and only managerial congruence between the assistant managers and their subordinates. Bearing the above points in mind, it was very difficult to obtain a consistent pattern of organisational climate, by using such an instrument.

Schneider (1972) employed the ACQ instrument in a study of agency climate expectations and preferences of new hired life insurance agents, comprising 123 agency managers, 130 assistant managers and 109 old agents. Building on the results he found that new agents' expectations presented low positive correlations with the

perceptions of the three role incumbents. In addition, new agents' expectations were found significantly correlated with old agents' perceptions, whilst new agents' preferences showed average correlations around .05 with incumbents' perceptions.

Schneider (1975) extended the earlier analysis (1972), aimed at predicting success (tenure and sales) for new agents, based upon the relationship of climate expectations and preferences to the reports of prevailing climate. In this study he used the ACQ measure with 914 new life insurance agents that attained the criteria of success, in terms of tenure (stay one year or more) and sales (actual sales for one year irrespective of how long the agent stayed). The results showed non-significant relationships between preferences and expectations and the success criteria. Schneider concludes that the ACQ actually measures organisational practices and procedures and as such, it is not adequate to assess the kinds of organisational reward properties. Consequently, on the basis of the poor results obtained, he suggests measures of organisational reward systems in order to bring about stronger results related to the fit of new-agent expectations/preferences to the agency and new-agent success.

Schneider and Synder (1975) employed the ACQ instrument in a study of the relationships among two

measures of job satisfaction, one measure of organisational climate and seven production and turnover indexes of organisational effectiveness in a sample of 50 life insurance firms, involving 522 managerial and non-managerial personnel, namely managers (45), assistant managers and supervisors (209), secretarial staff (79) and agent trainees, both in-house and brokerage (189).

With respect to the measure of organisational climate, in terms of statistical reliability, the scales were highly related to each other and showed reasonable internal consistency, ranging, on average, from .63 to .80. In addition, according to the authors, each dimension appeared to assess somewhat different characteristics of the climate of the agencies surveyed.

Conclusion: despite the accepted degree of generalisability achieved by this measure and taking into account the reported high level of internal consistency of the scales, this Questionnaire had a very specific purpose to measure the climate in life firms and this fact appears to restrict its use in other studies of organisational climate. In addition, even the authors of this measure drew attention to its problems of reliability and consequently, the use of such an instrument is not recommended in full to assess the climate perceived by workers in small and medium sized firms in Brazil, unless

changes and adaptations can be made accordingly.

E. Campbell and Pritchard's Organisational Climate
Questionnaire: Experimental Form

Campbell and Pritchard (1969) embarked on a careful and comprehensive literature review on climate and, as a result, they developed and refined a questionnaire to measure organisational climate. This instrument consisted of 22 a priori dimensions. In addition, in this measure, each of the dimensions was represented by five Likert-type items, through which the respondent is asked to assess his own organisation, by replying on a six-point scale, ranging from 1 = Never True, to 6 = Always True.

Pritchard and Karasick (1973) first employed this measure but they only used eleven a priori dimensions of the 22 in a study of organisational climate involving 76 managers from two industrial organisations. After submitting the scales to factor analysis, they found the internal consistency reliability (Spearman-Brown) of the eleven scales ranged from .66 to .81, and the authors point out that most of results of their survey are consistent with previous climate research, by using both managerial and non-managerial samples.

This instrument has fifty-seven items, distributed across eleven scales, namely autonomy (nine items), conflict versus cooperation (four items), social relations

(four items), structure (five items), level of reward (four items), performance-reward dependency (five items), motivation to achieve (five items), status polarization (five items), flexibility and innovation (four items), decision centralization (five items) and supportiveness (five items).

With regard to further uses of this measure, Abbey and Dickson (1983) employed ten of the eleven a priori scales used by Pritchard and Karasick (1973) in a study of 99 managers in eight R&D industries (semi-conductors). According to the authors, in their study the reliability coefficient (alpha estimates) of the scales ranged from .56 to .81, which means that this reliability coefficient compares favourably with the original, which ranged from .66 to .81. In addition, Sheridan and Vredenburg (1978), in a study of forty-six head nurses at a 500-bed metropolitan hospital, also employed this measure to assess ten dimensions of the hospital's administrative climate. Building on the findings, in terms of statistical reliability analysis, the internal coefficient (alpha estimates) for the four climate measures, namely flexibility, decision centralization, autonomy and structure, was less than .50, and on the face that, these above four variables were then taken out of the data analysis, mainly due to their low reliabilities. The six remaining scales, on the other hand, have shown an

internal consistency reliability coefficient ranging from .54 (achievement orientation) to .77 (reward level) and, on the basis of that, they were considered to be statistically reliable.

As a general impression, it seems that some scales in this instrument are redundant dimensions, as in the case of supportiveness, reward system and performance-reward dependency, autonomy and decision-centralization. Hence, the total number of the a priori scales could be reduced.

Conclusion: taking into consideration the fact that this measure was employed to assess organisational climate in industrial settings, and has achieved a reasonable level of statistical reliability in two of the studies, it could be seen as a possible measure of organisational climate of workers. However, this questionnaire did not show the same or similar consistency reliability level across the three studies in which it was employed, rather, the level decreased in each study. This lack of consistency can be seen as a real risk to future studies, if this instrument is to be used in any organisational setting. Consequently, in view of that, it is not advisable to recommend it in this study.

F. Payne and Pheseey's Business Organization Climate Index
(BOCI)

The origin of this instrument is based upon Stern's (1967) Organizational Climate Index (OCI). The author of OCI related organisational culture dimensions to objective characteristics of school climate, such as teacher absenteeism, teacher turnover and pupil absenteeism. He derived his culture dimensions from a joint factor analysis of the Activities Index (AI) and the College Characteristic Index (CCI), where AI was a personality measure, based on 30 Needs scales derived from the work of Murray (1938). In addition, both the AI and CCI were constructed around the same 30 Needs scales. Initially, Stern (1970) studied these two measures separately and then together and in so doing, he was basically concerned with their interaction. After factor analysing the two measures jointly, he noted that internal environment, that is CCI, and personality, AI, together accounted for the culture of the organisation. In addition, the author studied the association between a person's needs and his/her perception of climate, by using Murray's (1938) needs-press theory as a framework for both personality and climate measures. However, the results of joint factor analyses of these two measures indicated little overlap between them.

Payne and Pheseey (1971) based upon the OCI to develop their Business Organization Climate Index (BOCI), because

according to them, 'the OCI seemed such a rich source of items about organizations that we decided to try and use the same items, but to reconceptualize them according to what we considered, more appropriate concepts' (p. 78).

Bearing this in mind, the authors of BOCI reduced the 300 items from the OCI into groups of items having a common meaning or interest. By employing such a procedure, they classified six large groupings namely authority, restraint, work interest, personal relations, routine or control and wider community. In addition, they sorted the six groupings according to their common meaning, and as a result, they arrived at 254 items into 24 different conceptual areas. The remaining 46 items were considered as inappropriate to business organisation and as such, were not taken into account. Finally, through item analysis / correlation of each item with the total scale score / and examination of empirical results, poor results were rejected and hence the authors reduced the 254 items to 192 items, which actually comprise the measure.

Payne and Pheseey (1971) point out that in this instrument the whole set of items is distributed across 24 scales and the scales were designed to form 24 eight-item scales, namely leaders' psychological distance (eight items), questioning authority (seven items),

egalitarianism (six items), management concern for employee involvement (ten items), open-mindedness (eight items), emotional control (seven items), physical caution (four items), practical orientation (six items), future orientation (six items), scientific and technical orientation (eight items), intellectual orientation (four items), job challenge (eleven items), task orientation (eight items), industriousness (fourteen items), altruism (seven items), sociability (ten items), interpersonal aggression (six items), homogeneity (four items), rules orientation (six items), administrative efficiency (nine items), conventionality (ten items), readiness to innovate (nine items), variety of physical environments (five items) and orientation to wider community (twelve items).

According to the authors, in this instrument each respondent is asked to assess each statement as either True or False as a description of the organisation in which he/she works.

The BOCI measure was reconceptualized in an attempt to measure the perceptions and environmental concepts 'common to the structure and functioning of work organizations, rather than the structure and functioning of individual personalities' (p. 78), that is concepts appropriate to the business organisation.

As a result, the reconceptualization study formed the

above 24 scales, which were submitted to item analysis and tested for split-half reliability by the authors, on a sample of 120 junior/middle managers from more than 100 different firms. Building on the findings, apart from the scales homogeneity ($r = .26$), intellectual orientation ($r = .46$) and physical caution ($r = .58$), the remaining twenty-one scales appear to have satisfactory reliability and reasonable item-analysis values, whose coefficients, as a whole, ranged from .60 to .88. This is a very good statistical result indeed.

With regard to the usefulness of this measure, the authors of the BOCI instrument conclude that the reconceptualization of Stern's OCI 'is a useful tool for the analysis of the perceived climate of business organization' (p. 93) and in addition, that structural analysis is needed to be supplemented by measures of climate so as to understand more adequately the nature and extent of changes in organisational functioning and performance, among other reasons.

In the same study, the researchers applied their measure in three manufacturing firms and reported significant differences in terms of concern for employee involvement, intellectual orientation, future orientation, scientific and technical orientation and task orientation. By comparing the climate scores on two firms

approximately matched for size and technology, they found the more effective firm was also more centralized and bureaucratic and, at the same time, also scored highly on questioning of authority, intellectual orientation, scientific and technical orientation, future orientation, job challenge and readiness to innovate, as well as in terms of administrative efficiency and conventionality and lower on leaders' psychological distance.

Phesey, Payne and Pugh (1971) re-examined and represented the data for the two firms mentioned earlier, as matched approximately in size and technology, and found that, while the factors were similar, the firms contrasted enormously in terms of structure, in the ways they were organized and controlled and how they were perceived by their employees. On the basis of this examination they reiterated the original findings and stressed that a high degree of standardized procedures and documentation can be related to a high degree of effectiveness and a challenging, innovative, intellectually-oriented climate. It also showed a high degree of cohesion and team work within groups of employees, even where there was also a large measure of formality, lack of autonomy and status stratification.

Payne and Mansfield (1973) present a 160-item revision of the BOCI measure, comprising twenty of the twenty-four original scales, describing various aspects of

the structure and functioning of a work organisation. In addition, the 160 statements were designed so as to form 20 eight-item scales, whose procedure consisted in asking each respondent to rate each statement as either true or false as describing the firm in which he worked. The authors used the 20 eight-item scales in their work with 387 individuals working at all levels in 14 different firms.

With respect to the statistical analysis, the mean item analysis has shown coefficients ranging from .58 to .80, which is a significant achievement, in statistical terms. The authors used the findings of the previous two studies (matched in size and technology) to examine the relationships between different aspects of organisational climate and the several dimensions of organisational structure and context, together with the study of the effect of hierarchical position on the individuals' perceptions of climate.

According to Payne and Mansfield (1973), the main limitation, in statistical terms, of their study, was the small number of organisations studied / fourteen / together with the fact that only eighteen of the 180 correlations performed were statistically significant. However, the authors point out that the best conclusion of their work was that organisational climate is independent

of organisational context and structure. Based on the findings, they conclude that 'there is a great danger in using mean scores which combine the perceptions of groups whose views may be disparate even if the mean is weighted' (p. 525).

In another study, Payne and Mansfield (1978) also employed a modified version of the BOCI instrument, with 160 items describing the variety of aspects of the nature and atmosphere of a work organisation, by using, in this case, 20 eight-item scales, with 387 persons from different levels in fourteen firms. In addition, compared with the previous study (1973), the authors used the same procedures and in terms of statistical reliability, the results were exactly the same, that is the mean item analysis ranged from .64 to .80. Building on the findings, the authors point out that, at the organisational level, the contextual variables of organisational size, size and parent organisation and dependence, presented the strongest relationships with perceptions of organisational climate. Also, except relationships with perceptions of community orientation, only two statistically significant relationships were reported between structural variables and any of the dimensions of perceptions of climate. Furthermore, aspects of the structure and context of the firm in which a person works, appears to have a limited effect on perceptions of organisational climate. To conclude, the

authors note that ...

'... it seems likely that climate studies which concentrate on the differences between levels, departments and sites, will be more useful to senior personnel in helping them identify and modify subjective feelings about the organization. Concentration on global views of the organization would seem likely to be fruitful' (p. 217).

Phesey (1977) examined three dimensions derived from the BOCI measure in a study of 134 managers in ten companies, in an attempt to examine the relationships between managers' occupational histories, the organisational environment, which included structural and contextual data, and organisational climate. The results of her study showed that the only variable that seemed to have any significance in moderating the relationships between perceived developmental climate and individual occupational histories was the individual manager's salary.

Regarding these findings and also bearing in mind that the instrument employed showed a high level of reliability, the author observes that 'it is important to supplement the perceptual measurement-organisational attribute approach with two other methods before deciding

how much credence to give to measures of organisational climate' (p. 73). Finally, the author seems to suggest that both environmental and task-oriented factors, together with individual differences, need to be considered in order to progress the current understanding of climate.

Conclusion: from the above survey, and taking into consideration the huge number of scales and their subsequent statements, the use of the BOCI measure can be seen as a real barrier to be overcome, in terms of practicalities, as a measure of organisational climate in future studies. In addition, in order to reinforce this point, by examining the content of the scales, it seems they are not particularly relevant because the content reflects a great concern for the psychological facets of the individual, rather than of the organisations. In addition, despite its reconceptualization and its reasonable level of reliability, this BOCI measure remains more or less slanted towards psychological needs of persons and as such, it is very unlikely to be an appropriate instrument to measure the organisational climate perceived by workers in small and medium sized industries, mainly because such an instrument has been employed in studies with managers and supervisors. Thus, it is not recommended for this study, which is aimed at assessing the organisational climate as perceived by workers only.

G. The Survey of Organisations Questionnaire - SOO

This instrument, descriptive of organisational conditions and procedures, is an average score of four climate indices comprised of thirteen items from the Survey of Organizations (Taylor and Bowers, 1972). The thirteen items are distributed across four scales, namely human resources primacy (three items), communication flow (three items), motivational conditions (three items) and decision-making practices (four items). In addition, this measure employs a five-point Likert-type scale, ranging from 1(low) to 5(high) and according to the authors, this measure was already employed with more than 30,000 respondents in hundreds of large and small firms and in almost all types of industries, since the end of the 1960's.

This complete SOS Questionnaire is a comprehensive 125-item employee questionnaire, which describes conditions and practices in the organisation that are seen to effect the firm's performance. The SOO questionnaire is a standardized, machine-scored questionnaire that has been used intensively in organisational behaviour research and in organisational development projects. In addition, the focus of this instrument is the content of Likert's metatheory of organisational development, according to which an organisation is classified into four systems, in terms of the amount of participativeness which

characterizes its decision-making process. Furthermore, effective organisations are characterized as more System 4 (participation) whilst ineffective organisations, are those, in Likert's view, characterized by less participation. Finally, in this model organisational climate is conceived as a variable which describes systemic conditions and practices, which distinguishes among organisations, is a real property of organisations, is different from another environmental variables and finally, has effects on important and vital organisational outcomes.

According to Taylor and Bowers (1972, p. 72, Table 31), this instrument has shown an internal consistency reliability ranging from .79 (motivational conditions) to .90 (human resources primacy), for the five items, because, apart from the four already mentioned composite indices, the authors have added another one, called technological readiness. However, in a replicative study, the researchers introduced two tentative indices, namely lower level influence and the previous technological readiness, and due to their low reliabilities shown in the replicative study, such indices were then omitted by the authors (Taylor and Bowers, 1972, p. 73). Taking the above points into consideration, the authors point out that these two tentative indices should be used with caution, until further evidence, in terms of reliability, can be then presented.

This instrument has been submitted to extensive statistical analysis: the authors of this SOO questionnaire employed a cluster analysis to measure the internal consistency reliability (alpha estimates) of the four composite climate indices, in the replicative study. According to the findings, in statistical terms, this study has presented the following reliability coefficients: human resources primacy = .80, communication flow = .78, motivational conditions = .80 and finally, decision-making practices = .79 (Taylor and Bowers, 1972, p. 73, Table 33).

Regarding this matter, Drexler (1974), by employing a discriminant validity study (the smallest space analysis) demonstrated empirically that the measures used as organisational climate were conceptually and empirically distinct from supervisory behaviour, peer behaviour and group process and as such, climate was reported to be different from other environmental outcomes. Drexler's (1975) own work has confirmed the above point.

With respect to this issue, Franklin (1973), quoted by Drexler (1975), embarked on a path analytic study so as to test the construct validity of the SOO instrument on data from civilian organisations. Later, he conducted a similar study with a sample of individuals in navy and the

results appear to support the SOO validity, in terms of adequacy and accuracy of the model underlying Likert's metatheory (Franklin, 1975).

In terms of further applications of the SOO model, Drexler (1977) employed this composite score measure to assess the climate of 1256 groups, representing 6996 individuals in twenty-one industrial firms. In addition, building on the findings, the composite indices showed a high level of intercorrelations ($r = .77$), with the coefficient alpha of .92. Also, Franklin (1975) employed this measure in a study of leadership behaviours and the quality of work group interaction using social-psychological model of leadership roles in a firm. He employed the data bank of SOO, containing replies from 30,000 individuals, representing thirty-seven industries. The findings showed that organisational variables influence the leaders' behaviour within the firm as well as the peer group relations among subordinates and in this work the composite score measure had a high reliability level. Similarly, Bowers and Hauser (1977) employed the SOO instrument in a study in which a typology of work was created by applying the profile analysis technique / hierarchical grouping / to survey measures of various organisational constructs from a sample of work groups in twenty-three civilian firms and in the US Navy. The following indices were used: organisational climate, supervisory leadership, peer leadership, group process and

satisfaction. In terms of organisational climate composite score, a high level of reliability was reported.

Glick (1985) employed the multidimensional approach to investigate the interaction of organisational and individual behaviour, based on estimates for Drexler's (1977) data, calculated by James (1982). Based on the findings of these estimates, Glick (1985) calculated the ICC (1,k), that is the aggregated level mean rater reliability for the Drexler's data set of 6996 individuals in twenty-one firms and he found an estimated reliability of the aggregated perceptual measures of organisational climate of .983 and .982, respectively. He concludes, therefore, by noting that Drexler's aggregate perceptual measures 'are indeed reliable measures of organizational climate' (p.610). In addition, the author employed the multidimensional approach because the assessment of mean rater reliability has received, in the author's view, considerable attention in the relevant literature (psychometric literature) and as such, it is further evidence of the high reliability level of Drexler's composite climate indices measure.

Conclusion: taking into account its observed high level of reliability, its simplicity to use, its wide employment in a variety of settings, mainly in industries over a considerable period of time and its successful use

across the various studies mentioned where it has shown nearly the same high level of reliability and finally, for the purpose of this study, the SOO questionnaire seems to be the most appropriate measure of organisational climate as perceived by workers in small and medium sized firms in Brazil, and as such, it will be used here.

Next, will be presented and discussed, in terms of the strategy to be adopted, the development of both the concept and questionnaire of organisational climate, bearing in mind the nature and purpose of this specific work on climate.

2.3.2 Development of the concept of Organisational Climate

According to Holland (1976), individuals in a work situation, tend to agree in their descriptions of the practices and procedures that characterize the situation, mainly because they are more like each other than they are like individuals in other situations. Also, this agreement in perceptions, as said previously, has been tested empirically by Drexler (1977, 1974) and as such, this fact permits the aggregation of data within settings, and therefore fostering further studies across settings. In addition, practices and procedures are measured because they are changeable and changes in practices and procedures can therefore alter climates, according to Litwin and Stringer (1968). Bearing this in mind,

Schneider et al (1980) note that firms can have many climates, namely a climate for creativity, for leadership, for safety, for achievement, for service, and so on, and on the basis of that, it can be implied that firms might also have a climate for training.

In this present study, organisational climate is considered as a 'part' of the overall organisational environment and despite the fact it is influenced by external matters, it is considered as more an internal vital characteristic that summarizes the 'net outcome' of the various organisational and individual interactions, as said in the introduction of this Chapter. Finally, taking the above considerations into account, organisational climate is also seen to be capable of change by the individuals of the firms concerned, in this specific case, small and medium sized industries.

Bearing in mind the nature and purpose of this present work, the view of organisational climate to be adopted here resembles that taken by Tagiuri and Litwin (1968, p. 27) and Schneider (1975), in terms of definition, and the initial objective is to categorize the industries via a set of composite descriptions which are understood to reflect the various ways in which individual respondents, in this specific case, workers, perceive their environment and work situation. This objective will

be accomplished by employing the Survey of Organizations - SOO questionnaire. Basically, it is intended to describe an organisation (industry) in terms of its perceived climate has on the results of workers' training programmes attended. In this case, organisational climate will be directly assessed, that is as an independent variable. In addition, and taking into account that perceptions of climate derived in this way, include individual differences, the unit of analysis will be the individual (worker), and the climate dimensions (composite climate scores) to be employed in this study, are 'non-individual' in nature. The resulting climate scores actually represent the results of the 'amalgamation' of individual responses and therefore reflect the generally-accepted and agreed 'essence' of the firms, according to the relevant literature on this matter.

In the following section the practical development and use of the organisational climate questionnaire to be employed in this study will be presented.

2.3.3 Development of the Organisational Climate Questionnaire

The practical development of the organisational climate questionnaire to be employed in the study of climate in small and medium sized firms, will utilize, as said and justified previously, the 'Survey of Organizations' Questionnaire - SOO (Taylor and Bowers,

1972, A4 - 1969 Questionnaire).

This instrument, SOO, has been employed to describe a set of measurable properties of the overall environment, perceived directly or indirectly by the individuals who live and work in the environment and which is therefore assumed to influence the results of workers' training programmes. Finally, this SOO measure will be used in its original version, edition 1972 for which written permission was granted by the authors of this instrument to the researcher. In addition, a full development and presentation of the SOO questionnaires (A4 - 1969 Questionnaire) is shown in Appendix A 'Organisational Climate Questionnaire'.

Next, will be presented and discussed the main dependent variable, evaluation of training, which forms the basis of the Chapter 3.

CHAPTER 3: EVALUATION OF TRAINING

In this Chapter, consideration is given to the importance of personnel training based upon a review of the relevant literature. It focuses upon the training definition to be employed in the study, the concept of training evaluation and an overview of previous research on training evaluation. In addition, the approach taken to evaluate the results of workers' training programmes and the strategy to be adopted so as to assess, in practical terms, the kind of training programmes administered to workers, bearing in mind the nature and purpose of this study, will be presented and discussed in detail.

Initially, some considerations are given to training, in terms of its value, philosophy, importance and applicability to practical business situations. Training is aimed at preparing and maintaining the workforce to perform at high standards and is deemed to be a powerful human resource tool, geared to improving employee's skills, abilities and by creating positive attitude toward the on-the-job situation.

Next, the first part of this Chapter stresses these above considerations.

3.1 Introduction

To begin with, it is useful to draw attention to the importance of training which is demonstrated in a large number of examples in the relevant literature. On the face of it, Sikula and McKenna (1984) point out that companies, regardless of type, purpose and size, are confronted with the constant problem of effectively and efficiently integrating employees into actual working situations. This process implies that employees of all levels have the necessary skills and knowledge to perform their functions, as far as possible, in a satisfactory manner.

Taking the above considerations into account, and with respect to training, the main role of employee training is to guarantee that an organisation's human resources have and will go on to have the required abilities and skills to perform the job given to them within the organisation.

Generally speaking, the training function is viewed as one among several which are able to contribute to the desired organisational goals. It is one of a number of alternative approaches to personnel management which is concerned with the objectives of the firm and its everyday management, in terms of recruitment, selection, induction, promotion and so on. Incidentally, as a tool, training

can be seen as the most powerful of the management development process and combined with other human resources policies and strategies it gives the organisation a strong supply of manpower at the right levels of experience and expertise at the appropriate time.

Training, under this perspective, is only a means geared to organisational and personal goals which means that if goals constantly change, training, as a general rule, must change with them. In other words, training will, as far as possible, work in association with other management functions. In addition, it is quite clear that none of the problems of an organisation can be resolved exclusively in terms of training, because, among other reasons, all of them are problems involving the overall management of an organisation or department/sector/session etc.

The major purposes of training, according to Carrel and Kuzmits (1982), include five general areas, whose details are shown below, as follows:-

a) to update employees' skills in connection with technological changes which means that jobs frequently change and as such, employee skills and abilities must be updated via training so that technological advancements can be adequately used and successfully integrated into the organisation;

b) training is very useful to reduce the learning time for new employees to be more job competent and in this sense, training is important in the short run, to perform at standard levels;

c) training can help solve operational problems because, as organisational problems are dealt with at many different sectors, training can be used as one important way to solve many of the intriguing problems that management generally have to face, according to the specific situation;

d) training is important to prepare employees for promotion and in this case, training actually prepares an employee to acquire the skills required for the next job in the organisation hierarchy and therefore fosters the transition from employee's present job to a new one requiring much greater responsibility.

e) Finally, training is very useful in orienting new employees within the organisation and as such, time and effort spent on a well-planned and applied orientation programme might bring about the well-deserved returns, namely reduction in employees' anxiety, saving supervisor's and peers' time, development of positive attitudes toward the firm and lastly, by creating concrete and viable job expectations.

Taking into consideration the level of Human Resources in general, training actually contributes to the

increase of skills and improvement of learning of the trainees, and it also helps create positive attitudes and behaviour changes of the employees. With respect to the level of the job, in terms of tasks, operations and procedures, training can significantly increase production, produce real improvement of the quality of products/services and improve safety records and finally, to reduce maintenance rates in machines and equipment.

With regard to the benefits of training for both the firm and employees, it is interesting to sum up a series of real training benefits. First, at the level of the firm, the benefits of training are very tangible indeed, by meeting the manpower needs, reducing learning time, enhancing the overall performance, reducing wastage and downtime, lessening absenteeism and labour turnover, improving safety records and so on. On the other hand, with respect to the employees, the benefits of training are a real increase in job skills, not only inside but also outside the firm, the opportunity to have increased earnings after training, and the consequent job satisfaction as a result of tasks performed better and correctly first time. To conclude, it is quite apparent that the employer is very interested in having his workforce better prepared, so as to have the opportunity to operate training.

Although training is most frequently seen as the most

immediately practical action to solve performance problems, it is not always the best way of approaching this difficulty. However, based on Ribler's (1984) opinion, training does not always work and even when it does, it is barely effective, for the simple reasons that performance deficiencies do not always respond promptly to training. This fact therefore simply means that there might be other solutions to a performance problem than training: for instance, design deficiencies inherent in the equipment make useless any amount of training and learning. In addition, the skills required by the specific job might be not viable for the types of employees and, according to Pepper (1984), sometimes the organisation will not permit performance of the job as specified. Pepper concludes that the way to solve performance problems is to change either the job definition or the organisational procedures by defining first what is expected and comparing that to what actually occurs or, when it is clearly shown why the differences exist it is possible to determine whether or not training is the most appropriate solution to the performance problems.

Training, considered as a tool to improve and develop manpower capability and potential, has its own limitations. Even though training is used under the most favourable conditions, it cannot solve the problems of a

defective organisation. In addition, it cannot be seen as a panacea and a solution to all the problems of an organisation, nor can it be used as a substitute of the selection and hiring of new employees; it cannot increase learning potential; it only can stimulate the posterior use of innate aptitudes, but it cannot create potential. Also, training cannot assure the increase of execution or efficiency. There may be a transfer of acquired knowledge, skills or better attitudes in a specific work situation, but this is not automatic and it is controlled by factors that are different from the objectives of the training function. Training provides the means of effecting learning but if trainees do not want to learn, training is therefore useless and pointless. Incidentally, training cannot ignore the fact that oblivion is easier and faster than learning: only the constant practice of a new knowledge, skill or acquired attitude can defeat forgetfulness.

To conclude these remarks, it is useful to quote Blum and Naylor (1969), who, among others, point out that training cannot completely take the place of experience but when training is effective, it can reduce the time to attain maximum production.

All these points made so far are deemed as important, necessary and useful background, too, before any consideration about the evaluation of workers' training is

then taken into consideration.

Next, and on the basis of the literature review on training, the definition of training, the definition of training evaluation, the reasons why training is evaluated and the proposed model on which training evaluation will be based in this study will be presented. In addition, the whole development of this Chapter is geared to serving as a framework on which to base the approach taken to evaluate the results of workers' training programmes in small and medium sized firms in the Minas Gerais state of Brazil, bearing in mind the nature and purpose of the study to be carried out, drawing special attention here to the central dependent variable (evaluation of training).

3.2 Training Definition

Before presenting the specific definition to be employed in terms of training itself, it is appropriate to look at some usual training definitions encountered in the relevant literature.

Blum and Naylor (1969) define training as a process that develops and improves skills related to performance. Similarly, Steinmetz (1969) notes that training is a short term educational process that uses a systematic and

organisational procedure through which workers learn knowledge and technical skills for a defined and specific purpose.

According to Kenndy and Donnelly (1972), training is a specific task, short term in nature, using mainly mechanistic learning methods and it is directed toward practical material. Hamblin (1974), on the other hand, affirms that training is 'any activity which deliberately attempts to improve a person's skill in a job' (p. 6). Similarly, Hinrichs (1976) points out that training is a systematic intentional process of altering behaviour of organisational participants in a direction which leads to organisational effectiveness, whilst Singer (1977) defines training as learning background knowledge in a specific work situation, that is its concern is with job performance and the application of knowledge at work.

There are other training definitions in the literature, but in general they stress the same points or characteristics of the previous training definitions and at this stage it is interesting to point out that the purpose of presenting some training definitions, was only to have a general picture of this subject before any specific training definition to be employed in this study should be presented and discussed.

On the basis of the specific literature, training is

mainly defined in terms of managerial personnel and consequently, the examples and proposals of evaluation of training, are geared to supervisors, foremen and managers, rather than to non-managerial personnel. Bearing this in mind and considering the fact that small and medium sized firms in Brazil put a great deal of importance and concern on training of non-managerial personnel (workers) the main focus of the evaluation of training here will be in terms of non-managerial personnel. Training, then, is defined for our purposes as a short-term educational process by which workers acquire and maintain the technical knowledge and skills and the development of attitudes necessary to increase effectiveness in attaining organisational goals.

This training definition implies that through training, workers gain skills, knowledge and attitudes that help them perform more effectively in their present and future jobs, and as such, training is seen to be an investment in human resources that will, to a certain extent, benefit the industry organisations. In addition, it is also assumed that training is geared to a more immediate outcome, that is when a trainee finishes a training programme, he/she is expected to be more skilled, more proficient, to be able to achieve the objectives of the training programme and to perform a specified set of tasks to a specified standard in a satisfactory manner.

3.3 Evaluation of Training

This section highlights the importance of the evaluation of training, as an interesting and vital step to keep the workforce properly prepared to perform better. Likewise, to undertake more evaluation of training is stressed on the grounds that much money is invested on training but little is known about its practical benefits.

At this stage it is felt that employees are human assets of an organisation and like other assets, they need a reinvestment on a regular basis, so as to keep them adequately maintained and capable of performing in a satisfactory and productive way. In addition, employees, like plant, machines and other equipment, may become obsolete in terms of productive capabilities over time and, as a consequence, become less productive. Bearing this in mind, it is suggested that to prevent this kind of problem arising management in general, and human resource management in particular, have to evaluate constantly their specific training needs and on the basis of that, try to design and implement training programmes accordingly.

Training, as a general rule, interacts deeply with organisational culture and, therefore, training objectives have to be linked as far as possible to the needs of the organisation. This means that training should be tailor-

made according to the very specific needs of the organisation.

Taking the above points into account, Phesey (1972) shows briefly that training outcomes are closely associated with trainee and organisational characteristics. Consequently, the design and the evaluation of training has to be related to the initial objectives and with the organisational needs/ irrespective of the fact these needs are well stated or not/ and to trainees characteristics, otherwise training may serve little point.

Training is regarded as successful if the objectives of the training programmes are met because the programmes are largely designed to achieve specific training objectives. Consequently, the evaluation of training is valuable only if it provides feedback that will help the training process and the evaluation procedure is seen as building up to the 'outcome' in terms of expected workforce behaviour.

There are numerous examples within the literature emphasizing the importance and value of the evaluation of training. Some of the most influential commentators will be examined in detail.

To begin with, Blumenfeld and Holland (1971) point out that the purpose of training evaluation is to determine whether the desired behaviour change in the areas of attitudes, skills and knowledge, 'did occur as a result of the training' (p. 638).

According to Odiorne (1979), 'training programmes are considered successful by the people who attended them, especially the management development programs' (p. 32) and he also concludes that the basis for evaluating training is to change job behaviour. Horrigan (1979) notes that the reasons for evaluating training are twofold: (1) to provide or improve employees skills and knowledge and (2) to motivate employees by showing them the firm does care for them.

With respect to this issue, Celinsky (1983) points out that the purpose of industrial and business training is to help firms to improve their levels of efficiency, productivity and general competitiveness and that improvement only occurs when the training is applied in practice, that is post-training work performance provides the only means for evaluating its effectiveness.

Carlisle (1984) notes that evaluation of training 'provides essential feedback that can be used to "fix" poor training programs and to make good ones better' (p. 37). Kreck (1985) observes that the evaluation of

training is necessary, among other reasons, to provide goal-oriented feedback to the participants, to provide data to management for decisions on further training programmes and to serve as the basis for modification of the various phases in any training process. The author concludes that the main reason to evaluate training is to ascertain how effective that specific training has been that is, effective performance of the job.

Commenting on the same issue, Bramley and Newby (1984) note that the evaluation of training 'provides training management with a framework for examining its relationships with other parts of the organisation and at a broader level, evaluation can help to clarify organisational goals, purposes and processes' (p.10). They also observe that evaluation of training might be used as feedback to trainees so as to give them knowledge about the results of their learning and finally, the authors conclude by pointing out that 'training and therefore evaluation, takes place within an organisational framework with which it interacts in a number of ways' (p. 16).

Several authors also have put emphasis on the different purposes of training evaluation but they all contain an element of feedback control. The standards employed for comparison are the results or intended

results of training, in terms of practical action, for instance, the kind of practical and immediate action to be taken by trainers so as to control the activity in order to reach the intended results derived from training.

Pym (1968) and Rand (1971) point out that it is important to evaluate training to make it more effective within its organisational setting, which means that training will not only be used to identify whether training has attained its objectives, but also be used to define the training needs of the organisation and therefore the evaluation of a particular training programme becomes the feedback for modifying the area of operation and the objectives for the next training programmes.

The importance of training evaluation can be seen from the part that as Schmidt (1970) notes, every year US firms spend millions of dollars on training people and although most firms 'regard their training effort as an investment in people and in the future, this is one investment, however, which usually escapes careful and systematic scrutiny' (p. 149). He also adds that a systematic assessment and proper analysis of the results of training is likely to show points which should be reinforced and problems which could be dealt with more effectively and finally, that improvements have great implications for company profits and for more effective

employees, among others.

According to Rizzo (1967), some firms really expect proofs that their investment in training programmes has achieved some sort of compensation. Furthermore, the evaluation of training is unavoidable. In addition, the author concludes that there appears to be a common belief according to which training is inherently good and therefore, by evaluating its results, firms appear to justify the investment made on training.

With regard to the relationship between the investment in training and its subsequent evaluation of results, Talbot (1975) points out that evaluation of training is basically aimed at justifying the financial investment in training, in terms of meeting real needs of the organization at reasonable cost, by carrying out adequate evaluation of training before, during and after training, so as to make the necessary adjustments.

In relation to the same subject, Jones (1973) observes that the reasons by which organisations evaluate training are threefold: (1) to sell the training programmes to the top management, sometimes seen as reluctant in accepting training evaluation; (2) to estimate the results of investment in the field of personnel and finally, (3) to prove the investment made on

personnel training was worthwhile and profitable.

Following the same reasoning, Deming (1979) says that during 1977, the US government spent around \$257 million dollars to train two million civilian employees and that large firms have invested greatly. He also notes that thousands of smaller firms invested considerable amount of money in training their field personnel, but little has been said about the practical benefits derived from such an investment on training.

Taking also into consideration the relationship between the amount of money spent in personnel training and the benefits derived from such an investment, Wexley and Lathan (1981) properly point out that around \$100 billion dollars are spent annually in the USA on training, but the majority of companies do not know what practical benefits they receive from their expenditure. In addition, Morano (1975) points out that 'certainly in some instances there is a direct relationship between dollars spent and the benefit to the organization' (p. 43). Finally, Clement (1981) concludes that American business use to spend billions of dollars on training programmes but little is done to assess the effectiveness of the training effort.

In conclusion: a survey of the literature on the importance of training evaluation indicates that the

evaluation of training is worthwhile only if it provides feedback aimed at improving the training process. In addition, a considerable amount of money has been spent on training, but little has been done to assess the effectiveness of the training effort. Consequently, it is reasonable to conclude that there appears to be a call for assessing the practical benefits derived from such an investment on training.

In the next section the literature will be reviewed on the definition of the evaluation of training. Also, the nature and purpose of this type of definition of the evaluation of training will be examined in connection with the specific aims of this study.

3.3.1 Evaluation of Training: Definition and Purpose

Broadly speaking, evaluation refers to a methodology geared to providing feedback about certain aspects of an area of study and as such, it is essentially a strategy of approaching a problem. It is related to these questions:-

(1) Where are we going? Why and with ^{purpose} do we start a training programme?

(2) How will we know we have arrived? What results do we expect and can then be measured?

According to Hesseling (1966), evaluation means some determination of the degree to which a training programme

achieves specific results, both intended and unintended, and of what elements in the situation or in the methods used hamper or foster the process of training. Alternatively, Rackham (1973) observes that the evaluation of training is the systematic collection and utilisation of data in order to improve training.

Regarding this issue, Hamblin (1974), who made a great contribution to the debate on the evaluation of training says that 'evaluation is the art of the possible' (p. 11). In addition, he points out that the purpose of the evaluation is simply to improve the training and therefore, it is a training aid. Hamblin concludes that training is always evaluated - the question is which methods are used. Hence, evaluation is a means to improve training, which is, in turn, a means to improve overall organisational performance.

The evaluation of training is defined in a broad way because it is impossible, in practical terms, to obtain complete and precise information on the total effects of a training programme. With regard to this, Hamblin (1974) defined evaluation of training in the broadest sense as 'any attempt to obtain information (feedback) on the effects of a training programme and to assess the value of the training in the light of that information' (p. 8).

Taking into account the nature and purpose of this

study and on the basis of the relevant literature, Hamblin's definition was considered the most appropriate and useful in this specific research situation and as such, it was chosen to evaluate the results of workers' training programmes.

Next, the reasons for evaluating training will be looked at in more detail.

3.3.2 Why Evaluate Training

Evaluation is an aspect of management control and as such, it is a systematic way of assessing the extent to which training programmes objectives have been met. In addition, it is a starting point to compare achieved results with devised plans and in this case, it provides vital and important information for the effective use of the training resources. Finally, it is useful in determining whether the time, money and energy spent on planning training programmes produce results satisfactory enough to justify the investment.

With respect to the purpose of evaluating training, Whitelaw (1972) observes that the prime purpose of evaluation is to improve training by finding out which training programmes are successful in attaining their objectives. Hamblin (1974), on the other hand, points out that evaluation is not the final point in the change

process, rather, it is the link between successive parts in the change process. Its purpose, then, is not to establish whether the desired changes did happen, but rather to establish what should occur next by discovering what sort of changes, either desired or not, actually occurred and how these changes are associated with the desires, values and objectives of the interested parties involved in the change process via the evaluation of training.

The main purpose of evaluation of training is to create a continuous feedback so that it can be seen as a self-correcting training system and in this case, evaluation is regarded as an entire part of the training system and not a mere addition to it.

Finally, a further reason to evaluate training is the practical benefit it gives the training staff in the organisation, by demonstrating and explaining how well training service has achieved its planned objectives.

According to Hoyle (1984), all important writers on evaluation of training in general admit that trainers and organisations alike seek immediate feedback but they also recognise that the real purpose of evaluation of training is to bring about long term changes in values, initially in trainees and thereafter in the organisation itself.

With respect to this issue, Brandenburg (1982) points out that in a survey conducted by him comprising two groups of training professionals, he found the main functions of the evaluation of training are geared to giving internal support to the training process, i.e. providing feedback to trainers, supervisors, management and trainees. All in all, the author suggests that evaluation of training plays a significant role in human resource management as a whole.

In short, the reasons for evaluating training programmes, based upon the opinions of the most influential commentators about this issue, are principally to create a continuous feedback whose purpose is to give support to the training process, by providing useful information to the interested parties involved, namely trainees, trainers, supervisors and management.

Next, there will be an overview of previous research about the evaluation of training.

3.4 Previous Research on Evaluation of Training

The purpose of this section is to examine and discuss in detail a comprehensive number of studies about the evaluation of training, comprising the period from the

1950s to the 1980s, in order to give an overview of this issue, on a chronological basis.

Despite Brazilian tax legislation to stimulate firms to invest in training and despite fiscal incentive for all firms and especially for small and medium sized ones, little has been done to assess the results of personnel training in Brazil. There are a few studies and some surveys have been conducted in this area, but they are basically directed toward large companies.

Based on the literature review on this issue, it can be said that although evaluation of training has a long history, the end result is not encouraging in the sense that little has been done so far to enhance the methodology and practice of the evaluation of training.

To begin with, the first studies about this issue are reported by Kendall (1956), who points out that there are a few experimental studies reporting evaluative data on the outcomes of training programmes but that little research has been done on the benefits derived from training. Dunnette (1962), on the other hand, observes that there is little attention in the literature to evaluating training programmes and he calls for more emphasis on this issue.

Catalanello and Kirkpatrick (1968) indicated that out

of 110 companies surveyed, 78% used reaction measures for evaluating the effectiveness of their training programmes and approximately 50% attempted to evaluate learning, behaviour change and organisational results. However, it was quite evident that there was no systematic and controlled evaluation. Based on the findings, the authors conclude that the evaluation of training is still in its infancy. Cote (1969), in reviewing the literature on the evaluation of training and a study of the provisions regarding a large number of supervisory development programmes, points out that 'little has actually been done to measure supervisory training in terms of its effect upon the productive efficiency and morale of an organization' (p. 38).

Regarding the same issue, Burke (1969), in assessing the impact of a human relations course on 57 undergraduate business students, suggests that more research in the field of training needs to be undertaken if the field of evaluation of training wishes to advance. It is essential that 'systematic and continued research on the effects of industrial training should be carried out' (p. 29).

Campbel et al (1970) mention the impact of training on organisational goals was seldom demonstrated and most of the 73 studies surveyed did not provide an indication for ascertaining whether the training programmes resulted

in making the managers more effective and the authors conclude that evaluation studies of management training courses tended to be inadequate.

With respect to the need for more comprehensive studies in the field of training evaluation research, Campbell (1971) points out that 'in sum, the methodology of training and development research cries for innovation' (p.579). The author concludes by saying that 'even though the study of training and development problems has produced a certain amount of knowledge and there are grounds for a bit of optimism, one cannot come away from this literature without feeling disheartened' (p. 593). In other words, the author seems to suggest that there is a shortage of training evaluation studies.

Schein (1971) reports the results of a study aimed at measuring the changes in attitudes, interests and personality characteristics, resulting from an eighteen-month management training programme. She found that the individual difference variables (background variables) could be identified as predictors of attitude, interest and/or personality changes. She concluded that individual difference variables (background variables and past experience) could be used to select individuals who will most benefit from the training programme, although she emphasizes the need of further research to validate these results.

With respect to the shortage of training evaluation studies carried out hitherto, Roy and Dolke (1972), commenting on their study of 27 supervisors in a textile mill organisation found despite the fact that training evaluation research is not new, the number of training studies reported so far in the literature is still small suggesting, therefore, the need to undertake more research in this area.

Wolfe (1973), in reviewing the studies on training evaluation, affirms that most of the evaluations undertaken are not comprehensive and often take into consideration only one or two aspects or effects of the training process. In order to illustrate this, he refers to several studies and finally concludes by stating that the most in depth study on evaluation of training was that conducted by Fleishman, Harris and Burt (1955) because they measured trainee's reaction, learning and behaviour change. The studies cited by the author employed before and after measures on both control and experimental groups, many used standardized measuring devices and finally, nearly all tried to measure the trainee's degree of on-the-job behaviour change but tended not to be very comprehensive.

According to Ball and Anderson (1975), in a review of

142 training programmes, they found that, although most of these evaluations were reported to be helpful and conducted with reasonable expertise, there is a great need for a more systematic approach. In addition, they point out that 'almost 70% of the 142 programs had been formally evaluated usually for the purpose of program improvement rather than to assess program impact' (p. 39). The authors finally conclude that 'there has been very little formal or even systematic evaluation of supervisory training' (p. 111).

With regard to the shortage of studies conducted in the field of evaluation of training, Hinrichs (1976), taking into account training in industry, observes that there is little research on the effectiveness of training. Furthermore, it is important to undertake more research in this field.

Similarly, Wagel (1977), who conducted a survey within 50 companies, involving 112 training directors, personnel managers and vice-presidents, regarding evaluation of training, found that approximately 75 percent 'had no formal methods of evaluating the effectiveness of their training programmes' (p. 4). In addition, in another study conducted by Bunker and Cohen (1978), they point out the topic of evaluation of training 'has been the subject of considerable scrutiny over the years' (p. 4), but despite of that, there is a lack of

research on training evaluation and that even though research on this issue is present, it is not often comprehensive in attempting to apply appropriate controls to draw sound conclusions. The authors comment that 'organizations appear more reluctant than ever to undertake meaningful assessments of training outcomes' (p.4).

With respect to this subject, Blanshard and Montgomery (1978) note that until the 1970s, the main focus of evaluation of training appeared to be to provide indications where trainers had been, rather than to suggest the best way to progress in this field. In addition, the authors point out that this lack of concern in the evaluation of training is to some extent due to the absence of an adequate conceptual framework and suitable instruments for relevant and meaningful evaluation. Similarly, Coffman (1979), in reviewing some studies on the evaluation of training mentions that the findings reached so far by training personnel 'are suspect because most of them evaluate only those areas which are easy to measure' and that 'trainers talk a great deal about the evaluation of training but do little if anything about it' (p. 28).

According to Neider (1981), even though various studies were published in the field of evaluation of training, 'most were concerned with assessing which

techniques are used most frequently for training employees' (p. 24), rather than concerned with the effects of training itself, which reflects a lack of studies in this area. Similarly, Brandenburg (1982) points out that 'no universally accepted model for evaluating training exists, nor are there generally accepted modes of operation or behaviour' (p. 14) and he concludes that 'skills and techniques employed in training evaluation need to be expanded and updated' (p. 18).

With respect to the call for more comprehensive evaluation studies, Clement (1981) points out that 'evaluation studies of management training courses apparently are not more thorough than they were in 1970' (p. 12). Furthermore, he suggests the need to conduct more studies in this field. Similarly, Clement and Aranda (1982) observe that 'we need to do a better job of evaluating our management training programs' (p. 39), which clearly indicates a shortage of evaluation studies and the need to conduct more in depth studies in this field.

Dopyera and Pitone (1983) note that with regard to the evaluation of training, the issue continues 'to be a topic about which much is written and little is done' (p. 66). Wexley (1984), in examining some studies on evaluation of training from 1978 to 1982, suggests the need for more studies in this area aimed at understanding

how inefficient organisational sectors can be traced to ascertain whether training is the best solution to the performance problem and to examine in depth which kinds of changes, if any, have been occurred.

Buelens and Coetsier (1984) mention that there is little research concluded in the field of evaluation of training and that the majority of studies in this area are descriptive research, mainly directed toward providing details only on successful training programmes. Hoyle (1984), who conducted an extensive study on this subject, points out that although there are many references in the literature about the concept and practice of the evaluation of training, the end result is not encouraging. The author notes that most studies try to evaluate training at the simplest level where the main concern is not to invalidate training efforts rather than to enhance the methodology and practice of the evaluation of training.

Smith (1985), in connection with his study of senior managers in 15 organisations, covering both public and private sectors, found that 'it is still evident that most companies and institutions show little concern for evaluation and still less interest in the results of training' (p. 25). He points out that current evaluation practice is little more than a ritual function.

Similarly, Bell and Kerr (1987) observe that 'the concept of evaluation has received widespread recognition as beneficial, but the practice of evaluation had lagged behind' (p. 70). They also add that with respect to the findings of their study 'less than 12 percent of 285 companies studied evaluated the results of supervisory programs in management' (p. 70). Finally, Clegg (1987) in an extensive study covering management training programmes for first-line positions and above in large industrial corporations concludes that 'current management training program methods are not as comprehensive as they could be' (p. 65) and on the basis of that, he calls for ways of improving evaluation methods and to choose and design more suitable training programmes taking into account the ease of evaluation.

In conclusion: the bulk of the literature on the evaluation of training clearly indicates that more research is needed to explain why training programmes are carried out. In addition, Clement (1981) points out that there are only a few studies aimed to investigate the effect of organisational environment (climate) upon the transfer of training to the job setting. This study of the role of organisational climate on the results of workers' training effectiveness in small and medium sized firms, in connection with workers' training programmes, is a good opportunity to clarify this gap revealed by the literature.

In the next section consideration will be given to the approach adopted in this study, with regard to the evaluation of workers' training.

3.5 The Approach to be Taken to Evaluate Training

Newby and Bramley (1984) point out the value of experimental design in training evaluation is subject to much criticism and that evaluation as an experiment, specifically designed to get rid of non-training variables and other sort of biases, is far from the real world and is a question only discussed in the pages of the specific literature.

For the purpose of this study, the results of workers' training will be evaluated within a period of two years (1985/86) so as to ensure that some type of training has been carried out by the firms involved in this process and that some time period has been elapsed since training has taken place.

Bearing this in mind, it is not possible to assess workers' training programmes in a before-and-after basis, the usual approach taken by writers and professionals in relation to the evaluation of training. Nor is it possible to use an experimental and a control group to

evaluate the value of training with respect to the purpose of this study.

The main reasons for not employing an experimental and a control group, in the case of this study, are basically the kind of evaluation to be assessed, i.e. 'ex post facto' evaluation. Hence, it is not possible to have experimental and control groups. Also, problems related to the practicalities of such an approach and the restrictions imposed by time and money spent, made the scientific approach to the evaluation of workers' training not viable in this specific research situation.

Taking into consideration the above points, it is useful to present and then justify the kind of approach to be taken in this study aimed at evaluating workers' training programmes on an 'ex post facto' basis.

The criteria used to choose the appropriate approach to evaluate training effectiveness were based on the discussion of two types of different ways of evaluating training programmes.

According to Hesseling (1966), quoted by Hamblin (1974), with regard to the evaluation issue there are two distinct approaches to be taken, namely the instrumental or scientific approach and the heuristic or discovery approach. The main differences are explained in detail

below.

On the one hand, the scientific approach means that the researcher begins with a technique and seeks specific situations in which to apply it whilst on the other hand the discovery approach is one in which someone starts with a problem and then looks for techniques with which to solve the problem.

The scientific approach, as its name implies, is aimed at proving something by employing experimental and control groups, and as such, both training and evaluation must be held rigid and inflexible so that variables might be strictly and appropriately controlled. Likewise, the purpose of scientific approach is to prove training is worthwhile so that, on the next time, there might be no need to evaluate it again. However, the discovery approach, as opposed to the scientific one, is a discursive and exploratory approach, and hence, it attempts simply to find things out. Consequently, its main purpose is to create a systematic, flexible and integrated training and evaluation system, so as to provide usable and applicable information, and in this case, both training and evaluation are kept as flexible as possible in order to face possible undesirable situations. Furthermore, such an approach has no concern for presenting scientific proof. Rather, it is aimed at

providing, as discussed previously, usable and practical information, in relation to the training programmes carried out.

Bearing these considerations in mind and based on the nature and purpose of this study, the discovery (heuristic) approach was chosen to evaluate workers' training programmes 'ex post facto', during the period of 1985/86.

The next section outlines and discusses the strategy to be adopted to evaluate workers' training programmes.

3.6 The Strategy to be Adopted to Evaluate Training

The strategy suggested to evaluate the results of workers' training programmes on an 'ex post facto' basis in small and medium sized firms, is Kirkpatrick's (1967, 1968, 1969, 1976, 1978 and 1983) model which is essentially the same as proposed by Warr et al (1970), Whitelaw (1972), Hepworth (1972) and Hamblin (1974). In addition, this model has been employed in a significant number of studies about evaluation of training and has also been cited in the literature concerned with this matter since the end of 1960's.

Reasons: the above model not only is the most cited

in the relevant literature so far (Kohn and Parker, 1969; Roy and Dolke, 1972; Cowell, 1972; Smeltzer, 1979; Clement, 1978,1982, and Monat, 1981, among others), but also is the most used in USA, based on contacts made by the author with the American Society for Training and Development (ASTD). In addition, through contacts made with the Brazilian Association of Training and Development (ABTD), the Federation of Industry of the Minas Gerais state, the second biggest industrial region in Brazil, and by reviewing some of the most updated forms of evaluation of training in the Minas Gerais state, it was clear that Kirkpatrick's framework is widely used to evaluate training programmes. Also, a survey conducted by the Civil Service Department (UK, 1977), a report by Blanshard and Montgomenry (1978), various articles and research notes found in Journal of European Industry Training, Industrial Training International, European Training and some studies conducted by the British Institute of Personnel Management, all confirm Kirkpatrick's model importance and value.

Bearing the above points in mind, Campbell (1971) observes that 'numerous papers suggest the use of Kirkpatrick's model for training research' (p.577). Furthermore, this fact seems to confirm once more the usefulness and value of Kirkpatrick's model of training evaluation.

With regard to the same issue, Clement (1978) notes that several studies appear to give some degree of credibility to Kirkpatrick's model, in the sense that these studies showed indirect support for the proposed causal linkages between reactions and learning (Fleishman, 1953; Hariton, 1951; and Fromkin et al, 1974); between learning and improvements in job behaviour change (Hand et al, 1973; Goldstein and Sorcher, 1974), and finally, between improvements in organisational variables (Goldstein and Sorcher, 1974; and Goodacre, 1955). In addition, Clement(1982), in another study on the same subject, points out that the four-level hierarchy model suggested by Kirkpatrick, 'is probably the best-known model of training evaluation' (p.176). He also adds that nowadays training professionals accept this hierarchical model of training evaluation in the sense that favourable training results at the lowest level (reaction) are viewed to be necessary for favourable results to happen at the higher level. The findings of his study can be seen as empirical evidence of a relationship between reactions and learning and between learning and job behaviour change. However, no support was found between job behaviour change and results.

Bearing all the above considerations in mind and taking into account that Kirkpatrick's model has been mainly used to assess the results of training of managers,

foremen and supervisors, it can, with a few adaptations, be employed to evaluate training of non-managerial people (workers). The model used in this study (see Appendix B) is an adaptation and expansion of versions used in USA, UK and Brazil.

According to Kirkpatrick (based on his writings), evaluation of training is the determination of the effectiveness of a training programme in terms of the four levels: reaction, learning, behaviour change and final results. The scheme can be employed in nearly any organisation in terms of procedures and techniques, even in small and medium sized organisations.

The four levels in the model can be seen as links in a chain of cause and effects, which means this chain can be split at any point, that is a trainee may react favourably but learn nothing; also, a trainee may learn something but fail to apply the learning to the job situation and finally, a trainee may modify his/her job behaviour but this fact may have no effect whatsoever on the functioning of the firm.

In theory, it is advisable to attempt to undertake the evaluation of training at all four levels, because, among other reasons, if a link is broken, the evaluation could be used to establish which link was broken and could

therefore look for the possible reasons of this in order to repair the link for later training courses.

The outcomes of evaluation have no hidden importance of their own. They are worthwhile only if used to enhance the quality of later training. However, in practical terms, this whole process (all the four levels) is barely viable for the simple reason evaluation of training becomes significantly difficult beyond level three (job behaviour change) and an assessment of the precise effects of training on a firm's performance, is virtually impossible because of the large number of other factors which might improve the firm's performance.

Apart from that, evaluation problems also vary with the type of training being given, which means that training requires a different approach. In this study, therefore, the approach employed to evaluate workers' training programmes, is based upon the stated objectives of managers (decision-makers) of small and medium sized firms in the Minas Gerais state (Belo Horizonte and surrounding areas, where there is a concentration of industries of various types), and takes into consideration on-the-job training during the period of 1985/86. Special emphasis is placed on levels three and four - job behaviour change and effects on the firm's performance.

3.6.1 Kirkpatrick's Model in detail

This study employs a questionnaire, administered to workers, in order to evaluate training at levels two and three and structured interviews, administered to supervisors and managers, aimed at assessing workers' training programmes at levels three and four. In this way the results of workers' training can be evaluated at the three levels. At this stage it is felt that at levels two and three workers are able to evaluate themselves with respect to the training given to them and thereafter supervisors and managers will be in a better position to evaluate workers' training, in terms of practical outcomes where changes are expected to occur. In addition, bearing in mind the immediate use of evaluation of training at level one, reaction, and considering the purpose of this study in terms of evaluation of training on an 'ex post facto' basis, no attempt will be made to evaluate workers' training programmes at level one. However, having said that, it is sensible to provide in the overview of Kirkpatrick's four-level framework a description and an explanation of the complete four levels.

At this point it is worth emphasizing that the transfer of learning to job performance depends not only upon the training given but also the existence of a climate in which workers are asked to apply their training on return to on-the-job setting. It is an assumption of

this writer that this can only be achieved under effective working relationships among workers, supervisors, co-workers and trainers alike via joint involvement in developing training programmes which are directed as far as possible towards useful and practical outcomes.

Next, the four levels are presented and discussed.

A. LEVEL ONE (REACTION): How did participants react to a given training programme?

Reaction criteria measure how well the trainees liked the programme, including its content, trainer, methods used and surroundings in which the training took place. The reaction is geared to holding informal end-of-course reviews. This procedure provides an opportunity for trainees to voice their opinions on the course and the objective of such an evaluation is to obtain data which will enable training staff to enhance the next course, rather than the present one.

Reaction measures are important but it should not be assumed that favourable reactions to a training programme ensure that learning has taken place or that the behaviour of the trainees has changed as a consequence of the training. The main reasons to measure reactions to a training programme, according to Hamblin (1974) and Kirkpatrick are:-

- 1) positive reactions give support for a training programme in terms of policies and procedures so as to indicate whether a programme is successful or not;
- 2) reaction measures can be used by trainers to assess the success or otherwise of their efforts by providing trainers with useful information aimed at helping them to design future programmes and in this case, any possible programmes weakness can be traced and adequately solved;
- 3) favourable reactions can improve a trainee's level of motivation to learn, i.e. trainees are likely to be motivated to learn only when they feel the programme is useful to them and when they perceive the learning experience in positive terms;
- 4) sometimes it is useful to take the reactions of particular groups of trainees and analyse them separately, e.g. compare the assessments of trainees from the maintenance sector with those of trainees from the production sector and see if there are any differences;
- 5) finally, it is important to collect reaction measures again a few months after the training has taken place, because such a procedure allows the trainee to assess the effectiveness of the training for his/her job. In addition, it also gives the training staff the opportunity to verify whether the reactions taken place immediately after the training were in fact exaggerated by the normal enthusiasm derived from trainers or from sharing joint experiences with new and old co-workers.

Reaction measures are influenced by the previous state of knowledge about and attitudes toward the trainer, subject matter, recent events and the surrounding in which the training took place.

The reaction objectives are those stated by the firms concerned and such objectives are measured via reaction evaluation scales, by simply counting the number of trainees responding to each scale point for each session/course carried out and in a scale ranging, for example, from 1 (low) to 5 (high), a high score indicates a favourable reaction.

Finally, questions on retrospective reactions are important for both the training programme as a whole and for the specific sessions, speakers, training methods and subject areas. In the case of a high response rate, the replies to these questions can be seen as very useful in assisting the training staff design future courses, rather than post-sessions scales, since long-term reactions are more closely related, according to Hamblin (1974), than short-term reactions to retained learning and job behaviour changes.

Taking into account the purpose of this study, the reasons given earlier in this section and the very specific nature of reaction measures, this first level of

Kirkpatrick's model of evaluation of training will not be used here.

B. LEVEL TWO (LEARNING): What did participants learn?

Favourable reaction to a training programme does not mean learning occurred and learning here means application of principles, facts and skills which were understood and retained by trainees. Also, learning is based upon the trainee's knowledge and skill performance in the training situation itself.

Training, as an educational experience, means that each participant is expected to learn some skill, knowledge or ability and as such, this level examines the extent of the learning that took place as a result of training. It employs indicators of the whole group performance rather than trying to measure the learning of each participant. In addition, it focuses on the job application of material presented in training and usually measures application rather than principles and facts. It is geared to the almost exclusively kind of knowledge learned and, in the case of technical training, skills are assessed by the observation of trainee's performance during practice or execution of tasks and by written and practical tests, based on speed and quality of results (typing, machines operation and so on) and even training in manipulative skills is also assessed by observation and

measurement.

Learning depends on reactions: if evaluation at the reaction level is missed and no learning takes place, then the evaluation is not able to know whether this fact is attributable to unfavourable reactions, lack of aptitude or lack of previous training. Therefore, if the fault is at reactions level, the training staff will not know how to correct the situation.

For the purpose of this study, it is felt that workers' learning, thought as the process of improvement of skill and knowledge, will be evaluated based upon the objectives stated by the firms concerned, with regard to workers' training programmes carried out by the firms and administered to workers in the period of 1985/86.

C. LEVEL THREE (JOB BEHAVIOUR CHANGE): How did participant's behaviour change?

Industrial training is directed toward its most fundamental objective: the accomplishment of productive behaviour change, because, among other reasons, feelings, attitudes, insights and knowledge are means to an end rather than an end in themselves and as such, it is important to measure what changes have occurred as a result of training.

Trainers and managers expect learning to result in a positive change in job behaviour and any learning is therefore pointless unless the participant's behaviour changes in the work setting.

Behavioural criteria take into account the performance of the trainee in another environment, i.e. the on-the-job setting, because it is felt that there is a great difference between knowing facts, techniques and principles and using them on the job.

Behaviour at work, especially in case of non-routine tasks, is determined by a set of different factors and the effects of training therefore can be affected by such things as the organisational climate, in terms of attitude of the boss (manager) or supervisor and the shift system of work. In addition, evaluation measures at this level frequently take into consideration the opinions of observers, normally co-workers, trainees and supervisors and this type of evaluation might have other training outcomes; for example the need for management and trainers to assess job behaviour may concentrate their attention on the training objectives and on to facilitate the transfer and application of learning on-the-job, by the returning trainee.

According to Kirkpatrick, a number of preconditions

must be met if changes are to occur in job performance, as a result of a training programme. The main preconditions are: the willingness of workers to enhance their performance in job; their recognition of the need to improve job performance; the existence of a favourable organisational climate in which trainees can work on their return to the on-the-job setting; the encouragement from someone skilled and concerned with job performance and, finally, the existence of real and concrete opportunities to apply the training given to them.

For the purpose of this study, job behaviour changes will be measured via a questionnaire geared to workers and then cross-checked by their superiors (supervisors), through the use of structured interview administered to supervisors, with regard to the training attended by workers. Both the questionnaire and structured interview are based upon the training programmes objectives stated by the firms concerned (training staff) and the training is assessed by workers and supervisors alike (Appendices B and C, respectively).

D. LEVEL FOUR (FINAL RESULTS): What results, in terms of organisational objectives, were effected by training?

This level of evaluation of training assesses the impact of training upon organisational objectives in

relation to enhanced quality and quantity of units produced, human resource planning, level of motivation, increased sales, quality of work, job satisfaction, manpower turnover and absenteeism, safety records, grievances and complaints, profits achieved and reduction in costs.

Even when complete information regarding this level is available it is very difficult to establish whether changes in these measures can be attributable to training or to other factors not directly related to training, namely increased pay, outside employment level, pay restrictions, specific time of year, better equipment, seasonal changes in management, better selection methods or even changes in the organisation's competitive position in the market and so on which are bound to affect the trainee and his/her organisations as a whole.

It is also assumed that the evaluation of training at level four does normally have to be based upon the assumption that all other influencing factors are to remain constant and nothing would have changed, had the training programme taken place, as a point of reference only, in terms of training effectiveness.

Regardless of other types of consideration, this level of evaluation is particularly difficult to assess. In order to evaluate it is advisable for practical

reasons, to classify the results in measurable terms, such as reduction in cost (%), labour turnover, accident rates, absenteeism, level of grievances and complaints, reduction in wastage, stoppage and downtime, increase (%) in quality and quantity of items produced, in sales (output, percentage, turnover) or improved level of motivation/morale. All these changes can be expected to lead to some of the positive results anxiously looked for by management.

Regarding this issue, certain types of training programme can be evaluated in terms of practical results, for example, in the case of a training designed to teach clerical or similar personnel to do a more effective job, to reduce grievances and complaints in a firm, by measuring the number of grievances/complaints BEFORE and AFTER the training programme, and to reduce accident rates on a before-and-after basis and so on. However, even in this case, there is still the question of separation of variables, that is how much of the enhancement is attributable to training as compared to other factors. Taking this consideration into account and in order to illustrate this point, i.e. this level of difficulty in measuring the results of training at level four (organisational level), Warn et al (1970) point out that it is normally impossible to evaluate training at level four because of the difficulty in isolating the effects of

training from the effects of other activities/events/factors.

To conclude, assuming that the training programme had some effects on the workers for the purpose of this study the final results of workers' training programmes will be assessed according to the stated objectives as declared by the managers (decision-makers) of the firms concerned (Appendix D).

The instrument chosen to evaluate the results of training at level four (final results) is structured interviews to be administered to managers/deputy managers (Appendix D), with respect to the last training programme attended by the workers because at this level, it is felt that managers/deputy managers are most closely related to the overall results of training programmes other than workers themselves. Furthermore, managers/deputy managers are in a better position to more adequately assess the kind of results performed by training.

The following section outlines the development of the instruments to be employed to measure the results of workers' training (training effectiveness), in terms of behaviour change and final results.

3.6.2 The Development of Evaluation of Training

Instruments (Questionnaire and Structured Interviews)

The practical development of the questionnaire to be used to assess the results of workers' training in small and medium sized firms, was based upon models used by The American Society for Training and Development (ASTD), Civil Service Department (UK, 1977), Institute of Personnel Management (UK), Kirkpatrick's practical examples and finally, based on several models presented by the Federation of Industry of the Minas Gerais state, in a sample of various industrial sectors. The proposed questionnaire was then devised taking the above examples into account, bearing in mind the results of training at levels two and three of Kirkpatrick's model, assessed by the workers themselves.

With regard to the results of workers' training at level three, as assessed by workers' immediate superiors (supervisors), a similar procedure was employed, and as such, a structured interview was devised to be administered to supervisors in the firms surveyed. In relation to level four of Kirkpatrick's model, since no practical example was found in the relevant literature, an original version of a structured interview was designed to be administered to managers and deputy managers in the industries concerned. This reviewed the training attended by workers and is assessed by the decision-makers (managers), on a before-and-after basis.

The questionnaire, together with the interviews, including levels two, three and four of the Kirkpatrick's schema, which will be administered to workers, supervisors, managers, and deputy managers, is shown in details in Appendices B, C and D respectively.

The objectives and data on which training is based, are those stated by the managers of the firms surveyed in the preliminary study, that is corrective training, slanted towards meeting specific needs of the firms concerned, and as such, the information contained in the questionnaire and interviews is aimed at achieving such stated objectives.

The next section to be discussed in detail concerns the appropriate research strategy to be employed to evaluate both the results of workers' training programmes and organisational climate, as perceived by workers, and will constitute Chapter 4: Research Methodology.

CHAPTER 4: RESEARCH METHODOLOGY

The purpose of this Chapter is to present and discuss the development of the research strategy employed in this study.

The first step was to develop a research strategy (design) that would guide the researcher through the process of collecting, analysing and interpreting data. The strategy is based upon the literature review and the analysis of the major theoretical issues in this field.

Before presenting and discussing the Research Strategy itself, the first part of this Chapter, Introduction, outlines the instruments to be used to gather information related to both organisational climate and evaluation of results of workers' training programmes (training effectiveness), so as to give an overview of this issue.

4.1 Introduction

In order to analyse the influence of organisational climate on the results of training (training effectiveness), it was decided, on the basis of the literature review, to employ the 'Survey of Organizations - SOO' (1972) Questionnaire to measure organisational

climate as perceived by workers, and a devised questionnaire, based on Kirkpatrick's model, to assess the results of workers' training. In addition, structured interviews with supervisors, managers and deputy managers of the firms concerned, will be used so as to also assess the results of workers' training programmes, during the period of 1985/1986.

Research studies of organisational climate attempted to measure the various dimensions/factors/characteristics of climate through questionnaires. The questionnaire items are typically based upon hunches about climate formulated during interviews with the members of the representative organisations.

Using the climate instruments and on the basis of the examples encountered within the specific literature the measure of organisational climate, is, indirectly, via the perception of the individuals whose behaviour is being studied. Such perceptions are based upon experience that is both more extensive and more involved than that of an outsider observer.

A number of studies have employed the 'Survey of Organizations - SOO' Questionnaire, due to its high level of reliability over the past eighteen years, as was fully discussed in Section 2.3.1 in Chapter 2. This instrument

has thirteen items (questions) and it consists of four dimensions, namely, Human Resources Primacy, Communication Flow, Motivational Conditions and Decision-making Practices. Each dimension is represented by a number of items employing a five-point Likert-type scale, ranging from 1 (low) to 5 (high) and the items are randomized throughout the questionnaire.

In this instrument the scale presents five options from which the respondent (worker) can choose to answer each item. In addition, in this scale, the participant is asked to match to what extent the item is 'true', according to the participant's opinion by indicating a number on the scale. The number of high grades (5) reflects the favourable and positive answers to each question whilst the number of low grades (1) represents unfavourable and negative answers to each question.

This instrument is easy to administer, it is reliable and can be easily understood. It allows the respondents (workers) a wide range of freedom to express their opinions about the organisation. By giving the questionnaire to respondents and then averaging the scores, an overall profile can be obtained in terms of organisational climate. On the basis of this initial step subsequent and more detailed analysis is then possible.

With respect to the evaluation of the results of

workers' training a questionnaire was devised, based upon Kirkpatrick's model, which we have seen from the relevant literature. Following the review of the literature on the evaluation of training a questionnaire was developed to evaluate the results of workers' training based upon the influential model developed by Kirkpatrick.

This questionnaire has fifteen items (questions): three items concerning workers' background, in terms of educational levels, years of work experience and current salary; eleven items directly related to evaluation of training programmes administered to, and assessed by workers themselves. In addition, there is one question aimed at classifying the firms into small and medium sized, bearing in mind the number of employees in each firm.

The predominate purpose in designing the questionnaire to assess the results of workers' training programmes, was to evaluate the results of training at levels two and three of Kirkpatrick's model (learning and behaviour change). The questionnaire was developed to include all the important areas being evaluated and therefore it was divided into two main sections, namely level two (learning assessment) and level three (job behaviour change assessment), geared to assessing these two distinct aspects of the results of training programmes

attended by workers.

This questionnaire employs closed questions and, like the Survey of Organizations - SOO' Questionnaire, it also uses a five-point Likert-type scale, ranging from 1 (low) to 5 (high), where a high grade means a favourable and positive answer to each question asked, whilst a low grade, on the other hand, reflects a negative and unfavourable response to each question asked within the questionnaire.

Like the 'Survey of Organizations' Questionnaire, by administering this questionnaire to workers (respondents) and averaging the scores an overall profile can be formed of the results of workers' training courses. Again, this provides an important starting point to undertake a further and more specific analysis.

This procedure was followed in order to be consistent with the same procedure and strategy employed in relation to the 'Survey of Organizations - SOO' Questionnaire, as was shown in the previous part of this Chapter. In order to evaluate the results of workers' training at all levels, the questionnaire will be complemented with the use of structured interviews, under the form of a normal questionnaire set, directed towards supervisors, managers and deputy managers, to ensure complete information regarding the results of training programmes attended.

Taking into consideration the whole process of gathering information and in order to be consistent with the overall research procedure, the structured interviews will have the same format, i.e. they will also employ a five-point Likert-type scale, ranging also from 1 (low) to 5 (high). The reasons for adopting such a procedure is to make sure that supervisors, managers and deputy managers can respond to each question bearing in mind the results of workers' training programmes, by employing similarly closed questions.

In the case of supervisors, the structured interview has four questions, whose main aim is to gather information regarding the results of workers' training programmes, in terms of workers' job behaviour change assessment (level three of Kirkpatrick's model). Also, the kind of information sought is similar to that asked of workers, so as to ensure that sound and consistent comparisons can be made, in relation to the same type of training programmes.

With respect to managers and deputy managers, on the other hand, the structured interview has two questions aimed at assessing the results of training programmes, in terms of final results (level four of Kirkpatrick's model), on a before-and-after basis, bearing in mind the fact only managers and deputy managers are prepared to

keep records of this kind of required information. Like the supervisors' case, the structured interviews to be administered to managers in order assess the results of workers' training, will contain questions asking similar information related to the same issue. The reasons for using such a strategy is to ensure that significant and sound comparisons can be made not only with supervisors and workers but also with workers, supervisors and managers.

To conclude, the structured interviews with managers and deputy managers have six questions regarding business performance, in relation to the last training programmes attended by workers, and as assessed by managers. It is expected that, by interviewing managers and deputy managers and then averaging the corresponding scores, a general profile will be found, not only in terms of the results of workers' training programmes, but also in terms of a general business performance score, so that, on the basis of such a score, further and more relevant analysis can then be undertaken.

In order to collect, analyse and interpret the relevant information, the following research strategy was adopted, bearing in mind the kind and nature of the instruments employed to gather the data and taking into account the previous discussion of the questionnaire instruments, whose complete details will be explained

below.

4.2 Research Strategy

The research strategy adopted for this study has the following three stages:

1) To identify a SAMPLE of small and medium sized pharmaceutical, metal and electronic industries in the Minas Gerais state area of Brazil through collaboration from CEAG-MG, the official Brazilian body for supporting small and medium sized firms, and from the Federation of Industry of the Minas Gerais state. This collaboration consisted of a list of names and addresses of the three industry groups and official letters of presentation to help gain access to them.

The area to be covered in the survey comprises the capital of Minas Gerais state, Belo Horizonte, in the southeast of Brazil with a population of around 3,000,000 people; the industrial city of Contagem, very closed to Belo Horizonte, for the pharmaceutical and electronic firms and finally, for the metal firms, the survey includes two other cities located in the southwest part of the Minas Gerais state, namely Itauna and Divinópolis.

2) To interview the sample using adequate and suitable

INSTRUMENTS (in this specific case, questionnaires and structured interviews), in order to obtaining the necessary information to assess the influence of organisational climate upon training effectiveness, in terms of evaluation of training programmes attended by workers, and as assessed by workers, supervisors, managers and deputy managers.

3) To check and compare the answers of the respondents in order to ANALYSE the type of influence identified by this study.

This research strategy will be explained in more detail, taking into account the three previous steps, as follows:-

4.2.1 The Sample

In choosing the sample, and bearing in mind the specific purpose of this study, the following three criteria were adopted, namely homogeneity, common experience in training and sample size. These are explained in more detail as follows:-

A - Homogeneity: it is important to achieve a high level of homogeneity in the sample, in order to ensure statistical reliability.

B - Common Experience in Training: in order to study the relationship between the results of training (training effectiveness), organisational climate and business

performance, the type of training programmes to be assessed should be, as far as possible, the same for all the subjects involved. Bearing this in mind, the sort of training to be assessed, will focus on workers who attended regular training courses, ranging, on average, from three to five day in length. In addition, such training courses are aimed at teaching workers to improve their abilities and skills with respect to how to operate machines and equipment properly so that the production targets can be achieved, and the firm's goals met at the appropriate time. Furthermore, the assessment of the same kind of training for all the subjects (workers) appears to be the most appropriate procedure for controlling the dependent variables of this study, i.e. training effectiveness and business performance.

C - Size: for statistical purpose, the sample must be sufficiently large to permit significant and reliable inferences to be drawn from the population as a whole.

Taking into consideration the sample size, in pure statistical terms, the sample to be used in this study will comprise a proportion of firms classified by the CEAG-MG (the official body dealing with small and medium sized firms in Brazil). In addition, the sample will take into account the small and medium sized firms which have administered training programmes to workers in the production process during the period of 1985/86, in the

most concentrated industrial setting of the region of Belo Horizonte, Contagem, Itauna and Divinópolis, respectively, in the Minas Gerais state of Brazil.

The characteristics of this sample are as follows:-

- A - Homogeneity: the sample will include only small and medium sized firms as defined and accepted by the CEAG-MG.
- B - Common Experience in Training: there are three distinct types of training in the field of small and medium sized Brazilian firms, namely training oriented towards quality control, training for regular and normal maintenance of machines and equipment and training for people directly involved with the production process. Consequently, for the purpose of this study, the sample used will comprise only firms which have carried out any type of training for workers in the production process at least once during the period under study, i.e. during the period of 1985/86.
- C - Size: the sample is drawn from a population of 74 pharmaceutical, 86 metal and 108 electronic small and medium sized firms invested in training during the period under study, with an average number of 150 employees in each firm. Given the specific purpose of this study, it was felt that the intentional sample method would be the most adequate and suitable to achieve the objectives pursued by this research.

Bearing the above considerations in mind, and with

respect to the practicalities of this research, and also questions of time and money, the sample was dictated by the availability of firms to collaborate with the study and by the willingness of persons concerned to co-operate, rather than by principles of sampling selection. The sample in the research is therefore a non-probability sample, i.e. it involves personal judgement in the selection process. However, this kind of purposive sample contains, according to Churchill (1979), the necessary elements for our research purposes.

According to this method of sample selection, 12 pharmaceutical, 15 metal and 18 electronic firms that carried out any kind of training to workers at least once during the period comprised by this study, were chosen. These 45 firms represented at least 10% of the whole population. In each firm, a selection of five workers to answer both the Questionnaires (organisational climate and evaluation of results of training) is made at random and by the supervisors in terms of availability. In addition, two supervisors, one manager and his deputy manager, in each firm, were selected for interview to assess the results of workers' training programmes.

By employing the above sample method, it is felt that the sample will be quite representative of the population and therefore, 225 Questionnaires will be administered to

workers, involving organisational climate and results of workers' training. Similarly, 90 structured interviews will be administered to supervisors, and managers and deputy managers.

Next, the data collection procedures and techniques, in terms of instruments to be employed to gather the data needed and timing of data collection, will be presented and described in detail.

4.2.2 Data Collection

4.2.2.1 The Instruments

The data on which the research findings are based, are obtained from a survey of workers, in the case of both organisational climate and results of training, together with a number of supervisors and managers and deputy managers, who evaluate the results of workers' training, within the firms that have administered training to workers.

The data related to research hypotheses will be collected through the use of two questionnaires: one to assess organisational climate, containing thirteen questions, directed towards gathering information about organisational climate in terms of human resources primacy (three questions), communication flow (three questions), motivational conditions (three questions) and decision-making practices (four questions). In addition, another

questionnaire will be used to assess the results of workers' training programmes, consisting of fifteen questions, aimed at obtaining information regarding the results of training, with respect to learning assessment (level two) and job behaviour change assessment (level three), whose complete details can be seen in Appendices A and B, respectively.

Parallel to the use of these two questionnaires, there will be structured interviews, in the form of questionnaires with supervisors, managers and deputy managers. In the case of supervisors, the interviews will contain four questions geared to obtaining information directly related to the results of workers' training programmes, in terms of job behaviour change and the workers' previous training (see Appendix C). Finally, in relation to managers and deputy managers, the interviews will have two questions geared to obtaining information concerning the results of training programmes in terms of final results, and six questions aimed at obtaining information regarding business performance, as assessed by managers and deputy managers, in relation to the last training programmes administered to workers (Appendix D).

As additional information, the questionnaire for workers, concerning the results of training programmes, will also contain three questions related to workers'

background and one question aimed at gathering information related to company size, in terms of number of workers in each firm. This information will be used to facilitate some additional analysis that is not directly related to the research hypotheses.

In the following section, the timing of data collection for both the pilot study and survey itself, together with a detailed description of the pilot test will be discussed.

4.2.2.2 Timing of Data Collection

It was estimated that a period of five months, starting in October of 1986 and ending in March of 1987 was required. This period of time comprised the initial steps to be carried out by the researcher himself on return to Brazil and arranging for access to the set of firms and a minimum period of time to undertake the pilot test.

The pilot study itself was, in fact, conducted in just one month (October/86), whereas the final study started in November 1986 and lasted for four months until March/87.

The research began with the pilot study. The purpose of this preliminary investigation was twofold: 1) to improve the means of gathering information, by

administering the questionnaires and interviews to small groups of respondents and receiving, as a result, practical and worthwhile comments and suggestions from the persons involved, as a way of reducing bias when using survey methods techniques; 2) to give the researcher a practical insight into the issues likely to emerge from the discussion with the participants in the survey, through the use of this practical approach.

Initially, the pilot study was undertaken to test and evaluate: the length, layout, format and space for the questions and their sequence. It was also used as a basis for estimating the response rate for the questionnaire itself. At this stage, the pilot study was conducted by the researcher. Each respondent was given a self-completion questionnaire, to be handed out and collected by the author on the same day.

Enclosed with each questionnaire was a covering letter from the Federation of Industry of the Minas Gerais state (Appendix E), which outlined the nature and purpose of the survey, and invited the management of the firms concerned to fully participate and co-operate, by asking the respondents to fill in the questionnaire and interview.

Interview appointments were made personally by the

author with the management of the firms concerned. The researcher identified himself as a doctoral candidate and a lecturer at the Department of Business and Economics of the Federal University of Vicosa-MG, investigating the results of workers' training programmes. On the basis of that, eight firms were selected to participate in the pilot study (two pharmaceutical, three metal and three electronic firms). Eventually, questionnaires were distributed to 48 workers (six per firm), whilst 16 interviews were given to supervisors and managers (two interviews per firm).

The replies from the workers showed that there was a problem of time over the completion of the questionnaires, the response rate was significant (one hour on average) the general problems that emerged (small difficulties in completing the questionnaire) were solved at the appropriate occasion. For supervisors and managers, there were no serious difficulties in filling in the questionnaires, probably due to their educational level in comparison with workers. However, they made useful and reasonable suggestions in practical terms to improve the type of information asked by the use of interviews.

Taking into account all these valuable considerations, the pilot study proved worthwhile because it contributed significantly to the achievement of the purpose of this study and contributed to the development

of the final and decisive version of the questionnaire and interview which workers, supervisors, managers and deputy managers alike could easily understand.

Chisnal (1981) makes the point that it is very important to properly design a questionnaire/interview so that it can easily be completed, in terms of style of response and sequence of questions. In the workers' case, the pilot study proved that, in the self-completion questionnaire, they preferred closed to open question for the simple reason they could respond to questions which they may not completely understand. However, this does not mean that the data are not useful if the respondents don't understand the questions fully.

Taking the above points into consideration, it was felt that the tabulating procedures and general research strategy adopted, was appropriate. In addition, since it was considered that collecting data by means of a questionnaire and interview was still the most adequate method available in this research situation, a final and definite version of both questionnaire and interview was completed. In doing so, account was taken of all the relevant points made and suggestions presented by the respondents, i.e. workers, supervisors and managers in the pilot study. Finally, the survey itself was conducted within the scheduled time, by adopting the same procedures

as used in the pilot test.

At this stage, and bearing in mind the sample features, forty-five firms were chosen to take part in the survey comprising 225 workers, 90 supervisors, 90 managers and their deputy managers. In addition, the procedures adopted were the same as applied in the pilot study, in terms of interview appointments, presentation, covering letter and practicalities.

In the next section the research hypotheses will be stated and analytical procedures and techniques employed in the survey will be outlined and explained in detail.

4.3 Analysis: Procedures and Techniques

4.3.1 Introduction

According to Kerlinger (1973: 134), survey analysis is 'the categorization, ordering, manipulation and summarizing of the data to obtain answers to research questions'. The same author adds that the main objective of analysis is to make data understandable meaningful and interpretable, so that the nature and kind of relationships revealed by the data can be studied and tested accordingly.

Before presenting the analytical procedures to be

employed to examine the raw data, the basic research hypotheses will be stated.

The purpose of this research is to test three hypotheses, namely:

Hypothesis 1 - The results of training and perceived organisational climate are related such that workers who have a more positive and favourable perception of organisational climate are more likely to be effective in transferring training to on-the-job situation in terms of behaviour change and final results.

Hypothesis 2 - Business performance and the results of training are related such that, the more positive and effective the results of training, the better the performance of the business.

Hypothesis 3 - Business performance and perceived organisational climate are related such that the more positive and favourable the organisational climate, the better the performance of the business.

In order to test these three hypotheses it is, first of all, necessary to devise some procedures whereby the raw data collected through questionnaires and interviews can be systematically organized and consistently analysed in an objective and a quantifiable way. In addition, by coding the raw data into categories which lead to a clear description of the respondents' views, in terms of organisational climate and results of workers' training

and business performance, and organisational climate and results of workers' training, a useful and important step is taken towards achieving the objective of this analysis.

Based on the information contained within research methodology manuals and according to Kerlinger (1973) the first step in any analysis is categorization: that is the process of assigning set objects to partitions, based on some specific rules.

Next, the whole analytical procedures are presented and discussed in detail.

4.3.2 Analytic Procedures

Taking into account the purpose of this study, the analytic procedures to be undertaken, were based on Kerlinger's three rules of categorization, whose sequence of presentation is below:

- a) categories are established in accordance with the research questions and purposes;
- b) the categories are exhaustive;
- c) the categories are mutually exclusive (Kerlinger, 1973, p.134).

The analytical procedures have these three steps, which are presented in detail below.

(A) - Selection and definition of the categories to be used.

(B) - Designation of the units of analysis to be coded.

(C) - Selection of a workable system of enumeration to be used.

(A) - Selection and definition of the categories to be used

The categories used in this research were developed after a careful and detailed appraisal of the relevant literature about organisational climate, evaluation of results of training and business performance. The categories employed in this study are: small and medium sized firms, organisational climate, industrial training, strategy for evaluating training, evaluation of results of training and business performance.

In order to undertake a sound and meaningful analysis, the categories used to study and test the research hypotheses, have to be transformed into operational objectives and into operational definitions.

The complete list of operational definitions of the categories used in this study, are described in detail, as follows:-

1) Small Firm: according to the CEAG-MG criteria, a Small Firm is one whose number of employees ranges from 21 up to 100, having a turnover ranging from US\$100,020 up to

\$400,000 (*).

2) Medium Sized Firm, is one whose number of employees ranges from 101 to up to 500, with an annual turnover ranging between US\$400,020 and \$1,700,000 (*).

In order to summarize the definitions of small and medium sized firms, according to the Brazilian standard, Table 1-C, below, shows an overall picture of the statistics, not only in the Brazilian currency (Cruzados), but also in terms of US Dollars.

TABLE 1-C: CEAG'S-MG CLASSIFICATION OF MICRO, SMALL AND MEDIUM SIZED FIRMS, BASED ON SIZE AND ON THE ECONOMIC SECTORS

ECONOMIC SECTORS			
Nature Of Firms	Primary (Agriculture)	Secondary (Industry)	Tertiary (Commerce/serv.)
Emps. MICRO	up to 10	up to 20	up to 10
Turn (*)	up to 2,000	up to 100,000	up to 40,000
(**)	up to 100 MVR	up to 5,000 MVR	up to 2,000 MVR
Emps. SMALL	11-20	21-100	11-50
Turn (*)	20,020-12,000	100,000-400,000	40,020-200,000
(**)	101-600 MVR	5,001-20,000 MVR	2,001-10,000 MVR
Emps. MIDDLE	21-100	101-500	51-250
Turn (*)	12,020-60,000	400,020-1,700,000	200,020-1,000,000
(**)	601-3,000 MVR	20,001-85,000 MVR	10,001-50,000 MVR

Source: CEAG-MG, Belo Horizonte, Brazil, 1986.

Notes: (*) US Dollar on May 1986.

According to the Brazilian Central Bank Bulletin, May issue, 1986: US\$ 1 = CRZ 13.86 and 1 MVR = US\$20.00 (CRZ 277,89/CRZ 13.86 = US\$20.00).

(**) MVR = Higher Value of Reference, which is a Brazilian index, computed as a proportion of the Brazilian minimum wage, which is in line with the Brazilian monthly inflation rate. The MCR index is the parameter used by the CEAG-MG, to classify the firms in size, according to the specific economic sector.

3) Organisational Climate is an enduring set of conditions and practices characterizing an organisation which is experienced by its members and which influences their behaviour. It is perceived through these four dimensions:-

a/ human resources primacy: this refers to the importance the organisation is seen to place on its members, as represented by the extent to which work is organized in a way that shows concern for people;

b/ communication flow: the manner and extent to which information flows easily and effectively through the organisation in upward, downward and lateral directions;

c/ motivational conditions: the system of rewards present in the organisation for motivating individuals and the relative supportiveness of the systemic environment;

d/ decision-making practices: the process whereby decisions are made unilaterally or through consultation with those people in the organisation

who will be affected by the decision.

4) Industrial Training is a short-term educational process by which workers acquire and maintain the technical knowledge and skills and the development of attitudes necessary to increase effectiveness in achieving organisational targets.

5) Evaluation of Results of Training is any attempt to obtain information (feedback) on the effects of a training programme.

6) Strategy for Evaluating Results of Training is the method of determining the effectiveness of a training programme at four levels: reaction, learning, job behaviour change and final results. These four levels form a chain of cause and effect, whose details are described as follows:-

a/ reaction: this measures how much the participants liked the programme including its content, the trainer, the methods used and the surroundings in which the training took place;

b/ learning: this measures the application of principles, facts and skills which were understood and absorbed by the participants and is based upon the trainee's knowledge/skill performance in the training environment itself;

c/ job behaviour change: this is intended to measure the behaviour change of trainees on the job, by measuring the transfer of training from the training experience to a work situation.

Furthermore, job behaviour change presupposes a specific organisational climate in order to be effective;

d/ final results: this last level attempts to measure the impact of training upon organisational objectives, such as safety, productivity, profits and turnover, among others.

7) Business Performance is a set of six variables which together refers to business success, namely increase in the number of employees, increase in output, introduction of new products or services, a significant increase in the number of employees needing high-skills, the current level of company's profits and the expected annual increase in turnover and profits.

It is now possible to consider the next step in the presentation of analytical procedures, namely,

(B) - Designation of the units of analysis to be coded

This step will be chosen by defining SCORES as the specific segments of the questionnaires and interviews being placed in a given category. Conversely, the units of analysis to be coded are SCORES and as such they will be considered in relation to all categories. With respect to this, SCORES can be considered as low, middle or high, bearing in mind an ordinal scale ranging from 1 to 5, for all the categories, and a summary of frequencies distribution related to the categories used in this

research.

Finally, the last step of the analysis procedure is described, i.e.,

(C) - Selection of a system of enumeration to be used

The appropriate system of enumeration will have these main features: in the whole set of questions, comprising both questionnaires and interviews frequency measures will be used by counting the total number of individual grades attributed to any one category, and by recording the frequency of appearance of grades in answer to questions in both questionnaires and interviews. This procedure will be carried out by employing the computing routine techniques of the Statistical Package for the Social Sciences - SPSSX, whose details are seen in details in Appendix F.

Next, after presenting and discussing the three preceding steps to analyse the raw data of the survey the sequence of the whole analysis to be carried out, by using a special statistical package (SPSSX) will be presented.

In order to analyse the results, the whole set of categories will be coded into variables, bearing in mind the whole set of questions and for each organisation, information will be checked and each item 'scored' in accordance with the respondent's reply to the particular question, for both questionnaires and interviews. Next,

the responses will be organized and processed, by using processing formats, conventions and routine techniques inherent in the SPSSX package - Statistical Package for the Social Sciences (Appendix F).

To analyse the final set of information, a correlational analysis technique will be used to assess the cause-effect relationship between the main variables under consideration, namely organisational climate and results of training, results of training and business performance, and organisational climate and business performance. In addition, the above cause-effect relationship will be based upon the final mean SCORES of organisational climate, results of training of the three groups, namely workers, supervisors and managers, and business performance (Appendix F).

In order to perform this kind of correlational analysis, the information related to workers, supervisors and managers, will be put in the form of mean SCORES so as to enable a practical and effective analysis. Bearing this in mind, five different mean SCORES will be computed: CLIMA (mean score of workers' perception of organisational climate), WOKAN (mean score of evaluation of results of workers' training, as assessed by workers), SUPAN (mean score of supervisors' evaluation of results of workers' training), MANAN (mean score of managers' evaluation of

results of workers' training), and finally, BUS (mean score of managers' assessment of business performance, in relation to workers' training programmes carried out).

The analysis of the role of organisational climate upon training effectiveness will be carried out by associating the overall mean score of organisational climate, CLIMA, with the corresponding overall mean score of evaluation of workers' training programmes, i.e. WOKAN, SUPAN and MANAN, respectively. Furthermore, on the basis of the above findings, it is hoped to establish the likely influence/relationship. In addition, it is hoped that the higher workers' perception of their organisational climate, the better the results of training will be.

With regard to the association between the results of training and business performance, the analysis will be performed by relating the overall mean score of evaluation of results of workers' training, that is WOKAN, SUPAN and MANAN, respectively, with the corresponding mean score of business performance, i.e. BUS, in order to establish the likely relationship. In addition, a positive link between results of workers' training and high business performance, in terms of positive business financial outcomes of the firms surveyed is expected.

Finally, regarding the relationship between organisational climate and business performance, the

analysis will be carried out by associating the overall mean score of organisational climate, CLIMA, with the corresponding mean score of business performance, BUS. Also, a positive and high association between organisational climate and business performance, in relation to the last workers' training is expected.

In the next Chapter will be discussed the main findings of the survey, taking into account the analytical procedures and techniques explained and presented in the final section of this Chapter in more detail.

CHAPTER 5: ANALYSIS AND DISCUSSION OF RESULTS

This Chapter outlines the main findings of the survey, tests the research hypotheses and examines the degree of fit of the statistical analysis technique employed in this study.

In order to analyse the relationship between organisational climate as perceived by workers and the results of training, assessed by workers, supervisors and managers of the forty five industries comprised by this study, the separate results of both organisational climate and results of workers' training will be outlined. After that the kind of association between these two main variables, involving all the possible relationships will be presented. These relationships will be established by using the correlational analysis technique, based on the whole set of the survey data collected, whose complete analysis was carried out through the SPSSX package, in terms of coding, tabulating and the whole analysis procedure itself.

To begin with, this analysis will focus, in the first instance, on the results of organisational climate and thereafter examine the results of workers' training evaluation programmes. Finally, the results related to business performance and other side results will be presented, although the complete presentation and

discussion will be outlined in the following and appropriate sections.

5.1 Organisational Climate Results

This part highlights the main outcomes of organisational climate, bearing in mind the overall replies from the 225 workers to whom the Questionnaires were administered, but taking into account only the actual responses rather than the missing ones. Also, it was considered here an average score of the four climate indices employed to define organisational climate, namely Human Resources Primacy (Human), Communication Flow (Flow), Motivational Conditions (Condi) and Decision-Making Practices (Dec), grouped into thirteen variables, as defined and discussed in detail in Chapter two, section 2.3. In addition, and considering the fact the above climate indices are the results of thirteen combined variables (items), they will be presented separately and finally, the organisational climate itself is then shown as a mean score of the above four composite climate indices.

Next, in the following sections, the most important findings of the combined climate indices employed in this study will be presented and discussed in detail.

5.1.1 Human Resources Primacy Index (HUMAN)

This index encompasses three variables: Real (real interest in workers' welfare), Condi (improvement of working conditions) and Ativ (how work activities are organized).

Building on the findings of the survey carried out, there is a great interest in workers' welfare and happiness (65.3%), there is also a very great improvement in the working conditions (64.4%). In addition, in the workers' opinion, their work activities are very well organized in the industries concerned (62.9%). Conversely, the mean score of the three variables, HUMAN, is very significant indeed, around 5 (4.485), which means a positive all round index, in terms of the importance of Human Resources Primacy, according to workers' assessment.

Next, in Table 1, below, a complete picture of the above findings is presented.

TABLE 1: RESULTS OF HUMAN RESOURCES PRIMACY INDEX (HUMAN) AND ITS PARTS: REAL, CONDI AND ATIV (N=225)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
REAL	3	18	8.0%	9.2%	4.561
	4	50	22.2%	25.5%	
	5	128	56.9%	65.3%	

	9	29	12.9%	missing	
	TOTAL	225	100.0%	100.0%	
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
	3	22	9.8%	11.7%	
CONDI	4	45	20.0%	23.9%	4.527
	5	121	53.8%	64.4%	
	9	37	16.4%	missing	
	TOTAL	225	100.0%	100.0%	
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
	3	26	11.6%	14.0%	
ATIV	4	43	19.1%	23.1%	4.489
	5	117	52.0%	62.9%	
	9	39	17.3%	missing	
	TOTAL	225	100.0%	100.0%	
HUMAN					4.485

Note: *(V) 1 - To a very little extent
2 - To a little extent
3 - To some extent
4 - To a great extent
5 - To a very great extent

Source: Survey data, Brazil, March 1987.

5.1.2 Communication Flow Index (FLOW)

This index also comprises three variables, namely Ainf (amount of information needed), Rec (receptive to ideas/suggestions) and Know (knowledge to do the job better). According to the workers' responses, there is a very great amount of adequate information in other sections/departments of the organisations (60.5%), their immediate superiors are receptive to workers' ideas/suggestions (59.6%), and the basic knowledge to do the job better is also very good (62.0%). Consequently, the average score of these three variables, FLOW, appears

to be good indeed (4.321). This fact suggests that in the workers' opinion there is good communication flow within the firms surveyed.

Table 2, below, shows an overall picture of these findings.

TABLE 2: RESULTS OF COMMUNICATION FLOW INDEX (FLOW)
AND ITS PARTS: AINF, REC AND KNOW
(N=225)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
AINF	1	0	0.0%	0.0%	4.459
	2	0	0.0%	0.0%	
	3	27	12.0%	14.6%	
	4	46	20.4%	24.9%	
	5	112	49.8%	60.5%	
	9	40	17.8%	missing	
	TOTAL	225	100.0%	100.0%	
REC	1	0	0.0%	0.0%	4.463
	2	0	0.0%	0.0%	
	3	25	11.1%	13.3%	
	4	51	22.7%	27.1%	
	5	112	49.8%	59.6%	
	9	37	16.4%	missing	
	TOTAL	225	100.0%	100.0%	
KNOW	1	0	0.0%	0.0%	4.446
	2	0	0.0%	0.0%	
	3	32	14.2%	17.4%	
	4	38	16.9%	20.6%	
	5	114	50.7%	62.0%	
	9	41	18.2%	missing	
	TOTAL	225	100.0%	100.0%	
FLOW					4.321

Note: *(V) 1 - To a very little extent
2 - To a little extent
3 - To some extent
4 - To a great extent
5 - To a very great extent

Source: Survey data, Brazil, March 1987.

5.1.3 Motivational Conditions Index (CONDI)

This index is formed by these three variables: Dish (differences and disagreements between units or departments), Reason (reasons to work hard) and lastly Hard (encouraging policies to work hard). Also, taking into consideration the results presented by workers' replies to the whole Questionnaires, it seems that disagreements/differences between parts/sections within the organisations concerned are normally accepted (54.4%), whilst the main reasons to work hard are to keep jobs, make money, seek promotions and do a satisfactory job (69.1%). In addition, it appears that there is a great stimulus in terms of encouraging policies and conditions to work hard (61.6%), in workers' view, and likewise, the average score of these three variables, CONDI, seems to be very significant indeed (3.769). This index indicates that reasonable motivational conditions do exist within the firms concerned, whose complete details are summarized in Table 3, below.

TABLE 3: RESULTS OF MOTIVATIONAL CONDITIONS INDEX (CONDI)
AND ITS COMBINED ITEMS: DISH, REASON AND HARD
(N=225)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
DISH	1	5	2.2%	2.6%	3.403
	2	17	7.6%	8.9%	
	3	65	28.9%	34.1%	
	4	104	46.2%	54.4%	
	5	0	0.0%	0.0%	
	9	34	15.1%	missing	
	TOTAL	225	100.0%	100.0%	
REASON	1	4	1.8%	2.1%	3.932
	2	8	3.5%	4.2%	
	3	16	7.1%	8.4%	
	4	132	58.7%	69.1%	
	5	31	13.8%	16.2%	
	9	34	15.1%	missing	
	TOTAL	225	100.0%	100.0%	
HARD	1	0	0.0%	0.0%	3.973
	2	8	3.5%	4.3%	
	3	26	11.6%	14.1%	
	4	114	50.7%	61.6%	
	5	37	16.4%	20.0%	
	9	40	17.8%	missing	
	TOTAL	225	100.0%	100.0%	
CONDI					3.769

Note: *(V) See Appendix A for details

Source: Survey data, Brazil, March 1987.

5.1.4 Decision-Making Process Index (DEC)

The final climate index, used to analyse organisational climate, is a combination of these four variables: Set (objectives setting), Right (decision made at the right levels), Person (persons' contribution to the

decision-makers) and Best (use of available information to work better). Also, taking into consideration the results given by the respondents, it appears that workers' level of participation in setting up the firm's objectives is quite interesting in terms of the discussion of the objectives before being used (47.0%) and an indication of alternative goals (33.9%). Furthermore, this achievement can be interpreted as a positive and practical approach by the firms concerned to workers' participation in the decision-making process, whose end result is very good.

With respect to this, it appears the decisions are made at the right levels of the organisations (67.0%), whilst people's contribution to the decision-makers is a good outcome indeed (65.4%). Finally, it seems there is a great use of the necessary information to do things better (64.3%) and as a result, the average score of this index, DEC, around 4.000 (3.729), reveals a very promising situation, in terms of workers's level of participation as a whole.

Table 4, below, summarizes the findings of this above index.

TABLE 4: RESULTS DECISION-MAKING PROCESS INDEX (DEC)
AND ITS PARTS: SET, RIGHT, PERSON AND BEST
(N=225)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
SET	1	0	0.0%	0.0%	3.148
	2	35	15.5%	19.1%	
	3	86	38.2%	47.0%	
	4	62	27.6%	33.9%	
	5	0	0.0%	0.0%	
	9	42	18.7%	missing	
	TOTAL	225	100.0%	100.0%	
RIGHT	1	0	0.0%	0.0%	3.941
	2	8	3.5%	4.3%	
	3	24	10.7%	13.0%	
	4	124	55.1%	67.0%	
	5	29	12.9%	15.7%	
	9	40	17.8%	missing	
	TOTAL	225	100.0%	100.0%	
PERSON	1	0	0.0%	0.0%	3.978
	2	6	2.6%	3.2%	
	3	25	11.1%	13.5%	
	4	121	53.8%	65.4%	
	5	33	14.7%	17.9%	
	9	40	17.8%	missing	
	TOTAL	225	100.0%	100.0%	
BEST	1	0	0.0%	0.0%	3.968
	2	4	1.8%	2.2%	
	3	30	13.3%	16.2%	
	4	119	52.9%	64.3%	
	5	32	14.2%	17.3%	
	9	40	17.8%	missing	
	TOTAL	225	100.0%	100.0%	
DEC					3.729

Note: *(V)
 1 - Objectives not commented
 2 - Objectives commented
 3 - Objectives discussed
 4 - Alternative objectives
 5 - Problems leading to objectives

** (V)

- 1 - To a very little extent
- 2 - To a little extent
- 3 - To some extent
- 4 - To a great extent
- 5 - To a very great extent

Source: Survey Data, Brazil, March 1987

To conclude, it is interesting to point out that CLIMA, the organisational climate index, as an average index of the four previous climate indices presented, has shown a mean score of 4.139, indicating therefore a high organisational climate across the industries surveyed, according to workers' assessment. All in all, the organisational climate perceived by workers, seemed to be very positive.

Next, the main findings of the results of workers' training, as assessed by workers themselves will be presented.

5.2 Results of Training Evaluation - Part 1: Workers

This topic outlines the findings related to training evaluation, as assessed by workers who had experienced training on-the-job, taking into consideration the answers of the 225 Questionnaires administered to trainees of the whole forty five industries surveyed.

The information concerning training evaluation took into account levels two and three of the Kirkpatrick model, but for the purposes of this analysis, only level three, behaviour change, was used because the results of level two, learning assessment, were not deemed as important. The main reasons why level two was not regarded as important, for the purpose of this analysis, are due mainly to the fact that such level of training evaluation is more appropriate to assess the amount of learning taken place immediately at the end of a training programme. However, this is not the main objective sought by this study.

In order to be consistent with the analytic procedure used to study organisational climate, the thirteen variables directly associated with workers' training evaluation (level three), were grouped into four parts. In addition, these four parts constitute four distinct training evaluation indices and are used to form an average training evaluation index actually employed here so as to associate it with the average organisational climate index, as earlier discussed in section 5.1.1.

As said previously, the above four training evaluation indices are: Change (changes occurred after training), Efet (effects of the last training attended), Outco (actual training outcomes) and Chan (concrete training results taken place). In addition, the full

development and discussion of this topic will be presented in the next sections, together with practical examples (Tables).

5.2.1. Workers' Training Changes Index (CHANGE)

This index comprises three variables: Perf (workers' performance at work), Tose (things done on schedule) and Qual (work quality). Taking into consideration the replies from the Questionnaires, workers' performance at work after training seems to have improved (64.1%), and getting things done on schedule is much better (62.8%). Also, the work quality performed by workers, as a consequence of the last training attended, appears to be somewhat higher (56.3%). Consequently, the average score, CHANGE, around 5.000 (4.411), is very high, indicating, therefore, that a positive and real change has occurred after workers' training.

In Table 5, below, a full and detailed picture of these above findings is displayed.

TABLE 5: RESULTS OF TRAINING CHANGES INDEX (CHANGE)
AND ITS PARTS: PERF, TOSE AND QUAL
(N=225)

=====

	*(V)	(N)	Percent	Valid Percent	AVERAGE
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
PERF	3	13	5.8%	6.3%	4.578

	4	61	27.1%	29.6%	
	5	132	58.7%	64.1%	
	9	19	8.4%	missing	
	TOTAL	225	100.0%	100.0%	
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
	3	18	8.0%	9.0%	
TOSE	4	56	24.9%	28.1%	4.538
	5	125	55.6%	62.9%	
	9	26	11.5%	missing	
	TOTAL	225	100.0%	100.0%	
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
	3	15	6.7%	7.5%	
QUAL	4	112	49.8%	56.3%	4.286
	5	72	32.0%	36.2%	
	9	26	11.5%	missing	
	TOTAL	225	100.0%	100.0%	
CHANGE					4.411

Note: *(V) 1 - Don't know
2 - Somewhat worse
3 - No change
4 - Somewhat better
5 - Much better

Source: Survey Data, Brazil, March 1987

5.2.2 Workers' Training Effects Index (EET)

This index is a combination of these three variables: Perel (changes in peers' relationships), Surel (changes in supervisor/peers relationships) and Acomp (amount of work accomplished). Building on the findings, it appears that changes in peers' relationships is somewhat better now (61.2%), and change in supervisor/peers relations is also somewhat better (68.6%). In addition, the amount of work accomplished seems to have increased, too, (70.8%) and all

in all, it can be concluded that positive effects have occurred as a result of workers' training carried out. Likewise, the average score, EFET, is very significant indeed (4.398), which can be seen as a confirmation of the positive effects of workers' training, which constitutes a very interesting outcome indeed.

The above results are shown in full in Table 6 below.

TABLE 6: RESULTS OF WORKERS' TRAINING EFFECTS (EFET)
AND ITS PARTS: PEREL, SUREL AND ACOMP
(N=225)

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	*(V)	(N)	Percent	Valid Percent	AVERAGE
PEREL	1	0	0.0%	0.0%	4.301
	2	0	0.0%	0.0%	
	3	8	3.5%	4.4%	
	4	112	49.8%	61.2%	
	5	63	28.0%	34.4%	
	9	42	18.7%	missing	
TOTAL		225	100.0%	100.0%	
SUREL	1	0	0.0%	0.0%	4.194
	2	0	0.0%	0.0%	
	3	12	5.3%	6.0%	
	4	138	61.3%	68.6%	
	5	51	22.7%	25.4%	
	9	24	10.7%	missing	
TOTAL		225	100.0%	100.0%	
ACOMP	1	0	0.0%	0.0%	4.630
	2	0	0.0%	0.0%	
	3	17	7.6%	7.9%	
	4	46	20.4%	21.3%	
	5	153	68.0%	70.8%	
	9	9	4.0%	missing	
TOTAL		225	100.0%	100.0%	

Note: *(V) 1 - Don't know
2 - Somewhat worse
3 - No change
4 - Somewhat better
5 - Much better

Source: Survey Data, Brazil, March 1987

5.2.3 Workers' Training Outcomes Index (OUTCO)

This index is formed by three variables, namely Greve (grievances and complaints prevented), Work (using new ways to work) and Safe (safety records). Also, considering the overall responses from workers, there are less grievances/complaints, which means the situation now is somewhat better (68.4%), and new ways to work are much better than before (58.2%), whilst safety, in general, also appears to have increased (71.8%). Furthermore, the average score, OUTCO, is good (4.400), indicating a very positive outcome, as a result of the last workers' training programme.

Next, in Table 7, below, a summary of these above findings is presented.

TABLE 7: RESULTS OF WORKERS' TRAINING OUTCOMES INDEX
(OUTCO) AND ITS PARTS: GREVE, WORK AND SAFE
(N=225)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
GREVE	1	0	0.0%	0.0%	4.143
	2	0	0.0%	0.0%	
	3	17	7.6%	8.7%	
	4	134	59.5%	68.3%	
	5	45	20.0%	23.0%	
	9	29	12.9%	missing	
	TOTAL	225	100.0%	100.0%	
WORK	1	0	0.0%	0.0%	4.429
	2	0	0.0%	0.0%	
	3	30	13.3%	15.3%	
	4	52	23.1%	26.5%	
	5	114	50.7%	58.2%	
	9	29	12.9%	missing	
	TOTAL	225	100.0%	100.0%	
SAFE	1	0	0.0%	0.0%	4.671
	2	0	0.0%	0.0%	
	3	10	4.4%	4.6%	
	4	51	22.7%	23.6%	
	5	155	68.9%	71.8%	
	9	9	4.0%	missing	
	TOTAL	225	100.0%	100.0%	
OUTCO					4.440

Note: *(V) 1 - Don't know
 2 - Somewhat worse
 3 - No change
 4 - Somewhat better
 5 - Much better

Source: Survey Data, Brazil, March 1987

5.2.4 Workers' Training Change Index (CHAN)

This last training index includes four variables, namely Tasky (time to perform tasks), Iprod (number of

items produced), Cost (reduction in costs) and Motiv (workers' level of motivation). In addition, on the basis of the whole findings taken place, it appears that time to perform tasks is now reduced (77.4%), whereas the number of items actually produced by workers seems to have increased (72.0%). There is a reduction in costs after training (66.4%), and workers' level of motivation appears to have increased (59.4%). Consequently, the average index, CHAN, is good (4.283), indicating, therefore, that specific and concrete changes have occurred as a result of workers' undergoing training programme.

Table 8, below, shows a complete picture of these above findings.

TABLE 8: RESULTS OF WORKERS' TRAINING CHANGES INDEX (CHAN) ITS PARTS: TASKY, IPROD, COST AND MOTIV (N=225)

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	*(V)	(N)	Percent	Valid Percent	AVERAGE
TASKY	1	0	0.0%	0.0%	4.151
	2	0	0.0%	0.0%	
	3	8	3.5%	3.8%	
	4	164	72.9%	77.3%	
	5	40	17.8%	18.9%	
	9	13	5.8%	missing	
TOTAL		225	100.0%	100.0%	
IPROD	1	0	0.0%	0.0%	4.679
	2	0	0.0%	0.0%	
	3	9	4.0%	4.1%	
	4	52	23.1%	23.9%	
	5	157	69.8%	72.0%	
	9	7	3.1%	missing	

	TOTAL	225	100.0%	100.0%	
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
	3	8	3.6%	3.6%	
COST	4	146	64.9%	66.4%	4.264
	5	66	29.3%	30.0%	
	9	5	2.2%	missing	
	TOTAL	225	100.0%	100.0%	
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
	3	38	16.9%	19.8%	
MOTIV	4	114	50.7%	59.4%	4.010
	5	40	17.8%	20.8%	
	9	33	14.6%	missing	
	TOTAL	225	100.0%	100.0%	
CHAN					4.283

Note: *(V) 1 - Don't know
2 - Somewhat worse
3 - No change
4 - Somewhat better
5 - Much better

Source: Survey Data, Brazil, March 1987

In order to conclude this topic, it is important to point out that WOKAN, the workers' training evaluation index, is in fact the average score of the four previous training evaluation indices presented, which has shown an average of 4.496 and this fact indicates a substantial training evaluation achievement. In short, it can be said that the results of workers' training evaluation seem to be encouraging, positive and promising.

Next, the main findings related to the results of

workers' training, but as assessed by their immediate superiors - their supervisors - will be shown.

5.3 Results of Training Evaluation - Part 2: Supervisors

This section focuses on the main findings of the results of workers' training programmes, as assessed by their immediate superiors, bearing in mind the overall replies from ninety interviews administered to supervisors across the forty-five firms surveyed.

Taking into consideration the explanation given in section 5.2, and in order to be consistent with the same analysis procedure and structure, this topic will include only level three of Kirkpatrick's model (behaviour change). Furthermore, the results of workers' training programmes will be combined into four distinct groups, so as to form four training results indices, distributed into the thirteen variables comprised in this part, whose development and full details will be shown and discussed in the next sections.

5.3.1 Supervisors' Training Changes Index (SUPE)

This index is a set of three variables namely Toper (trainees performance at work), Toche (work done on schedule) and Toqua (work quality). Building on the whole set of answers of the 90 interviews, it appears that

trainees' performance at work seems now to have improved (65.6%), whilst work done on schedule is deemed as much better (56.7%) and lastly, work quality was assessed as somewhat better (71.1%). Conversely, the average index, SUPE, appears to be good (4.230), indicating therefore that positive and actual changes have occurred as a result of the last workers' training programme taken place.

Table 9, below, presents an overall picture of these findings.

TABLE 9: RESULTS OF SUPERVISORS' TRAINING CHANGES INDEX (SUPE) AND ITS PARTS: TOPER, TOCHE AND TOQUA (N=90)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
TOPER	1	0	0.0%	0.0%	4.256
	2	0	0.0%	0.0%	
	3	4	4.4%	4.4%	
	4	59	65.6%	65.6%	
	5	27	30.0%	30.0%	
	TOTAL	90	100.0%	100.0%	
TOCHE	1	0	0.0%	0.0%	4.367
	2	0	0.0%	0.0%	
	3	18	20.0%	20.0%	
	4	21	23.3%	23.3%	
	5	51	56.7%	56.7%	
	TOTAL	90	100.0%	100.0%	
TOQUA	1	0	0.0%	0.0%	4.067
	2	0	0.0%	0.0%	
	3	10	11.1%	11.1%	
	4	64	71.1%	71.1%	
	5	16	17.8%	17.8%	
	TOTAL	90	100.0%	100.0%	

Note: *(V) 1 - Don't know
2 - Somewhat worse
3 - No change
4 - Somewhat better
5 - Much better

Source: Survey Data, Brazil, March 1987

5.3.2 Supervisors' Training Effects Index (SUPI)

This next index is a combination of these three variables: Torel (relationships among trainees), Tosur (supervisor/trainee relations) and Tac (amount of work accomplished), and on the basis of the findings of this study, it seems quite evident that the present relationships among trainees are now somewhat better (58.9%). Also, the relations between supervisors and trainees have improved (62.2%) and finally, the amount of work accomplished appears to be higher than before (62.2%). Consequently, the average score, SUPI, seems to be good (4.274), which can be seen as substantial effects over the firms, as a whole, as a result of the last workers' training carried out.

In Table 10, below, a complete picture of these findings is displayed.

TABLE 10: RESULTS OF SUPERVISORS' TRAINING EFFECTS INDEX (SUPI) AND ITS PARTS: TOREL, TOSUR AND TAC (N=90)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
TOREL	1	0	0.0%	0.0%	4.144
	2	0	0.0%	0.0%	
	3	12	13.3%	13.3%	
	4	53	58.9%	58.9%	
	5	25	27.8%	27.8%	
	TOTAL	90	100.0%	100.0%	
TOSUR	1	0	0.0%	0.0%	4.178
	2	0	0.0%	0.0%	
	3	9	10.0%	10.0%	
	4	56	62.2%	62.2%	
	5	25	27.8%	27.8%	
	TOTAL	90	100.0%	100.0%	
TAC	1	0	0.0%	0.0%	4.500
	2	0	0.0%	0.0%	
	3	11	12.2%	12.2%	
	4	23	25.6%	25.6%	
	5	56	62.2%	62.2%	
	TOTAL	90	100.0%	100.0%	
SUPI					4.274

Note: *(V) 1 - Don't know
 2 - Somewhat worse
 3 - No change
 4 - Somewhat better
 5 - Much better

Source: Survey Data, Brazil, March 1987

5.3.3 Supervisors' Training Outcomes Index (SUPA)

This index is a mean score of these three variables: Togri (reduction in grievances/complaints), Towo (new ways to work and Tosa (safety records). Taking into account

the set of findings produced by the total replies from the supervisors, it can be said that reduction in grievances and complaints is better (70.0%). In addition, new ways to work also appear to be somewhat better (55.6%) and, similarly, safety (54.4%). Conversely, the average score, SUPA, is good (4.244), which can be considered as substantial and positive training outcomes for the industries, as a consequence of the last workers' training programme taken place.

Table 11, below, summarizes the main findings of the above computed indices.

TABLE 11: RESULTS OF SUPERVISORS' TRAINING OUTCOMES INDEX (SUPA) AND ITS PARTS: TOGRI, TOWO AND TOSA (N=90)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
TOGRI	1	0	0.0%	0.0%	4.056
	2	0	0.0%	0.0%	
	3	11	12.2%	12.2%	
	4	63	70.0%	70.0%	
	5	16	17.8%	17.8%	
	TOTAL	90	100.0%	100.0%	
TOWO	1	0	0.0%	0.0%	4.200
	2	0	0.0%	0.0%	
	3	11	12.2%	12.2%	
	4	50	55.6%	55.6%	
	5	29	32.2%	32.2%	
	TOTAL	90	100.0%	100.0%	
TOSA	1	0	0.0%	0.0%	4.478
	2	0	0.0%	0.0%	
	3	6	6.7%	6.7%	

4	35	38.9%	38.9%
5	49	54.4%	54.4%
TOTAL	90	100.0%	100.0%

SUPA 4.244

Note: *(V) 1 - Don't know
2 - Somewhat worse
3 - No change
4 - Somewhat better
5 - Much better

Source: Survey Data, Brazil, March 1987

5.3.4 Supervisors' Training Change Index (SUPO)

This final index is composed by three variables, namely Tiwo (time to perform tasks), Top (number of items produced), Toco (reduction in costs) and Tomo (trainees' level of motivation). On the basis of the overall replies from the ninety supervisors, it appears that time to perform tasks is now somewhat better (60.0%), and trainees' production is now increased (66.7%). Also, reduction in costs gained a good position (66.7%) and finally, trainees' level of motivation seems somewhat better (58.9%). Conversely, the average index, SUPO, is good indeed (4.247), indicating therefore that positive and good all round workers' training results have occurred.

Table 12, below, shows a detailed picture of these results.

TABLE 12: RESULTS OF SUPERVISORS' TRAINING CHANGE INDEX
(SUPO) AND ITS PARTS: TIWO, TOP, TOCO AND TOMO
(N=90)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
TIWO	1	0	0.0%	0.0%	4.089
	2	0	0.0%	0.0%	
	3	14	15.6%	15.6%	
	4	54	60.0%	60.0%	
	5	22	24.4%	24.4%	
	TOTAL		90	100.0%	
TOP	1	0	0.0%	0.0%	4.533
	2	0	0.0%	0.0%	
	3	12	13.3%	13.3%	
	4	18	20.0%	20.0%	
	5	60	66.7%	66.7%	
	TOTAL		90	100.0%	
TOCO	1	0	0.0%	0.0%	4.244
	2	0	0.0%	0.0%	
	3	4	4.4%	4.4%	
	4	60	66.7%	66.7%	
	5	26	28.9%	28.9%	
	TOTAL		90	100.0%	
TOMO	1	0	0.0%	0.0%	4.122
	2	0	0.0%	0.0%	
	3	13	14.4%	14.4%	
	4	53	58.9%	58.9%	
	5	24	26.7%	26.7%	
	TOTAL		90	100.0%	
SUPO					4.247

Note: *(V) 1 - Don't know
 2 - Somewhat worse
 3 - No change
 4 - Somewhat better
 5 - Much better

Source: Survey Data, Brazil, March 1987

As a final comment on this topic, it is interesting to point out that SUPAN, the training evaluation index, calculated as an average index of the four previous supervisors' training indices, as earlier presented, has shown a mean score of 4.249, reflecting a positive training evaluation index across the forty five firms surveyed. All in all, it can be concluded that the whole findings of this section seem to indicate a good prospect for the firms concerned, in terms of the results of workers' training programmes administered to workers, and as assessed by their respective supervisors.

Next, the main findings related to the results of workers' training, as assessed by managers and their deputy managers will be shown.

5.4 Results of Training Evaluation - Part 3: Managers

This part outlines the main findings of training programmes attended by workers, but assessed by managers, with respect to the complete turnout of the ninety interviews administered to managers and deputy managers, involving three different sets of industries, comprising a total of forty-five firms.

Here the analysis procedure is the same as in sections 5.2 and 5.3 respectively, and therefore, the

thirteen variables included in this topic were grouped into four distinct parts, forming four indices used to analyse the results of workers' training at level four of Kirkpatrick's model, final results. The reasons for adopting such a procedure are basically because it is understood that managers, compared with workers and supervisors, are more prepared to assess training at level four, because they usually keep the necessary information related to this level of training evaluation.

Bearing the above points in mind, for the purpose of this analysis, the mean score of these indices will be used as an average index called Managers' Training Evaluation Index, actually employed here to evaluate the results of workers' training at level four (final results).

Taking level four into account, in fact managers and deputy managers assessed the results of workers' training on a before-and-after basis, because, among other reasons, only managers and deputy managers usually keep records of this type of information. Furthermore, for the purpose of the present analysis, only the results AFTER training will be taken into account, so as to be consistent with the kind of evaluation performed by both supervisors and workers.

In the following sections a detailed explanation of this topic will be presented.

5.4.1 Managers' Training Changes Index (MON)

This index is a set of three variables, namely Perta (trainees' performance at work), Ocha (things done on schedule) and Quala (work quality). According to the overall replies from the managers/deputy managers, workers' performance at work seems to have increased (62.2%), whilst things done on schedule are very good (62.2%) and lasty trainees' work quality appears to be higher (68.9%). Similarly, the average index, MON, is also good indeed (4.354), revealing that encouraging and positive changes have actually taken place in workers' performance, as a result of the last training programmes attended by workers, but as assessed by managers.

Next, an overall picture of these findings is shown in Table 13, below.

TABLE 13: RESULTS OF MANAGERS' TRAINING CHANGES INDEX (MON) AND ITS PARTS: PERTA, OCHA AND QUALA (N=90)

=====

	*(V)	(N)	Percent	Valid Percent	AVERAGE
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
PERTA	3	6	6.7%	6.7%	4.244
	4	56	62.2%	62.2%	
	5	28	31.1%	31.1%	
TOTAL		90	100.0%	100.0%	

	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
OCHA	3	6	6.7%	6.7%	4.556
	4	28	31.1%	31.1%	
	5	56	62.2%	62.2%	
	TOTAL	90	100.0%	100.0%	
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
QUALA	3	4	4.4%	4.4%	4.222
	4	62	68.9%	68.9%	
	5	24	26.7%	26.7%	
	TOTAL	90	100.0%	100.0%	
MON					4.354

Note: *(V) 1 - Undesirable
2 - Tolerable
3 - Satisfactory
4 - Good
5 - Very good.

Source: Survey Data, Brazil, March 1987

5.4.2 Managers' Training Effects Index (MAN)

This next index comprises these three variables: Relba (relationships among trainees), Works (supervisors / trainees relationships) and Slep (amount of work actually accomplished). Based on the overall responses from the managers, the relationships among trainees are now higher (66.7%), whereas supervisors/workers relationships are good/very good (46.7%) and (40.0%) and the amount of work accomplished seems to have increased (62.2%). On the other hand, the average index, MAN, is good (4.259), indicating thus that significant effects on workers' performance have occurred, as a results of the last training programme administered to workers.

Next, Table 14, below, shows a summary of these above results.

TABLE 14: RESULTS OF MANAGERS' TRAINING EFFECTS INDEX (MAN) AND ITS PARTS: RELBA, WORKA AND SLEP (N=90)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
RELBA	1	0	0.0%	0.0%	4.067
	2	0	0.0%	0.0%	
	3	12	13.3%	13.3%	
	4	60	66.7%	66.7%	
	5	18	20.0%	20.0%	
	TOTAL		90	100.0%	
WORKA	1	0	0.0%	0.0%	4.267
	2	0	0.0%	0.0%	
	3	12	13.3%	13.3%	
	4	42	46.7%	46.7%	
	5	36	40.0%	40.0%	
	TOTAL		90	100.0%	
SLEP	1	0	0.0%	0.0%	4.444
	2	0	0.0%	0.0%	
	3	16	17.8%	17.8%	
	4	18	20.0%	20.0%	
	5	56	62.2%	62.2%	
	TOTAL		90	100.0%	
MAN					4.259

Note: *(V) 1 - Undesirable
 2 - Tolerable
 3 - Satisfactory
 4 - Good
 5 - Very good

Source: Survey Data, Brazil, March 1987

5.4.3 Managers' Training Outcomes Index (MIN)

This index is the association of three variables: Griev (reduction in grievances/complaints), Worg (new ways to work) and Sada (safety records). Taking into account the complete replies from the interviews carried out, the present situation, in terms of grievances and complaints, seems to be good indeed (68.9%), whereas new ways to work are very good (51.1%). In addition, safety records seem now to have improved (53.3%). Similarly, the average score, MIN, seems to be good (4.324), indicating, therefore, that substantial and effective outcomes have occurred as a result of the kind of training attended by workers.

Below, in Table 15, is outlined an overall picture of these above results.

TABLE 15: RESULTS OF MANAGERS' TRAINING OUTCOMES INDEX (MIN) AND ITS PARTS: GRIEV, WORG AND SADA (N=90)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
GRIEVE	1	0	0.0%	0.0%	4.178
	2	0	0.0%	0.0%	
	3	6	6.7%	6.7%	
	4	62	68.9%	68.9%	
	5	22	24.4%	24.4%	
	TOTAL	90	100.0%	100.0%	
WORG	1	0	0.0%	0.0%	4.311
	2	0	0.0%	0.0%	
	3	18	20.0%	20.0%	

	4	26	28.9%	28.9%	
	5	46	51.1%	51.1%	
	TOTAL	90	100.0%	100.0%	
	1	0	0.0%	0.0%	
	2	0	0.0%	0.0%	
SADA	3	10	11.1%	11.1%	4.422
	4	32	35.6%	35.6%	
	5	48	53.3%	53.3%	
	TOTAL	90	100.0%	100.0%	
MIN					4.324

Note: *(V)1 - Undesirable
2 - Tolerable
3 - Satisfactory
4 - Good
5 - Very good

Source: Survey Data, Brazil, March 1987

5.4.4 Managers' Training Change Index (MUN)

This final index is formed by these four variables, namely Stop (time to perform tasks), Ipro (worker's normal production), Costs (reduction in costs) and Mot (workers' level of motivation in relation to work).

According to the complete set of responses from managers, it appears that time to perform tasks is now higher (68.9%), whereas workers' production, as a whole, has improved (66.7%). With regard to the reduction in costs, the situation appears to have improved (68.9%) and finally, workers' level of motivation appears to be somewhat good (64.4%). In addition, the average index, MUN, seems to be good, too (4.213), which can indicate

that significant and comprehensive final results of training have taken place and these findings are displayed in details in Table 16, below.

TABLE 16: RESULTS OF MANAGERS' TRAINING CHANGES INDEX (MUN) AND ITS PARTS: STOP, IPRO, COST AND MOT (N=90)

	*(V)	(N)	Percent	Valid Percent	AVERAGE
STOP	1	0	0.0%	0.0%	4.089
	2	0	0.0%	0.0%	
	3	10	11.1%	11.1%	
	4	62	68.9%	68.9%	
	5	18	20.0%	20.0%	
	TOTAL	90	100.0%	100.0%	
IPRO	1	0	0.0%	0.0%	4.556
	2	0	0.0%	0.0%	
	3	10	11.1%	11.1%	
	4	20	22.2%	22.2%	
	5	60	66.7%	66.7%	
	TOTAL	90	100.0%	100.0%	
COSTS	1	0	0.0%	0.0%	4.178
	2	0	0.0%	0.0%	
	3	6	6.7%	6.7%	
	4	62	68.9%	68.9%	
	5	22	24.4%	24.4%	
	TOTAL	90	100.0%	100.0%	
MOT	1	0	0.0%	0.0%	4.089
	2	0	0.0%	0.0%	
	3	12	13.3%	13.3%	
	4	58	64.4%	64.4%	
	5	20	22.3%	22.3%	
	TOTAL	90	100.0%	100.0%	
MUN		90	100.0%	100.0%	4.213

Note: *(V) 1 - Undersirable
2 - Tolerable

- 3 - Satisfactory
- 4 - Good
- 5 - Very good

Source: Survey Data, Brazil, March 1987

In order to summarize the presentation of this topic, it is interesting to note that Managers' Training Evaluation Index, MANAN, as an average score of the previous four training indices, is high indeed (4.303). This reflects a prominent position for the type of results of workers' training achieved across the three types of industries comprised by this study, based upon managers' opinions. All in all, the final results of workers' training, as assessed by the decision-makers, appear to be effective, positive and remarkable, indeed. It seems that the whole investment on training might have had worthwhile effects, not only on workers' performance in general, but also on the overall outcomes achieved by the industries concerned, 'ceteribus paribus'.

In the next section the results related to business performance and other factors, called side results, that might have some effects on the results of workers' training, namely company size and workers' background, will be presented and discussed.

5.5 Results of Business Performance and Other Factors

This part is geared to presenting other important findings associated with business performance, as assessed by managers and deputy managers and other factors that should be expected to have some kind of influence on the results of workers' training, namely workers' background, basically in terms of current salary, educational level and years of work experience, as assessed by workers themselves.

Company size can possibly have an influence on business performance and on the results of workers' training, too, and as such, the findings related to this variable, will be also shown.

Regarding the results of business performance, to be presented as an average score, they will be further associated with the other indices, such as organisational climate average score (CLIMA) and the three average indices related to the results of workers' training (WOKAN, SUPAN and MANAN, respectively).

The main purpose of the side results is to try to use them as an additional source of information so as to possibly try to establish further relationships, i.e. by associating such results with the main mean scores of the results of workers' training and organisational climate,

as fully presented and discussed earlier in sections 5.1, 5.2, 5.3, and 5.4 respectively.

Taking into consideration the type of analysis procedure employed so far, the results of other factors, except company size, will be presented as indices, so as to be consistent and coherent with the whole analysis procedure and structure adopted.

In the next following sections, a full and detailed picture of these findings will be outlined.

5.5.1 Results of Business Performance Index (BUS)

This present index is a combination of six variables, namely Empi (increase in the number of workers), Outi (company output increase), Prod (new products introduced), High (increase in the number of employees needing high skills), Prof (profitable company now) and finally, Proc (expected increase in turnover and profits).

According to the responses from managers and deputy managers of the whole set of industries surveyed, there seems to be a significant increase in the number of workers (71.1%), whilst the company output has also shown a good increase (71.1%). Similarly, new products have been introduced (68.9%), the number of employees needing high skills also increased (68.9%). In addition, it

appears the industries are more profitable than before (71.1%).

On the basis of the replies, it seems there is a positive expectation in terms of a better turnover and better profits (75.6%). To conclude, the average index, BUS, is pretty good (1.285), which can indicate concrete business performance, based on managers' opinions, and such an achievement seems to be the main purpose to be pursued by all managers and entrepreneurs, as a whole.

Next, a detailed and full description of these findings will be presented in Table 17, below.

TABLE 17: RESULTS OF BUSINESS PERFORMANCE INDEX (BUS) AND ITS PARTS: EMPI, OUTI, PROD, HIGH, PROF AND PROC

(N=90)

	*(V)	(N)	(%)	AVERAGE
EMPI	1	64	71.1%	
	2	26	28.9%	
	TOTAL	90	100.0%	1.289
OUTI	1	64	71.1%	
	2	26	28.9%	
	TOTAL	90	100.0%	1.289
PROD	1	62	68.9%	
	2	28	31.1%	
	TOTAL	90	100.0%	1.311
HIGH	1	62	68.9%	
	2	28	31.1%	
				1.311

	TOTAL	90	100.0%	
PROF	1	66	73.3%	
	2	24	26.7%	
				1.267
	TOTAL	90	100.0%	
PROC	1	68	75.6%	
	2	22	24.4%	
				1.244
	TOTAL	90	100.0%	
BUS				1.285

Note: *(V) 1 - YES; 2 - NO

Source: Survey Data, Brazil, March 1987

5.5.2 Results of Workers' Background (BACK)

This score is formed by these three variables: Sal (current salary), Edu (educational level) and Worky (years of work experience) and on the basis of the complete replies from the 225 workers, it can be pointed out that the top salaries range, on average, from 4 to 6 minimum wages (72.9%). In addition, the number of workers with complete high school levels seems predominant among trainees (54.2%), and finally, in terms of years of work experience, the majority of workers have four years (53.3%) or more (22.7%). Conversely, the average score, BACK, is significant indeed (3.733), reflecting, as a whole, a good background for the workers and this result is quite interesting as well for the Brazilian workforce standards.

TABLE 18: RESULTS OF WORKERS' BACKGROUND INDEX (BACK) AND ITS PARTS: SAL, EDU AND WORKY (N=225)

	*(V)	(N)	(%)	AVERAGE
SAL	1	13	5.8%	3.831
	2	19	8.4%	
	3	29	12.9%	
	4	96	42.7%	
	5	68	30.2%	
	TOTAL	225	100.0%	
EDU	1	19	8.4%	3.391
	2	18	8.0%	
	3	55	24.4%	
	4	122	54.2%	
	5	11	5.0%	
	TOTAL	225	100.0%	
WORKY	1	28	12.4%	3.978
	2	26	11.6%	
	3	120	53.3%	
	4	25	11.1%	
	5	26	11.6%	
	TOTAL	225	100.0%	
BACK				3.733

Note: *(V) See Appendix B, for details

Source: Survey Data, Brazil, March 1987

5.5.3 Results of Company Size (NUMB)

As previously stated, this is not an index but a variable, aimed at classifying the set of industries into small and medium sized and considering the results based on the overall replies from the 225 workers. The replies show that 09 out 45 industries surveyed are small (20.0%), whereas the remaining 36 are of medium size (80%). Also,

the mean of this variable, to be issued in further analysis, was high, around 5.000 (4.800), revealing therefore that the majority of the firms surveyed are of medium size.

Table 19, below, presents a complete picture of company size, (NUMB), combined with the three industrial sectors surveyed.

TABLE 19: RESULTS OF COMPANY SIZE (NUMB) ACROSS THE THREE INDUSTRIAL SECTORS

(N=45)

=====

<u>Industrial Sectors</u>									
	Pharmaceutical		Metal		Electronic		TOTAL		MEAN
*(V)	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)	
1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4.800
2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
4	2	16.7%	2	13.3%	5	27.8%	9	20.0%	
5	10	83.3%	13	86.7%	13	72.2%	36	80.0%	
TOTAL	12	100.0%	15	100.0%	18	100.0%	45	100.0%	

Note: *(V) 1. 21-40 workers;
 2. 41-60 workers;
 3. 61-74 workers;
 4. 75-100: small;
 5. 101-500: medium sized.

Source: Survey Data, Brazil, March 1987

To conclude this part, it is important to stress that these two indices, BACK and NUMB, as previously discussed, will be employed so as to associate them with the three

indices related to the results of workers' training, in an attempt to see whether the results of workers' training are affected in some way by workers' background and company size. In addition, the index related to business performance (BUS), will be also used as an attempt to verify whether business performance can be explained by the results of workers' training or not, and if so, to what extent it can be. Similarly, identical procedure will be then employed, in order to find out whether organisational climate, used as an index (CLIMA), accounts for business performance (BUS) or not, and if so, to what extent it does.

Next, the relationships between the results of workers' training, as assessed by workers, supervisors and managers, and business performance, as assessed by managers and deputy managers only will be presented and discussed.

5.6 Relationship Between Results of Workers' Training (WOKAN, SUPAN, MANAN) AND BUSINESS PERFORMANCE (BUS)

This part presents the main outcomes of correlational analysis carried out in this study (the main focus here), aimed at testing one of the hypotheses of this study, according to which the results of workers' training and business performance are closely related.

The part of statistical analysis that deals with the relationship between two variables, is called bivariate correlations, which is a measure whereby a single coefficient is employed to summarize the relationship between the two variables. In other words, the correlation coefficient indicates therefore the degree to which variation in one variable is associated to variation in the other, because, as explained earlier, the correlation coefficient summarizes the strength of association between the variable pair.

Bearing in mind the nature of the variables involved, that is ordinal variables and their ordinal sequence of answers (rank-ordered), for the specific purpose of this study non-parametric correlation was chosen. This is also called distribution free methods, whose main characteristic is to be based on ranks of the observations. In addition, it is particularly appropriate for ordinal or interval data, which do not satisfy the normality assumption and as such, Spearman's rank correlation coefficient (ρ), which is used as a measure of the linear relationship between two variables, was employed to perform the analysis.

Spearman's rank correlation is a non-parametric test and is designed to determine whether two or more rankings of the same cases are similar, and as implied earlier, its

validity depends simply upon the assumption of a linear relationship between the two variables under study and the presence of an ordinal level of data measurement, as it is the case of this study.

Bearing this in mind, Spearman's rank correlation uses ranks to find a measure of association for the strength of the relationship between the variables. The rank correlation coefficient is in fact Pearson's correlation coefficient, aimed at being based on the ranks of the data, if there are no ties, and in this case, the data for each variable are first ranked, and then Pearson's correlation coefficient (R) between the ranks for the two variables, is finally computed.

Like Pearson's correlation coefficient (R), the rank correlation coefficient ranges between -1 and 1, where -1 and 1 indicate a perfect linear relationship between the ranks of the two variables.

The interpretation of the Spearman's correlation is the same as Pearson's coefficient, except that the relationship between RANKS, and not VALUES, is examined.

As with other measures of association, it is necessary to determine the level of statistical significance that impinges on the correlation. A strong correlation does not guarantee significance by itself and

in addition, the smaller the sample size, the larger has r (the coefficient) to be, in order to be significant.

Bearing this in mind, it is useful to draw inferences about the relationship of the variables in the population from which the sample was taken, and as such, the main purpose of the correlation coefficient is to test the hypotheses about the unknown population correlation coefficient, ρ , based upon its estimate, the sample correlation coefficient, r . In addition, in order to test such hypotheses, which do not require, as said previously, the normality assumption, the test that the population coefficient is 0(zero), i.e. that the hypothesis of no linear relationship is true, can be based on the t statistic.

The SPSSX (1983) employs the Student's t distribution test with $N-2$ degrees of freedom and permits either a one-tailed or a two-tailed test of significance.

With regard to this issue, Norusis (1983, 1985) points out that one-tailed test is appropriate when the researcher wishes to detect the direction of a difference in one direction, in relation to means between two populations. In other words, a one-tailed test is employed if the direction of the relationship between a pair of variables can be specified in advance of the

analysis (for instance, to test whether a new medicine is deemed as better than the present treatment) and in this case, the null hypothesis that the two variables under study have similar mean scores, is accepted only for t values that are of sufficient magnitude, i.e. too large and in the direction previously specified.

A two-tailed test, on the other hand, is used to detect a difference in means between two populations, irrespective of the direction of the difference, as is the case of exploratory data analysis. Likewise, the null hypothesis is then rejected for small numerical positive or negative values of the statistic, which simply means that the smaller the observed significance level, for instance, $p = .05$ or less, the better the 'quality' of the correlation computed. In other words, the smaller the values of t , the more likely it is that the two samples come from the same population.

Taking the above considerations into account and bearing in mind the nature of data to be correlated, for the purpose of this study a two-tailed test will be employed here. This will establish the level of statistical significance of the correlational analysis to be carried out (based on primary data), by employing SPSSX (1983) computing routines and techniques applied to this specific case, whose details are shown in Appendix F.

The correlation analysis performed here was based upon the various indices presented and discussed in details in sections 5.1, 5.2, 5.3, 5.4 and 5.5, and their respective subdivisions.

Table 20, below, summarizes the main results of the correlational analysis performed, involving business performance (BUS) and workers' training evaluation indices (WOKAN, SUPAN, MANAN), whose complete details are shown below.

TABLE 20: RELATIONSHIP BETWEEN THE RESULTS OF WORKERS' TRAINING (WOKAN, SUPAN AND MANAN) AND BUSINESS PERFORMANCE (EMPI TO BUS)

	EMPI	OUTI	PROD	HIGH	PROF	PROC	BUS
WOKAN	.3260	.2192	.2751	.0816	.1251	-.0939	.3206(*)
SUPAN	.2210	.2279	.2173	-.0088	.1313	-.2001	.2237(**)
MANAN	.1843	.0473	.0709	.0606	.1362	.2018	.2311(***)

Note: (*) P>.10 (p = .103)
 (**) P<.10 (p = .054)
 (***) P<.10 (p = .056)

As implied by Spearman's correlation coefficient (r) shown in Table 20 above, and bearing in mind the significance levels of the two-tailed test, it appears quite apparent that the relationship between the results of workers' training (WOKAN) and business performance

(BUS), is less than .40, and hence, it is not a strong coefficient. In addition, such a result can be interpreted as a positive but low correlation coefficient, that is to say, the proportion of total variation in Y (dependent variable, BUS) which can be attributed to its linear relationship with X (independent variable, WOKAN), is of 32%. This fact means that .3206 of the variation in business performance (BUS), can be 'explained' by the results of workers' training, as assessed by workers only (WOKAN). However, the statistical significance of the correlation performed is not good ($p > .05$), and consequently, the kind of association between the two variables is therefore not relevant.

Taking into consideration the correlation coefficient performed between business performance (BUS) and results of workers' training as assessed by supervisors and managers (SUPAN and MANAN), the statistical significance is nearly good, but the correlation itself, as shown in Table 20 above, is not enough to infer a reasonable level of association between the variables under consideration (BUS with SUPAN and MANAN).

Based on that, it can be implied that results of workers' training only, do not strongly account for business performance and probably other factors other than results of workers' training (WOKAN, SUPAN and MANAN,

respectively) can account for business success outcomes (BUS).

In the following section, the relationships found between results of workers' training and workers' background and company size will be shown.

5.7 Relationship Between Results of Training (WOKAN, SUPAN and MANAN) and Workers' Background (BACK) and Company Size (NUMB)

This part uses parametric correlation techniques and as such, Pearson's correlation coefficient was employed to relate results of training, workers' background and company size, bearing in mind basically the nature of the data (interval or ratio data).

Pearson's correlation coefficient (R) is a measure of association between two continuous variables that estimates the direction and strength of linear relationship. It is employed as a useful measure aimed at quantifying the strength of the association by calculating a summary index (R). As a result, the absolute value of R indicates the strength of the linear relationship and when the line has a positive slope, the value of R is positive and vice versa. Bearing this in mind, the value of R ranges between 1 and -1.

As one of its main characteristics, this above coefficient (R) is appropriate only for data that attain at least an interval level of measurement, in this specific case, workers' background, in connection with the evaluation of their training programmes. In addition, normality is also assumed, when testing hypotheses related to Pearson's correlation coefficient (R).

Having said that, Pearson's correlation coefficient was chosen to relate results of training, as assessed by workers, supervisors and managers, and workers' background, due basically to the nature of these non ordinal variables, as said previously.

With respect to the level of statistical significance of the correlational analysis taken place, a two-tailed test was employed, taking into consideration the same reasons given in section 5.6, when this topic was presented and discussed in detail.

Next, a detailed picture of this relationship is then displayed in Table 21, below.

TABLE 21: RELATIONSHIP BETWEEN WORKERS' BACKGROUND (BACK),
 COMPANY SIZE (NUMB) AND RESULTS OF TRAINING
 (WOKAN, SUPAN AND MANAN)

=====

	WOKAN	SUPAN	MANAN	
BACK	-.0770	-.0703	.0061	(*)
NUMB	.1950	-.1124	.1449	(**)

Note: (*) P>.10 (P=.523, .511 and .960 respectively).
 (**) P>.10 (P=.504, .637 and .566 respectively).

According to the Pearson's correlation coefficients computed (R), it appears there is an inverse and very low relationship between results of training and workers' background, that is the bigger the correlation coefficients of results of workers' training, the smaller are workers' background coefficients and vice versa.

Bearing in mind this coefficient is in fact low, it is unlikely the linear relationship between these variables is due greatly to workers' background only and these findings, generally speaking, can suggest that probably workers' background are not the only and most important factor capable of exerting a significant influence on the results of workers' training as a whole, even though in terms of common sense, it could expect that.

Regarding this issue, there is also an inverse but not strong relationship between company size (NUMB) and

results of workers' training, as assessed by supervisors (SUPAN), where $r = -.1124$, but the observed significance level is not statistically significant ($p = .637$), which is simply irrelevant, in statistical terms.

With respect to the results of training as assessed by both managers and workers (MANAN and WOKAN), the kind of relationship found with company size (NUMB), although positive ($r = .1950$ and $.1449$, respectively), is not statistically significant ($p = .504$ and $.566$ respectively). Consequently, the sort of relationship found seems not relevant.

Next, the main relationships found between workers' background (BACK), company size (NUMB) and business performance (BUS) will be shown.

5.8 Relationship Between Workers' Background (BACK), Company Size (NUMB) and Business Performance (BUS)

This topic also employs Pearson's correlation coefficient (R), to associate business performance with workers' background and company size and according to the results, it appears there is only a small inverse relationship between company size (NUMB) and business performance (BUS), where $r = -.1635$. This suggests

therefore that the bigger the company size, the smaller its business performance and vice versa. In addition, the type of association between workers' background (BACK) and business performance (BUS) seems to have no relevance at all ($r = -.0777$), indicating therefore nearly no relationship between the two variables.

Table 22, below, summarizes these above findings.

TABLE 22: RELATIONSHIP BETWEEN WORKERS' BACKGROUND (BACK), COMPANY SIZE (NUMB) AND BUSINESS PERFORMANCE (BUS)

=====

	BACK	NUMB	BUS
BACK	1.0000	-.0046	-.0777 (*)
NUMB	-.0046	1.0000	-.1635 (**)

Note: (*) $P > .10$ ($P = .467$)
 (**) $P > .10$ ($P = .467$)

In the next section the relationships found between organisational climate (CLIMA) and business performance (BUS), whose results are important to test one of the hypotheses of this study will be shown.

5.9 Relationship Between Organisational Climate (CLIMA) and Business Performance (BUS)

This part presents the relationship between organisational climate (CLIMA) and business performance (BUS), by employing Spearman's rank correlation coefficient (ρ), taking into consideration mainly the nature of the ordinal data involved and the reasons given and explained in section 5.6.

According to the correlation analysis taken place between the two above indices, there seems to be a fairly strong association between organisational climate and business performance, where $r=.7018$, indicating therefore that the probability that a coefficient of at least 70% is obtained when there is no linear relationship in the population between organisational climate (CLIMA) and business performance (BUS), is less than .05%. In other words, the statistical significance of the correlation coefficient was good, and this fact can indicate that organisational climate (CLIMA) should 'explain' in sum, the kind of business performance (BUS) achieved by companies.

Table 23, below, shows in details such relationships.

TABLE 23: RELATIONSHIP BETWEEN ORGANISATIONAL CLIMATE (CLIMA) AND BUSINESS PERFORMANCE (BUS)

=====

	HUMAN	FLOW	COND	DEC	CLIMA
BUS	.0801	-.1441	-.0127	.1239	.7018 (*)

Note: (*) $p = .035$ ($p < .05$)

As can be inferred from Table 23, the results of the correlational analysis performed give strong empirical support to the hypothesis according to which organisational climate (CLIMA) and business performance (BUS) are related such that, the more supportive and positive the climate, the better the business performance experienced by the firms concerned. Likewise, organisational climate (CLIMA) appears to significantly account for business performance (BUS), based upon the results of the correlational analysis shown in Table 23, above.

In the following section the main relationships found between the independent variable (organisational climate) and the main dependent variable of this study (results of workers' training, as assessed by workers, supervisors and managers), will be presented.

5.10 Relationships Between Organisational Climate (CLIMA) and Results of Training (WOKAN, SUPAN, MANAN)

This last set of results presents the main outcomes related to the types of association between the independent variable (organisational climate) and the central dependent variable, that is results of workers' training (involving the three groups), and as such, the correlational analysis performed took into account these following indices: CLIMA, WOKAN, SUPAN and MANAN, respectively.

Bearing this in mind and regarding the nature of data employed, for the purpose of this correlational analysis, it was also used Spearman's rank correlation coefficient (ρ). This is for the reasons given and explained in sections 5.6 and 5.9, respectively.

Taking into account the results of the correlation coefficients, it is quite apparent that there is a strong association between organisational climate (CLIMA) and results of training, involving workers (WOKAN), supervisors (SUPAN) and managers (MANAN), where $r = .7615$, $.8555$ and $.8289$, respectively. This indicates therefore the probability that a coefficient of at least 76%, 85% and 83%, respectively, is obtained when there is no linear relationship in the population between organisational

climate and results of workers' training, with regard to the three groups involved, namely workers, supervisors and managers, is less than .05%. In other words, this simply means that the kind of association shown by the correlational analysis performed, is statistically significant, and hence, very important. Likewise, on the basis of the correlational analysis taken place, it is quite apparent that organisational climate (CLIMA) greatly accounts for positive results of workers' training programmes (WOKAN, SUPAN and MANAN, respectively).

Table 24, below, summarizes these above relationships.

TABLE 24: RELATIONSHIPS BETWEEN ORGANISATIONAL CLIMATE AND THE OVERALL RESULTS OF TRAINING

	WOKAN	SUPAN	MANAM
HUMAN	.2792	.3150	-.1199
FLOW	.0620	.1682	-.0792
COND	.1915	-.0947	.2025
DEC	.3935	.3288	.2480
CLIMA	.7615(*)	.8555(**)	.8289(*)
	(P=.017)	(P=.007)	(P=.021)

Note: (*) p < .05
 (**) p < .01

As can be seen through the results of Table 24, there appears to be a clear and full evidence according to which the results of workers' training (training effectiveness) are accounted for by the kind of organisational climate perceived by workers. Likewise, the central and main hypothesis of this study, according to which the more positive and supportive the climate perceived by workers, the higher the training effectiveness, appears to be fully and empirically supported.

In conclusion: according to the correlational analysis shown in Table 20 and 24, respectively, it is quite evident there is a strong linear relationship between organisational climate, business performance and results of workers' training. However, it is important not only to show such a linear correlation but also to demonstrate the strength and 'quality' of this underlying relationship.

Bearing this in mind, an important part of any statistical procedure that builds models from data is establishing how well the model actually fits, i.e. how close to the fitted line the observed points fall and in this case, R^2 , also called the coefficient of determination, is a useful and commonly employed measure of the goodness of fit of a linear model.

According to Norusis (1985), the regression model,

usually employed with continuous or ratio data, can be employed, in general, as a goodness of fit of a linear model, even with nominal data. In addition, such a model, that is the R^2 can be employed in several ways, because, among other reasons, apart from being the square of the correlation coefficient, in this study, between the variables X (organisational climate) and Y (training effectiveness and business performance), it is the square of the correlation coefficient between Y, the observed value of the dependent variables, and \hat{Y} , the predicted value of Y from the fitted line.

With regard to the regression model (R^2), if all the observations fall on the regression line, this simply means that the adjusted line will 'explain' the whole variation of Y. Conversely, if there is no linear relationship between the dependent and independent variables, then $R^2=0$. Furthermore, the greater the value of the R^2 , the better the 'quality' of the adjustment of the model (regression model), in relation to the regression line. In addition, the adjusted straight line is represented by $\hat{Y} = a + bX$, where a, the intercept, is the predicted value of Y and b, the slope, is the change in the predicted values for a unit change in X.

Based on the regression model, it is then possible to predict business performance and training effectiveness

from organisational climate because the R^2 can also be interpreted as the proportion of the variation in the dependent variable 'explained' by the model. In the specific case of organisational climate (CLIMA) and business performance (BUS), the $R^2=.56$. This fact indicates a fairly good relationship, that is 56% of the variation in business performance (BUS), are explained by organisational climate (CLIMA), and the remaining 44%, are attributable to random causes. On the other hand, in the case of organisational climate (CLIMA) and results of workers' training (WOKAN), the $R^2=.82$, which is a very good achievement. This coefficient can be interpreted as a strong relationship, i.e. 82% of the variation in the results of workers' training are explained by the organisational climate perceived by workers. Consequently, only 18% are due to random causes. Similarly, with respect to the results of workers' training programmes as assessed by supervisors and managers (SUPAN and MANAN, respectively), an $R^2=.77$ and $.79$ respectively, can indicate that 77% and 79% of the results of workers' training are also explained by the organisational climate (CLIMA) as perceived by the workers themselves. In addition, only 23% and 21% respectively, are considered by chance, taking into account the regression model chosen to correlate the above variables.

All in all, it seems the regression model chosen to correlate the independent (organisational climate) and the

dependent (training effectiveness and business performance) variables, has been proved worthwhile as a measure of the goodness of fit of a linear model, even in the case of this study, dealing specifically with ordinal data.

In the next Chapter the main conclusions of this study, based on the results presented and discussed so far will be presented and drawn. After the discussion and presentation of the main conclusions, some recommendations will be put forward by the researcher.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

In this Chapter, consideration is given to the research findings in the light of earlier investigations into the nature of organisational climate and the expected effect that climate is likely to have on the results of workers' training and business performance.

The first section outlines the findings of earlier research that has been conducted in this field. The main finding of this earlier research was that it was possible to relate the results of workers' training (training effectiveness) and business performance, and organisational climate and results of workers' training.

Preliminary research suggested that there is a link between results of training and high business performance, indicating therefore that business performance and training go hand in hand. This has recently been confirmed by the 'Small Firms Survey' (1986), conducted by the Manpower Services Commission. However, on the basis of the findings of the study performed so far, results of training (WOKAN, SUPAN and MANAN, respectively) and business performance (BUS) are related, based upon the Spearman's correlation coefficient (ρ), where $r = .3206$, $.2237$ and $.2311$, respectively, but not as strongly as it could be expected, suggesting therefore that results of training are not a major and vital factor alone that

accounts for business performance. On the other hand, when business performance (BUS) is associated with the kind of organisational climate (CLIMA) perceived by workers, there seems to be a fairly high relationship ($r=.7018$). Broadly speaking, this fact suggests that a positive and favourable organisational climate (CLIMA) pervading the industries, is more likely to 'explain' business performance (BUS), rather than the results of workers' training only (WOKAN, SUPAN and MANAN), whose complete details were presented in sections 5.4 and 5.7, respectively.

Bearing this in mind, it can be implied that it is important for the firms not only to administer training programmes to workers but also to provide them real and the most favourable conditions so that workers can apply their training to on-the-job station in real terms. This means that to maintain the relevant and appropriate organisational climate, is seen to be more important than simply administering, in isolation, training programmes, even though the firms are able to provide the most appropriate set of management procedures and techniques.

This above fact appears to be supported by previous research and in order to demonstrate that, it is useful to review a few studies conducted in this field. With regard

to that, Negandi and Prasad (1971) found that the more 'positive' particular management philosophies, the more effective in both financial and behavioural terms, the firms appeared to be. On the basis of that, it is sensible to argue that if organisations are to create climates in which appropriate and common behaviours can be learned by workers/employees, it seems reasonable to assume that people within such situations will behave accordingly. Hence, the more positive and favourable the climate, the more successful will appear to be.

Marketing policies and strategies, and questions concerning finance, technology and so on, can, of course, have a marked effect on the firms concerned, but it would also seem that there is, as Nicholas (1980) suggests, a 'something else' (organisational climate) to do with the so-called 'net' personality of the business. This means that organisational climate seems to be of major importance, which, if properly established, can provide some indication of an organisation's performance and potential. In addition, Nicholas (1980) found that two of the four industry organisations of his study (electronic, textile, pharmaceutical and services industries) were judged to be 'successful' and in both of these, the prevailing organisational climate factors were related to a strongly perceived feeling of employee confidence in a committed management showing effective performance

together with a sense of belonging to a well considered company.

With regard to this issue, Peters and Waterman (1982) conducted a study about the 'excellence' of U.S large firms, by employing a model that emphasized a series of eight attributes, aimed at characterizing the excellent firms, in a sample of 62 industrial organisations of various sectors. The results showed that the excellent (successful) industries were those that appeared to have achieved innovative performance, that is those firms which constantly are prepared to respond to change of any type in their environments, in the sense that they innovate, as a whole culture. In addition, the set of attributes used to define excellent firms give relevance to important variables which are seen to account for the performance of the business, namely risk taking, challenge to experience new ideas/suggestions, encouragement to innovation and ~~experience~~ and experimentation, respect for and commitment to employees as individuals and participation in the decision-making process, among others.

In short, the authors of 'In Search of Excellence' seem to suggest that under a favourable organisational climate firms can become excellent (successful) mainly because a positive and favourable organisational climate is seen as fostering the adoption of innovation and

experimentation, risk taking, challenge, motivation to work better and more participation in the decision-making process. Likewise, it is reasonable to assume that there is a close similarity between the findings of Peters and Waterman (1982) and these of the present research. This similarity can be seen in terms of the relationships found between successful business performance in small and medium sized firms and favourable organisational climate, as perceived by workers, and the relationships found between excellent large industrial firms and innovative performance achieved by the large American companies surveyed.

Preliminary research also suggested that results of workers' training and organisational climate are related and the findings of this study seem to strongly support this, as it was presented in more detail in section 5.8, in the preceding chapter, when, once CLIMA was associated with WOKAN, SUPAN and MANAN, has presented, as statistically significant, strong all round relationships, where $r=.7615$, $.8555$ and $.8289$, respectively. This leads thus to the general conclusion that the more positive and supportive the organisational climate (CLIMA) perceived by workers, the better and tangible the results of workers' training (WOKAN, SUPAN and MANAN) as assessed by workers, supervisors, managers and deputy managers.

Regarding this issue, Baumgartel et al (1984) report

the results of a research programme aimed to assess the role of selected personality variables and organisational climate in moderating the effects of training in which 260 individuals and 246 Indian managers took part. They found that, irrespective of the quality of the educational programme attended, employees who were relatively high in need for achievement and who believed in the value of the management education, were more likely than others to apply new knowledge and skills on the job and that organisational climate affected the extent to which this knowledge was applied. Also, they found that the most favourable organisational climate was characterized by appreciation of performance and innovation, a rational evaluation and reward system and openness in relationships among managers.

In another study, Baumgartel et al (1978) point out that employees in favourable organisational climate, i.e. freedom to achieve personal performance goals, encouragement to take risks and goal-oriented, are most likely to apply new knowledge. In addition, employees who have innovative skills, i.e. high need achievement and high activity level, among others, are most likely to adopt new practices. In short, their findings seem to indicate that the more favourable the climate, the better the employees' performance is likely to be.

The study conducted by Lindley (1984), in which he associates the relationship of organisational climate to employees' performance, suggests that a favourable organisational climate will motivate the employee to reach the highest potential of effectiveness. This author also found that a favourable organisational climate will release the potential within employees, under a participative management and other means of positively involving employees.

Bell and Margolis (1985) found that organisational climate is vital to adult learning in a training situation, because a supportive and encouraging organisational climate encourages risk taking and experimentation, which are essential to productive growth. On the basis of that the authors suggested that such an organisational climate comes out through the trainer's words and actions. Also, the authors present suggestions to create a productive and positive climate, by focusing on before and during the session and on the leader's attitude and language.

With regard to this matter, Bell and Kerr (1987) report the results of a study of 96 participants (secretarial staff) in a training programme, designed to determine whether trainees learned the skills presented in the programme under favourable conditions (participation and openness). On the basis of the results, they found

that the majority of the participants felt that the techniques and principles learned during the training, helped them perform their jobs more efficiently and that the relationship with their supervisor improved as a result of the programme attended.

Hand, Richard and Slocum (1973) report the results of a longitudinal study, related to a human relations programme that taught a consultative approach to management. They employed two experimental groups: one who perceived their organisational climate as favouring a 'consultative' approach and the other who viewed their organisations as less democratic and more structured. Eighteen months after the course, the authors found that the group from 'consultative' organisations had received significantly higher performance ratings than the other training group. The authors conclude that the 'consultative' group had returned to an organisational environment that supported the attitudes and behaviour learned in the training, while the other group returned to a less reinforcing organisational environment. Furthermore, the more supportive the climate, the better the results of training.

Regarding this issue, Nicholas (1980) found that organisational climate and the nature of job were important correlates of job satisfaction, with

organisational climate being the most important. Heller et al (1982), on the other hand, found the more positive the climate, the more effective is the work group or group unit and that firms high on climate, also tend to have participative systems. This can indicate that a positive and favourable organisational climate tends to lead to more effective organisational outcomes.

Bearing this in mind, Clement and Aranda (1982) point out that the organisational climate to which the trainee returns, is an important factor which accounts for the success of management training. In other words, the organisational climate in which the trainee works, can have marked influences on a manager's attempt to apply concepts learned in a training programme. In addition, Clement (1981) observes that organisational climate probably affects the outcomes of training, that is the climate to which the trainee returns probably influences the extent to which the trainee is able to use the knowledge, skills and attitude learned in training.

Taking the above considerations into account, House (1986), in a study on leadership behaviour, found that there are three factors that account for the transfer of a training to the job, as follows:

a) the formal authority system within the firm, i.e. the objectives, policies and practices established by management, by which the trainee must abide;

- b) the immediate superior's right to administer rewards and punishment, for instance, the way the supervisor encourages the trainee to apply principles learned in a training programme, will foster the training to be more likely to transfer to on-the-job setting;
- c) the trainee's primary work group, i.e. the expectations of co-workers and the immediate subordinates of the trainee.

Apart from these recent studies relating organisational climate and results of training, there are also a few studies conducted in the earlier 1950s, reporting the same kind of relationship. Regarding this matter, Hariton (1951), quoted by Clement (1978), studied the reactions, learning and improvements in job behaviour of trainees in a course in human relations principles, by employing experimental and control groups. Building on the findings, he reported that foremen from the experimental division in which subordinate satisfaction improved (level three), perceived their organisational environment to be more supportive of the training principles than did the foremen from the experimental division where subordinate satisfaction decreased. This means that training foremen in new human relations techniques is most effective when they are motivated to change, when the environment (climate) within which they work leads to change and when the attitudes and practices

of higher levels of supervision, are consistent with the content of the training programme.

Bearing this in mind, Goodacre (1955) demonstrated that improvements in job behaviour were influenced by organisational variables external to the training, such as the leadership style of the trainees' superior, the leadership expectations of the trainees' primary work group, the formal properties of the organisations and the motivation of the trainee with respect to the intended improvements in job behaviour. And finally, in a classical study conducted by Fleishman (1953), he found both favourable reactions and resultant learning occurred after a human relations course that taught foreman to be more considerate to their subordinates. Building on the results of this before-and-after evaluation, the author was able to report 'a general increase in "consideration" attitudes during the course' (p. 212). However, the new attitudes depended upon the supervisory style of the trainees' superiors and the leadership expectations of the trainees' subordinates. It was also found that the behaviour of foremen who returned to 'climates' consistent with what was taught in training, conformed more closely to the leadership expectation of their work groups. On the other hand, no such an improvement was found among foremen who returned to climates 'at variance with the training course' (p. 220, op. cit).

Other studies have shown that the more supportive the organisational climate, the better the job satisfaction, productivity and job performance. In order to illustrate this point, it is very useful indeed, to report the findings of Kaczka and Kirk (1968), who found that performance of the firm is significantly affected by organisational climate, and conclude by affirming that 'the most efficient levels of performance result are achieved when concern for cost effectiveness is combined with concern for the employees of the organization' (p. 277).

With regard to that, Frederickson (1966) found that employees who were subject to a climate which was perceived to encourage innovation, problem-solving and the adoption of new ideas, produced greater productivity than one where procedural rules and regulations were predominant. The author also demonstrated that inconsistency in climate perceptions was associated with lower predictability of organisational performance.

Bearing this in mind, Friedlander and Greenberg (1971) found workers who perceived their climate as supportive, had a higher level of performance than those who perceived it to be less supportive. Likewise, those who perceived the climate as more supportive, were assessed by their trainers to be more competent, with a

tendency to achieve a higher level of performance.

The study conducted by Hall and Lawler (1969) showed that better results were more likely where the climate was perceived as dominant, active, tough and competitive, whilst Cawasey (1973) found that salesmen were assessed by their supervisors as higher performers if they perceived their organisation to be achievement-oriented.

Pritchard and Karasick (1973) found that a highly supportive climate was 'likely to be associated with higher satisfaction' (p. 143) and the authors concluded that high job satisfaction, irrespective of the respondents' individual difference, was most likely to be related to a highly supportive climate. Similarly, Downey, Hellriegel and Slocum (1975) found that individuals who perceived their climate as having a reward system characterized by encouragement, lack of threats and generally slanted towards good human relations, performed better than did those who perceived their climate in a similar fashion but who were less sociable. Friedlander and Margulies (1969), on the other hand, indicated that organisational climate is a major determinant of individual job satisfaction.

The study conducted by Hitt (1976), regarding this same issue, indicated that the climate most predictive of effective intensive technology was found to be one high in

warmth and friendliness, with standards of performance and challenging assignments, one that emphasizes positive rewards for good performance. Finally, Peterson (1975) found that employees under a more supportive leadership style and employee-oriented, for both process and unit technologies, both intrinsic and extrinsic motivation, were greater than the case for production under conditions of mass assembly.

Conclusion: from the above survey, there appears no doubt that an individual's perception of his organisational climate has influence on the results of training (training effectiveness), business performance, job satisfaction and performance, and as such, these findings are seen as full support for the findings of this study. In addition, increased performance, job satisfaction and higher productivity, for example, seemed to be present where the firms surveyed were perceived to accept new ideas and where also decentralized decision-making practices were fostered as a positive means of contributing towards organisational performance, among others.

The findings seem to suggest that the results of workers' training and, to a lesser extent, business performance, are a function of the interaction between the perceived organisational climate and the personality characteristics of the individuals: in this specific

case, workers, supervisors and managers.

The second section reiterates the findings from the study with reference to this body of knowledge. It considers how appropriate the methodology was in the light of subsequent findings and how further of future investigations could benefit from this research experience.

This study did not suggest that this particular investigation has been exhaustive. Rather, it suggests further areas of study that could be attempted and for which, time and resources were not available. In this respect, it would be of great significance to carry out further investigations into the role of organisational climate upon training effectiveness, by comparing the firms that have invested on workforce training programmes, with those which have not put money into training programmes, in order to determine whether there is any significant difference in terms of business performance and the general organisational climate perceived by workers. It could be done for both types of industries, that is with and without investment on training, and on the basis of that, to establish any possible comparisons/relationships.

This area of study (three different industrial settings) is an area which is worthy of further and more

detailed investigations than it was possible to give at this stage. The study has stressed this point.

This study and that conducted by previous writers would lead to the suggestion that a 'happy and participative' workforce is a productive and effective workforce. The conclusions reached validated many of the findings of earlier studies, i.e. that organisational climate does affect the transfer of training, either positively or negatively, depending upon the kind of positive or negative organisational climate encountered within the organisations concerned. The study has reinforced this point, by showing a positive and high influence of organisational climate on the transfer of training. In addition, it was also shown that a positive and supportive organisational climate accounted for business performance.

The research did validate, to a certain extent, the work of Hariton (1951), quoted by Clement (1978), the studies of Goodacre (1955), Fleishman (1953), Hand, Richard and Slocum (1973), Baumgartel et al (1978, 1984), Lindley (1984), Bell and Margolis (1985), Heller et al (1982), House (1968), Clement and Aranda (1982), Clement (1981) and the work of Bell and Kerr (1987), who, as a whole, suggested that a favourable and supportive organisational climate affect positively the results of

workers' training (training effectiveness). Similarly, the research also validated, to a certain extent, the work of Negandhi and Prasad (1971), Nicholas (1980), Peters and Waterman (1982) and the 'Small Firms Survey' (1986), who have indicated that a favourable and supportive organisational climate greatly influence the kind and nature of business 'success' experienced by the organisations concerned.

The final sections of the study outline the main methodological limitations of the research, the major practical implications and the importance/usefulness of organisational climate to practical management.

6.1 Methodological Limitations of the Study

At this stage it is useful to make general comments about the methodological limitations imposed by the use of the survey research methods, mainly in terms of any causality inferences based on the results achieved by this study.

According to Moser and Kalton (1971), there are three types of evidence that are seen to be necessary to establish causality:

- 1) the existence and the degree of association between the independent and dependent variables;

- 2) the sequence of the variables, that is for X to cause Y, Y cannot come first; and finally,
- 3) the elimination of any further factor(s) which may suggest causality, through interaction.

Taking the above considerations into account and bearing in mind the nature of this study, the research design adopted does not permit causality to be determined, because, among other reasons, the present design is intended to take a snapshot of the organisations under consideration at one given time, it does not permit more than one test and there is no control group to be compared with an experimental group. As such, it is not viable to determine any time sequence of variables, nor, as a direct consequence, to establish any causality inferences. Consequently, it is not experimentally valid to try and infer any possible causality to any of the relationships examined, i.e. organisational climate with results of workers' training and business performance.

The major effort within the research programme is directed towards establishing the extent of any degree of association between the independent variable (organisational climate) and the dependent variables (results of workers' training and business performance), and therefore, the prime goal of this study is with the correlates of organisational climate and results of

workers' training and business performance. Conversely, it is reasonable to expect that there are possibly other variables, not taken into account here, that could interact with the primary variables of this study.

The more the workers believe in the organisation and its positive aspects and consequently, the less critical they are of its 'negative' characteristics, the more 'happy' with their work, co-workers relationships and supervision, pay, performance and so on, are they likely to be.

The present research quite clearly supports the fact that the organisational climate perceived by workers, operates as predictor of both positive results of workers' training (training effectiveness) and business performance.

Previous organisational climate studies have usually focused on factors that affect a person's daily working experiences and organisational climate, generally speaking, represents the means whereby management can add to its understanding and feel for the realities of the firm. Consequently, any attempt to examine the existing organisational climate will certainly present questions related to the tangible business 'success' of organisational strategies, the relevance of managerial decision-making practices, the justification of consistent

and coherent policies, the amount of investment on employee training, and so on.

Much of the research has stressed the need for more detailed analysis to be conducted with industries, mainly focusing on industrial training. Overall, the research design adopted for this study proved to be appropriate in generating the information necessary to test the hypotheses, that is:-

Hypothesis 1: The results of training and perceived organisational climate are related such that workers who have a more positive and favourable perception of organisational climate are more likely to be effective in transferring training to the on-the-job situation in terms of behaviour change and final results;

Hypothesis 2: Business performance and the results of training are related such that, the more positive and effective the results of training, the better the performance of the business;

Hypothesis 3: Business performance and perceived organisational climate are related such that the more positive and favourable the organisational climate, the better the performance of the business.

The hypotheses one (1) and three (3) are fully supported by this study, however, only partial support was found for hypothesis two (2), as it was commented in the

earlier section of this research. Bearing this in mind, it seems thus reasonable to argue that a positive perception of the more 'positive' organisational climate tends to reinforce the degree of positive results of workers' training in terms of behaviour change and final results. Also, a more positive perception of organisational climate tends to lead to better business performance.

6.2 Implications of the Study

The results of this study have four sets of broad implications:-

- 1) for the Brazilian Government, by employing the findings of this study to re-direct its training policies and strategies, in terms of the effectiveness of training courses/programmes, by knowing what is going on in this field;
- 2) for the managers and entrepreneurs, by relating the results of workers' training and business performance with a sound and supportive organisational climate;
- 3) for the workforce industry as a whole, by reiterating the need of favourable and real conditions within the firms in which they work, as a precondition to put into practice the training administered to them, and finally,
- 4) the results of this study are important so as to provide the researchers and writers an opportunity to

either replicate the conclusions reached or to widen this field by doing further or future studies in this area.

The constant and rapid development of technology in industry specifically, in terms of capability and functions and also the increasing rate of innovation in the workforce, in terms of high-tech skills and training, in general, suggests the need of building a positive and favourable organisational climate in which any training transfer can achieve its better goals and meet its essential objective of having a better prepared workforce, capable of facing challenges and to be able to present a better result which the firms can benefit from. Bearing this in mind, this fact also suggests that this study has provided only a snapshot view of the state of the evaluation of results of workers' training in three industrial settings. It is, however, expected that some of the effects/influences identified in the study will become more pronounced, e.g. the effect of organisational climate on business performance and the overall effects of a favourable and positive organisational climate on the training transfer to on-the-job situation.

6.3 The importance of Organisational Climate to Practical Management

The main relevance of organisational climate to practical management is the extreme significance of the concept. It is seen to have a very important influence on the tangible results of workers' training and business performance, in general.

The most important issue of organisational climate is to ascertain whether the management are 'viewed to be right' by the individuals who are also very much a vital part of the organisation and who almost frequently are affected, broadly speaking, by the extent and nature of the normal organisational initiatives. Taking the above considerations into account, it would appear of considerable importance therefore for any management in general, to know what the existing organisational climate is like. In so doing, the organisational climate should be used to give some indication of the main positive points of the firm and to indicate the general nature of any concrete perceived and clear weakness and, finally, to assist therefore in determining the nature and purpose of any subsequent more detailed and specific investigations.

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APPENDICES

- A Organizational Climate Questionnaire
- B Evaluation of Training Questionnaire
- C Evaluation of Training: Interview
 with Supervisors
- D Evaluation of Training: Interview
 with Managers
- E Covering Letter of Federation of
 Industry of the Minas Gerais state
 - MG - FIEMG
- F SPSSX Programme used to Analyse the
 Survey Data

APPENDIX A

ORGANISATIONAL CLIMATE QUESTIONNAIRE

(A4 - 1969 QUESTIONNAIRE)

PRESENTATION

This questionnaire is part of a study designed to assess the results of training in your firm. Its aim is to use the information related to organisational climate to try to explain the results of the last training programmes attended by you.

This questionnaire describes the general climate within your organisation; by 'organisation' we mean the smallest work unit that is meaningful to you. This may be a work group, department, division, office or other sub-division.

If this study is to be helpful, it is important that you answer each question as thoughtfully and frankly as possible. This is not a test and there are no right or wrong answers.

The completed questionnaires are processed by computing routines which summarize the answers in statistical form so that individuals cannot be identified. To ensure complete confidentiality please do not write your name anywhere on the questionnaire.

INSTRUCTIONS

1. All questions can be answered by circling one of the answer numbers (1-5). If you do not find the exact answer that fits your case, use the one that is closest to it.

2. Please answer all questions in order.

3. Remember, the value of the study depends on your being straightforward in answering this questionnaire. You will not, as said earlier, be identified with your answers.

4. Please read the answer categories carefully and then answer each of the following questions by circling the number concerning the answer you want to give.

Before answering the questions, please complete the Identification section below.

IDENTIFICATION

QUESTIONNAIRE NO.: _____

COMPANY: _____

COMPANY TYPE: () METAL () PHARMACEUTICAL
() ELECTRONIC

ADDRESS: _____

DATE: _____

QUESTIONS

A. HUMAN RESOURCES PRIMACY (HUMAN)

CODING

- (REAL) 1. To what extent does this organization have a real interest in the welfare and happiness of those who work here?
- 1) To a very little extent
 - 2) To a little extent
 - 3) To some extent
 - 4) To a great extent
 - 5) To a very great extent
- (CONDI) 2. How much does this organization try to improve working conditions?
- 1) To a very little extent
 - 2) To a little extent
 - 3) To some extent
 - 4) To a great extent
 - 5) To a very great extent
- (ATIV) 3. To what extent are work activities sensibly organized in this organization?
- 1) To a very little extent
 - 2) To a little extent
 - 3) To some extent
 - 4) To a great extent
 - 5) To a very great extent

B. COMMUNICATION FLOW (FLOW)

(AINF) 4. How adequate for your needs is the amount of information you get about what is going on in other department or shifts?

- 1) To a very little extent
- 2) To a little extent
- 3) To some extent
- 4) To a great extent
- 5) To a very great extent

(REC) 5. How receptive are those above you to your ideas and suggestions?

- 1) To a very little extent
- 2) To a little extent
- 3) To some extent
- 4) To a great extent
- 5) To a very great extent

(KNOW) 6. To what extent are you told what you need to know to do your job in the best possible way?

- 1) To a very little extent
- 2) To a little extent
- 3) To some extent
- 4) To a great extent
- 5) To a very great extent

C. MOTIVATIONAL CONDITIONS (COND)

(DISH) 7. How are differences and disagreements between units or departments handled in this organization?

- 1) Disagreements are almost always avoided, denied, or suppressed
- 2) Disagreements are often avoided, denied, or suppressed.
- 3) Sometimes disagreements are accepted and worked through; sometimes they are avoided or suppressed
- 4) Disagreements are usually accepted as necessary and desirable and worked through
- 5) Disagreements are almost always accepted as necessary and desirable and are worked through

(REASON) 8. Why do people work hard in this organization?

- 1) Just to keep their jobs and avoid being chewed out
- 2) To keep their jobs and to make money
- 3) To keep their jobs, make money and seek promotions
- 4) To keep their jobs, make money, seek promotions, and for the satisfaction of a job well done

- 5) To keep their jobs, make money, seek promotions, do a satisfying job, and because other people in their work group expect it

(HARD) 9. To what extent are there things about working here (people, policies or conditions) that encourage you to work hard?

- 1) To a very little extent
- 2) To a little extent
- 3) To some extent
- 4) To a great extent
- 5) To a very great extent

D. DECISION-MAKING PRACTICES (DEC)

(SET) 10. How are objectives set in this plant?

- 1) Objectives are announced with no opportunity to raise questions or give comments
- 2) Objectives are announced and explained and an opportunity is then given to ask questions
- 3) Objectives are drawn up, but are discussed with subordinates and sometimes modified before being used
- 4) Specific alternative objectives are made up by supervisor and subordinates are

asked to discuss them and indicate to
one they think is best

- 5) Problems are presented to those persons
who are involved, and the objectives
felt to be best are then set by the
subordinates and the supervisor jointly,
by group participation and discussion

(RIGHT) 11. In this organization to what extent are
decisions made at those levels where the
most adequate and accurate information is
available?

- 1) To a very little extent
- 2) To a little extent
- 3) To some extent
- 4) To a great extent
- 5) To a very great extent

(PERSON) 12. When decisions are being made, to what
extent a person affected asked for their
ideas?

- 1) To a very little extent
- 2) To a little extent
- 3) To some extent
- 4) To a great extent
- 5) To a very great extent

- (REST) 13. People at all levels of an organization usually have know-how that could be of use to decision-makers. To what extent is information widely shared in this organization so that those who make decisions have access to all available know-how?
- 1) To a very little extent
 - 2) To a little extent
 - 3) To some extent
 - 4) To a great extent
 - 5) To a very great extent

APPENDIX B

EVALUATION OF TRAINING QUESTIONNAIRE

PRESENTATION AND INSTRUCTIONS

As said in the first part of this study, this questionnaire is aimed at assessing the results of training programmes attended by you, taking into consideration the last training course taken place.

The instructions to be followed are the same as applied to the Organisational Climate Questionnaire you just completed.

This questionnaire is divided into three parts: part 1 (one) is aimed to assess the results of training in terms of learning (facts and principles) that has taken place; part 2 (two) tries to get information concerned changes on-the-job, after the training courses you attended; and finally, part 3 (three) intends to gather additional information in terms of your previous background and company size, as measured by the number of employees in your firm.

Before answering the questions, please complete the Identification section below.

IDENTIFICATION

QUESTIONNAIRE NO.: _____

COMPANY: _____

COMPANY TYPE: () METAL () PHARMACEUTICAL
 () ELECTRONIC

ADDRESS: _____

DATE: _____

PART 1: LEARNING ASSESSMENT (LEVEL TWO)

Consider the objectives that were declared by your company when you completed the last training programme/session and the contents of the programme/session itself.

Please place a circle around one of the numbers in each of the sections below to indicate your assessment of the different aspects of the training you attended.

QUESTIONS

CODING

(LASTE) 1. After attending the last training programme you feel, regarding your specific job, that your are:

- 1) Don't know
- 2) No better able to do it

- 3) A little better able to do it
- 4) Some better able to do it
- 5) Much better able to do it

(PREP) 2. State to what extent you are performing your normal tasks now since you have completed the last programme:

- 1) Don't know
- 2) The same as before
- 3) A little better
- 4) Quite a bit better
- 5) Much better

(APRO) 3. How accurately did the programme describe what was covered at the programme?

- 1) Don't know
- 2) Not accurately
- 3) Fairly accurately
- 4) Accurately
- 5) Very accurately

(TRAIN) 4. Please list the real benefits you feel you gained by attending the last training programme: (circle as many as apply)

- 1) Knowledge of what other companies are doing now
- 2) New theory and principles that are

pertinent

- 3) Ideas and techniques that can be applied on the job
- 4) Improved skills applicable to the job immediately
- 5) To keep basically updated

5. Please state to what extent the following things have occurred in your job as a consequence of the last training programme: (circle an answer after each item). Use the following keys:

- 5 - completely; 4 - substantially;
- 3 - partially; 2 - not at all;
- 1 - don't know.

	<u>THINGS OCCURRED</u>	<u>EXTENT</u>
(JOBA)	A better attitude toward the job	1 2 3 4 5
(TASK)	A better understanding of tasks	1 2 3 4 5
(SKIL)	A better use of skills	1 2 3 4 5
(PERFO)	A better performance in accomplishing tasks	1 2 3 4 5
(TIME)	A better use of time	1 2 3 4 5
(PEER)	A better relationship with peers	1 2 3 4 5
(SUP)	A better relationship with supervisor	1 2 3 4 5

(PERCE) 6. In relation to the tasks you are accomplishing now, what percentage of the programme was of practical use?

- 1) 0-20%
- 2) 21-40%
- 3) 41-60%
- 4) 61-80%
- 5) 81-100%

(OPOR) 7. Since you attended the last training programme, state to what extent you have had an opportunity to apply what you learned:

- 1) None as yet and probably none in the future
- 2) None as yet but will apply in the future
- 3) A little
- 4) Quite often
- 5) Regularly

(PERM) 8. Indicate the extent to which you have been permitted/encouraged by your supervisor to apply what you learned in relation to your last training programme attended:

- 1) I have been prevented from using what I have learned
- 2) I have been discouraged from using what I have learned

- 3) I have been free to do what I wish
- 4) I have been encouraged to use all of what I learned
- 5) I have been required to use all of what I learned

(SUPIN) 9. When you returned to your job, state the extent to which your supervisor showed interest in your last training:

- 1) S/He showed no interest and probably won't in the future
- 2) S/He showed no interest yet but will probably in the future
- 3) S/He showed some interest
- 4) S/He showed quite a bit of interest
- 5) S/He showed great interest

PART 2: JOB BEHAVIOUR ASSESSMENT (LEVEL THREE)

(JOB) 10. State to what extent you have changed your job behaviour as a result of what you learned in the last training:

- 1) Not sure
- 2) Not at all
- 3) Some
- 4) Quite a bit
- 5) Extensively

11. Please state the extent to which the following changes have occurred in your job as a result of the last training programme you attended. Circle the appropriate answer and use the following key:

- 5 - Much better; 4 - Somewhat better;
 3 - No change; 2 - Somewhat worse;
 1 - Don't know

	<u>CHANGES OCCURRED</u>	<u>EXTENT</u>
(PERFOR)	Total performance at work	1 2 3 4 5
(TOSE)	Getting things done on schedule	1 2 3 4 5
(QUAL)	Work quality	1 2 3 4 5
(PEREL)	Change in peers relationships	1 2 3 4 5
(SUREL)	Change in supervisors/peers relationships	1 2 3 4 5
(ACOMP)	Amount of work accomplished	1 2 3 4 5
(GREVE)	Grievances and complaints prevented	1 2 3 4 5
(WORK)	New ways to work	1 2 3 4 5
(SAFE)	Safety records	1 2 3 4 5
(TASKY)	Time to perform tasks	1 2 3 4 5
(IPROD)	Number of items produced	1 2 3 4 5
(COST)	Reduction in costs	1 2 3 4 5
(MOTIV)	Trainees' level of motivation to work	1 2 3 4 5

ADDITIONAL INFORMATION: WORKERS' BACKGROUND (BACK)

CODING

(SAL) 12. Please state your present salary, in terms of minimum wages (circle the number that best suits your case).

- 1) 1 - 2 minimum wages
- 2) 2 - 3 minimum wages
- 3) 3 - 4 minimum wages
- 4) 4 - 5 minimum wages
- 5) 5 - 6 or more minimum wages

(EDU) 13. Please also state your present educational level

- 1) Uncompleted primary school
- 2) Primary school
- 3) Uncompleted high school
- 4) High school
- 5) Technical college
- 6) University level

(WORKY) 14. Please finally state the number of years of your work experience since then:

- 1) Up to two years
- 2) Three years
- 3) Four years
- 4) Five years
- 5) Six years or more

MORE ADDITIONAL INFORMATION: COMPANY SIZE

(NUMB) 15. Please state, on the basis of the information you have got, the number of employees in your company:

- 1) 21 - 40 employees
- 2) 41 - 60 employees
- 3) 61 - 74 employees
- 4) 75 - 100 employees
- 5) 101 - 500 employees

THANK YOU VERY MUCH FOR YOUR COLLABORATION

APPENDIX C

EVALUATION OF WORKERS' TRAINING:

INTERVIEW WITH SUPERVISORS

Consider the objectives that were set up by your section/department, when the workers under your supervision completed their last training programme. Please place a circle around one of the numbers in each of the sections below, to indicate your assessment of the different aspects of the training attended by your subordinates.

Before answering the questions, please complete the Identification section below.

IDENTIFICATION

INTERVIEW NO.: _____

COMPANY: _____

COMPANY TYPE: () METAL () PHARMACEUTICAL
() ELECTRONIC

ADDRESS: _____

DATE: _____

QUESTIONS

CODING

- (SUBIM) 1. In your opinion, after the last training your subordinates:

- 1) Have made no improvements and probably won't in the future
- 2) Have not presented concrete changes yet but probably will
- 3) Improved a little
- 4) Improved quite a bit
- 5) Improved a lot

2. State to what extent the following changes have occurred in subordinates' job behaviour as a result of the last training programme they completed. Use the following key:

- 5 - much better; 4 - somewhat better;
 3 - no change; 2 - somewhat worse;
 1 - don't know.

	<u>CHANGES OCCURRED</u>	<u>EXTENT</u>
(TOPER)	Overall performance of their jobs	1 2 3 4 5
(TOCHE)	Getting things done on schedule	1 2 3 4 5
(TOQUA)	Work quality	1 2 3 4 5
(TOREL)	Relationships among trainees	1 2 3 4 5
(TOSUR)	Supervisor/Trainees relationships	1 2 3 4 5
(TAC)	Getting more work accomplished	1 2 3 4 5
(TOGRI)	Preventing grievances and complaints	1 2 3 4 5
(TOWO)	Using new ways to perform the work	1 2 3 4 5
(TOSA)	Safety records	1 2 3 4 5
(TIWO)	Length of time to perform tasks	1 2 3 4 5
(TOP)	Number of items produced	1 2 3 4 5

(TOCO)	Reduction in costs	1	2	3	4	5
(TOMO)	Trainees' level of motivation to work	1	2	3	4	5

THANKS FOR YOUR CO-OPERATION

APPENDIX D

EVALUATION OF WORKERS' TRAINING: INTERVIEW WITH MANAGERS

Consider the objectives that were set up by your training staff when the trainees (workers) completed their last training programme. Please place a circle around one of the numbers in each of the sections below, to indicate your assessment of the different aspects of the training administered to workers in your company.

Before answering the questions, please complete the Identification section below.

IDENTIFICATION

YOUR POSITION: MANAGER () DEPUTY MANAGER ()

COMPANY: _____

COMPANY TYPE: () METAL () PHARMACEUTICAL

 () ELECTRONIC

ADDRESS: _____

DATE: _____

QUESTIONS

CODING

- (MOS) 1. According to you, after the last training, workers of the production sector:
- 1) Have made no improvements and probably won't in the future
 - 2) Have not presented concrete changes yet but probably will
 - 3) Improved a little
 - 4) Improved quite a bit
 - 5) Improved a lot
2. Please indicate the condition that existed BEFORE and AFTER the training for each item listed below. Please circle the appropriate number in relation to all items that apply. Use the following key:
- 5 - Very Good; 4 - Good;
 - 3 - Satisfactory 2 - Tolerabel;
 - 1 - Undersirable.

CHANGES OCCURRED

EXTENT

CODING

(PERBE)	Trainees' performance BEFORE trainig	1	2	3	4	5
(PERTA)	Trainees' performance AFTER training	1	2	3	4	5
(OCHAN)	Things done on schedule BEFORE trainig	1	2	3	4	5
(OCHA)	Things done on schedule AFTER training	1	2	3	4	5
(QUALB)	Trainees' work quality BEFORE training	1	2	3	4	5

(QUALA)	Trainees' work quality AFTER training	1	2	3	4	5
(RELBE)	Relationships among trainees BEFORE training	1	2	3	4	5
(RELBA)	Relationships among trainees AFTER training	1	2	3	4	5
(WORBE)	Supervisors/Trainees relationships BEFORE training	1	2	3	4	5
(WORKA)	Supervisors/Trainees relationships AFTER training	1	2	3	4	5
(SLEBE)	Amount of work accomplished BEFORE training	1	2	3	4	5
(SLEP)	Amount of work accomplished AFTER training	1	2	3	4	5
(GRIV)	Reduction in grievances and complaints BEFORE training	1	2	3	4	5
(GRIVE)	Reduction in grievances and complaints AFTER training	1	2	3	4	5
(WORGA)	New ways to work BEFORE training	1	2	3	4	5
(WORG)	New ways to work AFTER training	1	2	3	4	5
(SABE)	Safety records BEFORE training	1	2	3	4	5
(SADA)	Safety records AFTER training	1	2	3	4	5
(STOB)	Downtime and stoppage BEFORE training	1	2	3	4	5
(STOP)	Downtime and stoppage AFTER training	1	2	3	4	5
(IPROB)	Trainees' production BEFORE training	1	2	3	4	5
(IPRO)	Trainees' production AFTER training	1	2	3	4	5
(COSTE)	Reduction in costs BEFORE training	1	2	3	4	5
(COSTS)	Reduction in costs AFTER training	1	2	3	4	5

(MOTE) Trainees' level of motivation to work
BEFORE training 1 2 3 4 5

(MOT) Trainees' level of motivation to work
AFTER training 1 2 3 4 5

3. In order to assess the link between business performance in your firm and results of workers' training, please answer the six following questions, taking into account the two past years (1985/1986).

QUESTIONS

CODING

- (EMPI) A. Has the number of employees increased?
1 - YES () 2 - NO ()
- (OUTI) B. Has output increase?
1 - YES () 2 - NO ()
- (PROD) C. Have new products or service been introduced?
1 - YES () 2 - NO ()
- (HIGH) D. Has there been a significant increase in the number of employees needing high-tech skills?
1 - YES () 2 - NO ()
- (PROC) E. Is your company profitable now?
1 - YES () 2 - NO ()
- (PROF) F. Are turnover and profits expected to improve next year?
1 - YES () 2 - NO ()

THANK YOU VERY MUCH FOR YOUR CO-OPERATION

APPENDIX E

COVERING LETTER

F I E M G

FEDERATION OF INDUSTRIES OF THE MINAS GERAIS STATE
AV. CARANDAI, 1115, SUITES 501-1110, CENTRE,
PO BOX 339
30170 - BELO HORIZONTE - MG - BRAZIL
TELEPHONE: (031) 201 1855
TELEX: (031) 1347 - 30134 FEINDUSTRIAS

TO WHOM IT MAY CONCERN

MR. JOAO A. DIAS NEVES

This is to certify that the above named person is registered as a full time postgraduate student at Stirling University, Department of Business and Management, Scotland. He is at present studying for the degree of Doctor of Philosophy, sponsored by CNPQ - The Brazilian National Research Council and in order to successfully complete his degree, he needs access to the small and medium sized pharmaceutical, metal and electronic industries, so as to conduct his field work, aimed at obtaining information related to workers' results of training and organisational climate.

His field work is due to start in the early October

1986 and is scheduled to finish earlier in March/87, and his work will consist of a set of questionnaires to be administered to workers who had being on training, together with structured interviews to be answered by supervisors and managers of the industries concerned and as such, we would like to ask for your full attention and collaboration.

Mr. Neves' field work has exclusive academic purposes whose final objective is to try to provide some practical guidelines slanted towards stimulating and reorienting the Brazilian manpower training policies in small and medium sized firms, as a main focus.

We look forward to having your full organisational support to this interesting and welcomed survey.

Dr. Heitor Cabral

Operations Manager

Date: 17 October 1986

APPENDIX F

SPSSX PROGRAMME USED TO ANALYSE THE SURVEY DATA

Title: Organisational climate analysis and training results

File handle whole/name='whole.dat'

Data list file=whole records = 2

Record 1(Workers) / recnum 1 quesnum 2-4 id 5-6 real 8
 condi 10 ativ 11 ainf 14 rec 15
 know 16 dish 17 reason 18 hard 19
 set 20 right 21 person 22 best 23
 sal 24 edu 26 worky 27 numb 29
 joba 35 task 36 skil 37 perfo 38
 time 39 peer 41 sup 42 perce 43
 opor 44 perm 45 supin 46 job 48
 perf 50 tose 51 qual 52 perel 54
 surel 56 acomp 57 greve 59 work 61
 safe 63 tasky 65 ipro 66 cost 68
 motiv 70

Record 2(supervisors/managers) / subim 8 toper 10 toche 11
 toqua 12 torel 14 tosur 15 tac 16
 togri 17 tomo 19 tosa 20 tiwo 21
 top 23 toco 24 tomo 26 mosa 29
 perbe 31 perta 32 ochan 34 ocha 35
 qualb 37 quala 38 relbe 40 relba 41
 worbe 43 worka 44 slebe 46 slep 47
 griev 50 worga 52 worg 53 sobe 55
 sada 56 stobe 58 stop 59 ipro 61
 ipro 62 coste 64 costs 65 note 67
 mot 68 empi 70 outi 71 prod 72
 high 73 prof 74 proc 75

Variable	label
recnum	'record number'
quesnum	'questionnaire number'
id	'company number'
real	'real interest in welfare/happiness'
condi	'working conditions improved'
ativ	'work activities organized'
rec	'superiors receptive to ideas'
know	'knowledge to do the job'
dish	'ways to handle differences / disagreements'
reason	'reasons to work hard'
hard	'encouragement to work hard'
set	'objectives setting'
right	'decisions made at the right levels'
person	'contribution to decisions by persons'
best	'use of available information to work better'
sal	'current salary'
edu	'present educational level'

worky	`years of work experience`
numb	`number of employees in each company`
laste	`last training effect`
prep	`present tasks performance`
apro	`accuracy of programme description`
train	`real training benefits`
joba	`attitude toward the job`
task	`understanding of tasks`
skil	`use of skills`
perfo	`tasks performance`
time	`use of time`
peer	`relationships with peers`
sup	`relationships with supervisors`
perce	`percentage of programme content`
opor	`opportunity to apply training`
perm	`permission to apply training`
supin	`supervisor interest in training discussion`
job	`job behaviour change`
perf	`performance at work`
tose	`things done on schedule`
qual	`work quality`
perel	`change in peers relationships`
surel	`change in supervisor/peers relationships`
acomp	`amount of work accomplished`
greve	`grievances and complaints prevented`
work	`new ways to work`
safe	`safety records`
tasky	`time to perform tasks`
iprod	`number of items produced`
cost	`reduction in costs`
motiv	`peers level of motivation to work`
subim	`perceived job behaviour change`
tope	`performance at work now`
toche	`work done on schedule`
toqua	`work quality`
torel	`relationships among trainees`
tosur	`supervisor/trainees relationships`
tac	`amount of work accomplished by trainees`
togri	`reduction in grievances and complaints`
towo	`new ways to work`
tosa	`safety records`
tiwo	`time to perform tasks`
top	`number of items produced by trainees`
toco	`reduction in costs`
tomo	`present level of motivation to work`
mos	`job behaviour change before training`
mosa	`job behaviour change after training`
perbe	`performance at work before training`
perta	`performance at work after training`
ochan	`things done on schedule before training`
ocha	`things done on schedule after training`
qualb	`work quality before training`
quala	`work quality after training`

relbe	'relationships among workers before training'
rebla	'relationships among workers after training'
worbe	'supervisor/workers relations before training'
worba	'supervisor/workers relations after training'
slebe	'amount of work accomplished before training'
slep	'amount of work accomplished after training'
griv	'reduction in griev./complaints before training'
griev	'reduction in griev./complaints after training'
worga	'new ways to work before training'
worg	'new ways to work after training'
sabe	'safety records before training'
sada	'safety records after training'
stobe	'downtime/stoppage before training'
stop	'downtime/stoppage after training'
iprob	'number of items produced before training'
ipro	'number of items produced after training'
coste	'reduction in costs before training'
costs	'reduction in costs after training'
mote	'level of motivation to work before training'
mot	'level of motivation to work after training'
empi	'increase in the number of workers'
outi	'company output increase'
prod	'new products/services introduced'
high	'increase of workers needing high skills'
prof	'profitable company now'
proc	'next increase in turnover and profits'

Value labels

real to	know 1'very little' 2'little' 3'some' 4'great' 5'very great'/'
dish	1'dis. always avoided' 2'disa. often avoided' 3'disagree balance' 4'disagree accepted' 5'disagree desirable'/'
reason	1'just keep jobs' 2'keep jobs and money' 3'jobs, money and prom' 4'all and satisf. job' 5'sat. job and expect.'/'
hard	1'very little' 2'little' 3'some' 4'great' 5'very great'/'
set	1'no comments on obj.' 2'comments on object' 4'object discussed' 5'prob. lead objectiv.'
right to	best 1'very little' 2'little' 3'some' 4'great' 5'very great'
sal	1'1-2 minim wages' 2'2-3 minim wages' 3'3-4 minim wages' 4'4-5 minim wages' 5'5-6 minim wages'

```

edu      1'uncomp. prim. school'  2'primary school'
        3'uncomp. high school' 4'high school'
        5'technical college'  6'university'/
worky    1'up to 2 years'  2'3 years'  3'4 years'
        4'5 years'  5'6 years or more'/
numb     1'21-40 employees'  2'41-60 employees'
        3'61-74 employees'  4'75-100 employees'
        5'101-500 employees'/
laste    1'dont know'  2'no better'  3'little
        better'  4'some better'  5'much better'/
prep     1'dont know'  2'the same as before'
        3'little better'  4'quite a bit better'
        5'much better'/
apro     1'dont know'  2'not accurately'  3'fairly
        accurately'  4'accurately'  5'very
        accurately'/
train    1'new knowledge'  2'new principles'
        3'ideas/techniques'  4'improve skills'
        5'keep updated'/
joba to  sup 1'dont know'  2'not at all'
        3'partially'  4'substantially'
        5'completely'/
perce    1'0-20%'  2'21-40%'  3'41-60%'  4'61-80%'
        5'81-100%'/
opor     1'none at all'  2'none but in future'
        3'little'  4'quite often'  5'regularly'/
perm     1'prevented'  2'discourages'  3'free to
        apply'  4'encouraged apply'  5'required to
        apply'/
supin    1'none but in future'  2'none'  3'some'
        4'quite a bit'  5'great'/
job      1'not sure'  2'not at all'  3'some'
        4'quite a bit'  5'extensively'/
perf to  motiv 1'dont know'  2'somewhat worse'
        3'no change'  4'somewhat better'
        5'much better'/
subim    1'no improvements'  2'no concrete change'
        3'improved littel'  4'quite a bit'
        5'improved a lot'/
toper to tomo 1'dont know'  2'somewhat worse'
        3'no change'  4'somewhat better'
        5'much better'/
mosa     1'no improvements'  2'no concrete change'
        3'improved little'  4'quite a bit'
        5'improved a lot'/
perbe to mot 1'undesirable'  2'tolerable'
        3'satisfactory'  4'good'  5'very good'/
empi to  proc 1'yes'  2'no'/
missing values real condi to proc(9)/
frequencies variables=real condi to proc
/statistics=all
compute human=(real+condi+ativ)/3
compute flow=(ainf+rec+know)/3
compute cond=(dish+reason+hard)/3
compute dec=(set+right+person+best)/4

```

```

compute clima=(human+flow+cond+dec)/4
compute change=(per+tose+qual)/3
compute efet=(perel+surel+acomp)/3
compute outco=(greve+work+safe)/3
compute chan=(tasky+iproduct+cost+motiv)/4
compute wokan=(change+efet+outco+chan)/4
compute supe=(toper+toche+toqua)/3
compute supi=(torel+tosur+tac)/3
compute supa=(togri+towo+tosa)/3
compute supo=(tiwo+top+toco+tomo)/4
compute supan=(supe+supi+supa+supo)/4
compute mon=(perta+ocha+quala)/3
compute man=(relba+worka+slep)/3
compute min=(griev+worg+sada)/3
compute mun=(stop+ipro+costs+mot)/4
compute manan=(mon+man+min+mun)/4
compute bus=(empi+outi+prod+high+prof+proc)/6
compute back=(edu+sal+worky)/3
compute befo=(perbe+ochan+qualb+relbe+worbe+sleb)/6
compute bef=(griv+worga+sabe+stob+iprob+coste+mote)/7
compute befor=(befo+bef)/2
compute afte=(perta+ocha+quala+relba+worka+slep)/6
compute afe=(griev+worg+sada+stop+ipro+costs+mot)/7
compute after=(afte+afe)/2
frequencies variables=human flow to back
  /statistics all
nonpar corr wokan supan manan with empi to bus
options 3 7
pearson corr back numb with woken supan manan
options 3 6
statistics 1,2
pearson corr back numb with empi to bus
options 3 6
statistics 1,2
nonpar corr empi to bus with human to clima
options 3 7
nonpar corr human to clima with wokan supan manan
options 3 7
nonpar corr job subim mosa with wokan manan clima
options 3 7
nonpar corr before after with wokan supan manan clima
options 3 7
scattergram wokan supan manan bus with clima
options 4 6 7
statistics all

```