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THE MEDIATING EFFECT OF ORGANIZATIONAL CLIMATE ON PERSONAL GROWTH AMONGST QUALITY CIRCLE MEMBERS

DISSERTATION PREPARED IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE MASTERS OF ARTS DEGREE IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY

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DECLARATION

The present work, unless otherwise specified and acknowledged in the text, is solely the result of the original effort of the author. This work has never before been submitted for any other purpose.

Signed by candidate

R. J. Robinson, July 1987

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LIST OF ABBREVIATIONS

Anova	Analysis of Variance.
CHD	Coronary Heart Disease.
GDP/C	Gross Domestic Product per Capita.
HR	Human Resources.
HRD	Human Resources Development.
JUSE	Japanese Union of Scientists and Engineers.
QC	Quality Circle.
QWL	Quality Of Work Life.
LOC	Locus Of Control.
PIL	Purpose-In-Life.
TQC	Total Quality Control.
UNISA	- University of South Africa.

ABSTRACT

The productivity and manpower situation in South Africa was reviewed. The necessity to involve workers at all levels in organizations was emphasized. The definition of "productivity", and the role of the human resources development (HRD) specialist was noted. The concept of "organizational culture" and the relationship to "climate" was discussed. The literature surrounding worker alienation, and the attempts to overcome this by means of participative work redesigns aimed at "worker development" was reviewed. The serious reservations which the organized labour movement has towards "participation" and designs such as quality circles (QC's) were noted and discussed. QC's themselves were introduced with an overview of their origins. The "trade war" between Japan and the West was mentioned, with particular note taken of the role of QC's and their subsequent usage and success world-wide. The critical importance of management commitment and a participative climate for the success of QC programs was emphasized.

The present study was undertaken within a QC program in a large engineering company, and consisted of 187 experimental subjects (QC members) and 63 control subjects (non-QC members). Subjects were measured on the independent variable ***Organizational Climate*** which consisted of ***Trust & Involvement***, ***Motivators***, ***Communications***, ***Decision Making***, ***Control Data***, and ***Average Climate***. These factors were obtained by means of performing a factor analysis on Likert's (1961) data from his Organizational Climate Scale. The dependent variable ***Personal Growth*** consisted of ***Life Satisfaction***, ***Self-Esteem***, ***Powerlessness***, ***Locus Of Control*** (LOC) and ***Purpose In Life*** (PIL). It was hypothesized that QC members would show more personal

growth than non-QC members, but that this would be mediated by organizational climate and time spent as a QC member. The validity and reliability of the study were discussed. The results indicated that QC members were higher on ***Life Satisfaction*** and ***Self-Esteem*** than non-members (P<Ø.Ø1). Both groups reported significantly more participativeness of climate over the previous 12 months, but QC members reported a greater increase. A significant (P<Ø.Ø1) correlation was found between most ***Organizational Climate*** indices and ***Personal Growth*** measures. It was concluded that QC participation brings about increased ***Personal Growth***, and that this growth extends to non-QC members in the same work area. A critical mediating variable however appears to be ***Organizational Climate***, which must be truly participative if any intervention such as QC's is to succeed. This is consistent with the findings of other authors. The need for further research was discussed, and the role of climate was re-emphasized by way of conclusion.

CHAPTER 1

INTRODUCTION

Setting the Scene

In 1986 a group of leading South African academics and businessmen under the auspices of the School of Business Leadership at the University of South Africa (UNISA) collaborated as "Project Free Enterprise" to produce a remarkable document outlining the current position of South Africa's economy, and putting forward strategies for saving it from an impending economic Armageddon. The long-awaited report used hard economic data to emphasize the urgent need for change and reform. The essence of the situation is that:

> during the preceding decade (1972-1982) South Africa recorded the lowest gross domestic product per capita (GPD/C) as well as registering the second lowest improvement in GPD/C, when compared to our major trading partners. During a similar period South Africa recorded the lowest increase in output per hour in manufacturing (Project Free Enterprise, 1986 p. 15).

As Moubray (1986) notes, the above analysis "is a litany that is becoming tiresome, if only through sheer repetition. And yet ... we still await a significant all-round improvement" (p. 4). Whilst it is easy to over-simplify the analysis, there are several well-established contributing factors to the present situation.

A departure point in understanding South Africa's low

productivity figures is to examine the racial division of labour in this country, which is most clearly illustrated by an examination of blacks in the labour market, particularly the managerial segment of the economy. The tables below illustrate the basic position of the black worker in South Africa (Nattrass 1981, pp. 50-51), Table 1 showing how "non-whites" have been crowded into the lower eschelons of the labour market, and Table 2 showing the gross income inequality based on race in each occupational category.

TABLE 1

BREAKDOWN OF OCCUPATION IN EACH "RACE" GROUP

	PERCENTAGE OF "RACE" GROUP			
CATEGORY	AFRICAN	ASIAN	COLOURED	WHITE
ALL ECONOMICALLY ACTIVE	72,7	2,2	7,8	17,3
PROFESSIONAL & TECHNICAL	26,2	3,6	8,9	61,3
MANAGERIAL & EXECUTIVE	0,5	2,1	0,8	96,6
CLERICAL	16,3	7,8	8,0	67,9
SALES	21,5	8,4	10,2	59,9
PRODUCTION WORKERS	71,4	4,0	10,9	13,7
UNSKILLED	85,8	3,1	10,6	0,5

SOURCE: NATTRASS (1981) P 50.

TABLE 2

AVERAGE EARNINGS BY "RACE" AND OCCUPATION (1975 FIGURES)

CATEGORY	AFRICAN	ASIAN	COLOURED	WHITE
PROFESSIONAL & TECHNICAL	2044	4240	2869	7860
MANAGERIAL & EXECUTIVE	1409	4963	1979	7860
CLERICAL & ADMINISTRATIVE	1913	3704	1722	2750
SKILLED LABOUR	2008	3990	2248	5500
PRODUCTION WORKERS	1629	2829	1383	5500
UNSKILLED WORKERS	956	2015	924	5500

SOURCE: NATTRASS (1981) P 51.

Even more disturbing is the recent finding by Human & Hofmeyer (1985, p. 7) that whilst blacks have exhibited gradual upward mobility in certain categories over time, from 1970 to 1980 "the percentage of male black administrators and managers remained constant". Further, Nattrass (1981) goes on to note that 39,9% of all urban black males in urban areas have had no schooling and only 0,3% have a tertiary qualification, compared to 1,1% and 15,4% respectively for whites (1970 census data).

Tables 1 and 2 (Nattrass 1981) further reveal that in 1977, blacks constituted 72,7% of the economically active population but made up only Ø,5% of the managerial and executive group. Marais & Van der Kooy (1978), list black executives as a group which does not statistically exist!. For those who *do* belong to this category, there is a massive 1:4 gap between the earnings of black and white managers - although this overall "managerial" category does not consider the question of the level of manager under analysis, making the comparison somewhat less valid. Whilst there is little doubt that the position has improved somewhat in the intervening years, the situation remains serious. However, moral and other considerations aside, why should anyone care whether or not blacks actually enter the managerial class in this country? The answer to this question is the reverse-side of the puzzle of South Africa's low productivity figures, and provides an insight into why the upgrading of the "black" labour pool is a national priority, regardless of one's political convictions.

The now-classic study of Sadie (1979) revealed that the ratio of managers to other workers in South Africa is 1:54, whereas in the rest of the developed world this figure ranges from 1:15 to as low as 1:1Ø in the USA. The larger "leader" group of professionals, administrators and other upper-level workers equals about 25% of the total labour force in these countries, whereas this is only 12% in South Africa (Hanson & Bellis 1983). To achieve the 25% figure about 2 million people in the "leader" class were required in 1984. With 1.5 million economically-active "whites", there would still be a short-fall of over a half-million, even if they were all "leaders" - clearly an absurd assumption! With a projected population of 5Ø million in the year 2ØØØ, this shortfall will become even more acute. The bottom line in this analysis is that the "white" group is numerically, let alone intellectually, incapable of supplying all of the leader class, and in the future this gap

will grow as the population increases and "whites" constitute an ever-shrinking fraction of the total. At a time when South Africa's productivity and competitiveness on the world market is in the dire straits described, it should be obvious that that the road to economic anhiliation is one which advocates white exclusivity in the managerial and professional sectors. It can also be argued that it is a criminal waste of human resources to draw on less than 10% of the nation's potential at a time when unemployment and poverty is rife.

Rounding off the above line of reasoning, it has emerged in recent years that apartheid may in fact be killing the managerial class in South Africa by virtue of the ridiculous work-load it has created for our executives. Coupled with certain hereditary factors and a cholesterol-rich diet, white South African males have amongst the highest coronary heart disease (CHD) rate in the world. Wyndham (1978) reported that South Africans have higher rates of CHD than citizens of countries such as Finland, USA, England and Australia. Wyndham (1981) has also showed that almost 50% of all lost man-hours in South Africa are attributable to CHD and related diseases. As a factor exacerbating the present poor economic performance, these figures are particularly disturbing. Further, it is precisely Hanson and Bellis's (1983) "leader group" which is bearing the heaviest incidence of CHD in this country.

What these statistics clearly illustrate is that the political dispensation in this country has historically barred probably upwards of 75% of potential leaders from ever moving out of the unskilled class. More damning even than that, once the chronic shortage of managers became apparent, very little was done to attempt to redistribute the load by delegating responsibility to workers, and developing their skills to become partners with management in improving productivity. Instead a solution has always been sought within management development, and even the non-racial equal opportunity programs have

neglected the question of the skills and competencies of those left behind. In its extreme form, this is little more than an extension of scientific management, with workers being regarded as uniform and interchangeable units, with the key to their motivation and effectiveness being viewed as a function of managerial technique. The development of workers, particularly in South Africa, is a greatly under-valued area, and it is this issue which the present study specifically addresses.

With the severity of political violence in this country being matched by the appalling CHD statistics, the skilled manpower shortage, and the economic crisis, the development of our work-force and improvements in productivity reaches beyond academic desirability or moralistic judgments - it is a national necessity. Whatever the future political dispensation in South Africa, it will need a sound economy and a skilled labour force if the basic demands of a burgeoning population are to be met.

Given this de facto situation, there are perhaps two immediate strategies: i) increase the number of "non-whites" entering the upper echelons of the labour market, and more broadly, ii) develop our workers of all colours, at all levels in the organization. The former is catered for by managerial development which is a topic in its own right, and as outlined in a previous paragraph much valuable work is being done in this country. However, productivity is just as much a function of work at the shop floor as in the managerial suite, and the upgrading of the skills of all workers is necessary if South Africa is going to compete successfully with her main trading partners in the coming decades. "Quality and productivity are irrelevant to workers who feel that they do not participate in, or benefit from, the business system" (Project Free Enterprise 1986 p. 15).

The Concept of Productivity and Strategies for Improvement

Having mentioned "productivity" several times above, the concept itself requires proper definition. Technically, productivity is output divided by inputs, and is typically illustrated by the following formula (Visser & Van Loggerenberg 1986, p. 22):

$$\text{Productivity} = \frac{\text{Product Quantity (i.e. output)}}{\text{Resource Quantity (i.e. input)}}$$

The above simple definition is the basis for the entire field of productivity measurement, and various techniques are available for the "hard" measurement aspect (eg. Sink, Tuttle, & DeVries 1984). In the human resources (HR) field, an alternative definition has gained popularity in recent years, and is summed up as being to "work smarter and not harder" (Skinner 1986, p. 55). To a degree this definition recognizes that human and machine capital are not simply alternatives, and that the human resources of an organization may in fact hold the key to improved productivity and efficiency.

The field of productivity improvement, particularly in terms of the contribution which HR can make, really became an issue in the mid-1970's onwards, as the technically-dominant West found itself inexplicably losing ground on international markets to the Japanese industrial drive. Reviewed in a subsequent chapter, the advances made by Japanese management provided the impetus for a complete re-think about productivity which began to be seen as a managerial, rather than a technical responsibility (Deming, 1982). Further, a review of the literature over the last decade, eg. Fact Sheet (1976), Jamali (1983), Van der Merwe (1984), and Gmelch & Miskin (1986), reveals two main trends in the approach to this subject: i) a movement away from technological solutions towards managerial

solutions; and most significantly for the present paper, ii) an increasing emphasis on gaining the participation of all workers particularly those on the shop floor, in the process.

The Role of the HRD Professional

The emphasis on workers and their involvement in raising productivity has given renewed legitimacy to the role of the HR professional. After disillusionment with the humanistic approach of the 60's and early 70's and the rejection by the labour movement of what was seen as nothing more than scientific management in a friendlier guise, the idea of involving workers in decision-making as a means for achieving significant contributions towards the profitability of the firm has, as Baird & Meshoulam (1986) put it, created "a second chance for HR to make the grade" (p. 45). "Two key elements feature strongly in the effective operation of the free-market system - participation and productivity. These two elements motivate participants to perform at their best" (Editorial, 1986 p. 2). Further, as it became apparent that various managerial approaches would have differing effects, the HR professional was called upon to provide models and training which would allow managers to exercise the appropriate style at the right time. This is notwithstanding the skepticism with which organized labour continues to view the "participative movement", and whose arguments, reviewed in the following chapter, provide a powerful counter to the idea of designs such as quality circles.

Related to the concept of differing possible managerial approaches is the field of "organizational culture". This phrase is a widely-abused and over-used idea, and it is necessary to define just what it is which is meant by "culture". Schein (1986a) puts it as follows:

> a pattern of basic assumption - invented, discovered, or developed by a given group of people as it learns to cope with its problems of external adaptation and internal integration - that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to these problems (p. 9).

Schein (1986a) also distinguishes between the basic underlying culture, which is very hard to see in its entirety, and a number of surface manifestations, such as supervisory style, which are more accessible and provide pointers towards the basic culture. These more superficial manifestations of culture are what are usually collectively referred to as the organizational "climate". Classic authors in this area, Litwin & Stringer (1968) suggest "climate describes a set or cluster of expectancies and incentives and represents ... a property of environments that is perceived ... by the individuals in the environment" (p. 29). They note further that "the manager's leadership style is a critical determinant of organizational climate" (p. 169). In line with this concept of supervisory style being a significant reflection of organizational "culture", one consequence has been the development of a number of measurement techniques for assessing how managers manage, ie. for assessing managerial "style".

According to Deal & Kennedy (1982), "values are the bedrock of any corporate culture" (p. 21), and it is this rock which is the foundation for all human interactions within an organization (Desatnick, 1986). Rules for behaviour, ways of getting jobs done, recognition and achievement criteria, the "right" way and the "wrong" way, are all determined by the culture. Further, since the quality of an organization's achievements is directly related to the efficiency of its human staff, McTague (1986) concludes, "productivity is shaped by forces beneath corporate

culture" (P20). The old debates of the "best" managerial style versus situational leadership have been revived with a new direction: what managerial style is reflective of a "culture" which is conducive to high productivity ***and*** participation by workers?

A field of considerable importance has thus emerged within the area of responsibility of the HR practitioner, and this is concerned with "corporate culture" and how to change it, preferably in the quickest and least painful manner (Hubbard, 1986). A number of "recipes" towards this end are now available (eg. Meares 1986), and the role of the HR professional is to facilitate this change process. The danger exists here of making "culture", a buzzword rather than giving it the serious attention it deserves. As Schein (1986b) notes, "culture is a deep phenomenon, merely manifested in variety of behavior" (p. 30). The emphasis on productivity through employee development has thus shifted the HR specialist from being a somewhat static staff person into being a dynamic change agent in an organizational environment which requires adaptation to a rapidly changing set of circumstances. HR has become an "entrapreneurial" rather than "administrative" function (Sussman & Kuzmits, 1986, p. 42).

The Issue of Rapid Change, Organizational Development and Adaptation

Ever since Toffler (1970) published ***Future Shock***, organizational theorists have been dealing intensively with the concept of rapid change and growth in organizations. It is within this field that organizational development (OD) has found a niche. Greiner's (1972) classic article spelt out the stages of growth and development in organizations. He predicted that the solution to the crisis of "red-tape" was "collaboration", (p.

43) which consists of amongst other things, the involvement of workers in problem-solving teams. French & Bell's (1984 P17) lengthy definition of OD includes aspects of HR activities such as participation, teams, and problem-solving. Indeed, in many respects the HR specialist today is not just involved with the employees in the organization - he is involved in the life-cycle of the organization itself. The HR practitioner attempting to enhance productivity and participation must be more than a "people-person" : he must be an OD specialist as well, specializing in "managing the future" (Kinsman, 1986 p. 126). Thus not only must the culture which he assists to create maximize both productivity and participation, it must assist the organization to meet and adjust to rapid change. The present author can only whole-heartedly agree with Carnall (1986) who concludes "by creating the conditions for extensive problem-solving and positive attitudes towards change, future effectiveness is created", and doing this "goes far beyond being nice to people" (p. 115). Organizational survival rather than "niceness" today underlies productivity and participation, and employees and management are all in the same life-boat together, particularly in South Africa which is drifting further and further away from the position of her main trading partners.

Early Hypotheses, Assumptions and Personal Growth

Based on the arguments presented in the previous pages, a possible research question which is emerging is: a) do participative programs "work", and b) to what extent does the prevailing organizational climate play a mediating role in the effects of such programs? Tightening up the terminology being used, to "work" means producing the desired effects, in this case improved productivity and the development of the human resources in the organization by means of a participative work

design. The present study is concerned specifically with this latter effect, viz. the development of staff. "Development" here is taken to be a positive increase in a construct called ***Personal Growth***, first defined by the work of Carl Rogers (eg. 1965), as being "a more broadly based structure of self, an inclusion of a greater proportion of experience as part of self, and a more comfortable and realistic adjustment to life" (1965, p. 195).

The present paper is concerned with one participative work design in particular, that of the quality circle. Based on the literature reviewed thusfar, the following basic assumptions are made, underlying the research hypotheses: i) different corporate cultures may be more conducive to productivity and personal development than others; ii) these cultures are largely reflected and manifested at the shop-floor by the organizational "climate", particularly supervisory style; iii) participation leads to "personal growth"; iv) quality circles are a viable form of participation; and v) management style may effect the extent to which quality circles are beneficial to their members, from the perspective of increased "personal growth". These assumptions will be tested in subsequent chapters when reviewing the evidence which exists in the literature in terms of the writings of theorists and the evidence from research, and if found to be sound will form the basis for the final research hypothesis.

The Scope and Design of the Present Study

The present study thus considers a single participative work design, the quality circle, and examines its effect on the quality circle members in terms of the construct called "personal growth" which is developed as part of the present paper. This effect is calculated by comparing the circle

members with a control group of non-circle members on this variable. A possible mediating variable, the organizational climate, is also measured, and its effects are computed by correlation with the personal growth indices discussed above. Further exploratory data analysis, where deemed appropriate, is also undertaken. A significant part of the design consists of the development of the tools for measuring these variables. The design takes place within a single large engineering organization, with subjects being drawn from regional offices throughout South Africa.

Outline of Remaining Chapters

Having set the scene within which the research question underlying the current study will be investigated, the whole area of job-redesigns and participative work programs will be reviewed, with specific focus on the quality circle (QC) concept and movement, its origins and successes, and status internationally. Critical criteria for successful quality circle programs will be reviewed, leading to an analysis of the rationale behind the variables under investigation in the present study. These variables will be discussed in some detail, with the pertinent previous research which exists being reviewed. The specific hypothesis and sub-hypotheses of the present study will then be formulated, and the research design will be described, with specific attention being given to the construction of the questionnaires used in the current investigation.

The research results will be examined using statistical techniques, and will be discussed. The present design will be critiqued, and suggestions for future research will be made before concluding.

CHAPTER 2

LITERATURE REVIEW AND SIGNIFICANT PRIOR RESEARCH

Worker Alienation and Job Redesign

Karl Marx coined the term "worker alienation" as part of the more general concept of alienation, defined as "the feeling of apartness" (Chaplin 1975, p. 18), and many writers within the Marxist school in particular have argued that it is this feeling of apartness from the aspirations and goals of the owners of the means of production which has continued to characterize the working existence of many if not the majority of industrial workers in the 20th century. This theme of worker alienation or "the blue-collar blues" (Anonymous, 1971 p. 84) remains a central concern of industrial psychology, and most of the major motivational theories take some trouble to address this issue, which has always been enmeshed in political and emotional debate. It is not the intention of the present author to add his own vision of a utopian society to the menu of those which have already been proposed. It is perhaps sufficient to note that despite the variety of political and social dispensations in operation in the world today, some degree of worker alienation remains endemic to the majority of industrialized countries (Meltzer, 1978). This generalization excludes the notable exception of Japan whose special circumstances will be reviewed in the present paper.

A great deal of research has been undertaken specifically into worker alienation, and certain conclusions have been drawn and been in existence for several years. From these classic

works, perhaps those findings most pertinent to the present study are: i) technology, particularly automation and the "production-line" system is often a significant contributor to alienation (eg. Shepard 1970, Cotgrove 1972, Susman 1972); ii) jobs can be redesigned to counter alienation (eg. Scheips 1972, Walton 1972, Frank 1973); and iii) participation is perhaps one of the best ways to achieve this countering effect (eg. Fuller & Bonjean 1970, Denhardt 1971, Strauss 1974). In general, the conclusions of this era of research were that "there must be real commitment by top management to the idea that worker satisfaction is essential to increased productivity. Too often ... we are more concerned about the machines than the men and women who operate them" (Anonymous, 1971 p. 85).

The above studies gave support and legitimacy to the "job redesign" movement, a broad-based and eclectic attempt to find alternative work forms which would eliminate alienation, and maximize productivity and participation. The job redesign movement has been around in various forms for several decades now, and a massive amount of work has been done in this field, making it beyond the scope of the present study to attempt any kind of representative overview beyond summarizing the main findings of the research. Very fine summaries of the work which has been done are available in the reviews of writers such as Parnes (1978), Hackman & Lee (1979), Nollen (1979), and Guzzo (1983). The first reference in the job redesign literature is to be found in Davis & Canter (1956), with specific areas of job redesign developing soon after. Interventions thus fall into categories, the main headings of which being issues such as sociotechnical systems, job enrichment, job enlargement, work schedules, environmental fit, ergonomic design, automation, robotics, and computerization. The only common basis for inclusion in the category of job redesign is an underlying philosophy aiming at "the design of effective and satisfying jobs, which meet both the organization's needs for effectively

achieving its goals through the use of its human resources and the individual's needs, expectations and goals" (Davis & Wacker, 1982 p. 2.5.1). Certain of the redesign efforts have been extremely large-scale and received wide publicity both within and beyond academic circles. A prime example is the Volvo case, which entailed the redesign of one factory, and the building of another new factory to completely untried specifications in an attempt to meet the requirements of a sociotechnical redesign (eg. Tichy 1976).

Despite the research which has been done in this field, results remain hazy and equivocal. The multitude of approaches, the variety of situations, and the difficulty of conducting research in the field where control is limited has resulted in a patchwork of facts, hypotheses, and correlations. In reviewing the results as they exist, Hackman (1979) comes to four basic conclusions which sum up the total known facts of the matter. He concludes that job redesign: i) alters the basic relationship between a person and what they do on the job; ii) it changes behaviour, which tends to stay changed; iii) it offers numerous opportunities for initiating other organizational changes; and iv) in the long term it can result in organizations which rehumanize, rather than dehumanize their workers. Thus job redesign is not a panacea, nor does it automatically result in the desired outcomes. It is rather a way of breaking down traditional patterns of work, and a great deal of additional effort is subsequently necessary if something better is to replace what has gone before.

Within the job redesign literature, a theme which has become increasingly prominent in recent years is that of "worker participation", and the later job redesign efforts have looked specifically at this question. Kornbluh (1984) believes this is in response to three complementing forces: i) the need for increased productivity and quality; ii) the demands for a better working life by the "new", better-educated worker; and iii) the

challenge of foreign competition - particularly the matter of the Japanese invasion of the West's markets.

The issue of increased worker participation in the decision-making, responsibility-taking aspects of organizational life has raised a number of social and economic dilemmas, both within the labour unions and socialist school of writers, as well as amongst the management theorists. Sell (1986) outlines the cleft stick the former group finds themselves in. On the one hand, increased power on the shop-floor is what has been struggled for since the Industrial Revolution, and real involvement in decision-making would constitute a significant victory for the organized labour movement. On the other hand, too-close an identification with the owners of capital will erode the traditional power-base of the unions, and threaten to split the unity of the working-class between the have and the have-nots. To the socialist school in general Marotto (1983) feels the question is whether this "participative" movement is the beginnings of the voluntary relinquishment of the reigns of ownership by capitalists towards eventual worker control; or whether it is merely a clever ploy by capitalists to alter the aspirations of workers in the formers' favour by allowing small numbers of the latter to appear to be crossing the barrier of control.

In general, the answer from the perspective of socialist and more specifically Marxist writers, is that the idea of participative work designs is no more than merely another attempt by the owners of capital to hoodwink the working class into feeling that they have some sort of additional control over their working environment, whilst at the same time leaving the means of production and the increased surplus value firmly in the hands of the capitalists. As discussed in the previous paragraph, writers in this arena appear divided into those who feel that a workers' revolution can take place within the existing system, by means of taking advantage of participative

designs, using recognized negotiation channels, and generally making gains by playing by the "rules" of existing industrial relations machinery (eg Wilkern 1969); and those authors who feel that to accept a concept such as QC's would be to risk splitting the working-class by allowing management to dictate the form and extent of participation from within a "program" of participation, thus again placing management in control of the process (eg. Clayre 1980). From the management side, the extreme views of super-capitalists such as Milton Friedman (eg. 1980) question the ability of workers to participate meaningfully or constructively in the decision-making of an organization, since they are seen as having a shorter, more operational time perspective than the longer-term view required for strategic management. Friedman and others within this school suggest that if workers wish to manage, they should become managers. This is a somewhat callous attitude, since it ignores the practical difficulties involved in gaining admittance to the managerial class, as well as the fact that many workers do not wish to become managers, but they *do* want to fundamentally change the nature of work. More mainstream management theory, such as Mintzberg (1979) tends to regard participation as essential for increasing productivity, and acknowledges the necessity for avoiding the kind of patronizing privilege which organized labour is refusing to accept. "Democracy does not depend on the generosity of those who hold formal power; instead it distributes that power constitutionally throughout the organization", (Mintzberg 1979, p. 204).

The present author does not feel that the socialist and management schools are necessarily irrevocably divided. Their differences appear to arise out of the question of what *nature* "participation" will take within the work-place, and who will control the extent of the participation. Neither side, it seems, is actually arguing over the desirability of greater worker participation. As Blumberg (1968) notes,

> there is hardly a study in the entire literature which fails to demonstrate that satisfaction in work is enhanced or that other generally acknowledged beneficial consequences accrue from a genuine increase in workers' decision-making power. Such consistency of findings, I submit, is rare in social research (p. 123).

Possibly the gravest threat to genuine participation is the attempts made in certain instances by reactionary managers to "replace" unions or other means of worker representation with concepts such as QC's. The present author was appalled at a recent convention to hear one of the delegates comment "if we have quality circles, we won't need trade unions". Short-sighted policies by management will indeed reduce QC's to little more than a palliative intended to deceive workers. It is the opinion of the present author that a management sincere in its intention to develop its human resources will consult with, and involve trade unions at every step in the development of a participative work program. If it is to succeed as a concept, the QC must be seen as a developmental technique for management and workers which in no ways seeks to usurp any of the established collective-bargaining devices.

Thus whilst the field of worker participation is not without controversy, a variety of different designs have nevertheless been attempted, some of which have had considerable effects. Semi-autonomous and autonomous work groups, matrix-organizations, product rather than functional divisions, problem-solving groups, management by objectives, consultation, and particularly quality circles have all been used with varying degrees of success. A common theme running consistently through the literature in this field as a basic prerequisite is management and supervisory-level commitment and competence in a genuinely participative management climate. By way of example, Rowan (1984) discusses the threat that participation represents

to first-line supervisors; Graversen (1985) reviews the critical role of the foreman in "industrial democratization"; Crosby (1986) lists a number of critical skills which management needs to acquire before they will be in a position to operate competently within a participative organizational culture; and Krause & Nel (1986) chide managements' inability to give effective direction under a participative system. This theme of the role of management is something which will be returned to when discussing the critical intervening effect of organizational climate on the effectiveness of participative programs.

The Origin of Quality Circles

The specific participative work design which the present study is concerned with, the "quality circle" (QC), is one of the most popular, widespread, and successful of the various options in this category. According to The Japanese Union of Scientists and Engineers (JUSE), a quality circle is:

> a small group to perform voluntarily quality control activities within the same workshop. This small group carries on continuously as a part of company-wide quality control activities, self-development and mutual-development, control and improvement within the workshop utilizing quality control techniques with all members participating (JUSE 1985 p. 4).

Despite the variety of cultures and contexts within which QC's operate, the above basic definition remains the one in use internationally.

Whilst the research done on QC's will be reviewed in the next section, the history of QC's themselves begins in 1948, when in an attempt to rebuild the Japanese economy after the

Second World War, "quality control" was introduced from the United States. Between 1948 and 1960 quality control became an extremely popular and well-researched subject in Japanese industry, and the majority of workers were exposed to the concept via books, courses, and television programs. As part of involving *all* levels of workers, the first QC's were developed and started in 1962 at IBM, but were not successful in the USA and had more or less died out at the time they became popular in Japan. A national QC body with its own newsletter was formed in 1964, and soon had chapters throughout Japan. The growth of QC's was explosive, and by 1982 there were 76 936 registered circles in Japan, and over one million registered or awaiting registration by 1985. A similar movement has been started in both Taiwan and South Korea with great success and QC's have "come home" to the USA and have made a large impact in various other industrialized countries. The impetus for this Western interest in QC's came from the Japanese "invasion" of the West's traditional markets.

The Trade "War" between Japan and the West

For decades after the Second World War, the USA and the West in general made tremendous efforts to help Japan rebuild her shattered economy, in an effort to develop an international market for American goods, so as to have a staunch anti-communist ally near mainland China and Russia, and possibly to expiate a residual sense of guilt after devastating the country, culminating in the two atomic blasts at Hiroshima and Nagasaki.

Japan rapidly developed the capacity to produce low-quality, mass-produced goods, and the label "made in Japan" became a stigma which implied cheap, poorly finished and unreliable items. As outlined in the previous section, it was

appreciated by the Japanese that they had to improve the quality of their products if they were to compete successfully on the international markets. They therefore imported and greatly improved the technology of quality control, consulted extensively with the world's leading theorists in the field, Deming and Juran (who at the time were regarded as little more than "cranks" in their home country, the USA), and launched a "total quality control" (TQC) program. Gradually Japanese product quality began improving, and even more impressive was their productivity ratios, which crept up and surpassed those of their western trading partners in the early 1970's. From being a follower, Japan was becoming a leader. Possibly one of the earliest markets to feel the weight of the Japanese presence was the American car market, where Chrysler had to have quotas imposed on Japanese imports in the form of Toyota cars in order to survive. Today the Japanese economy is the strongest in the world, and this is in no small way due to the "ongoing transformation in Japanese management" (Naito, 1986 p. 50).

By the end of the 1970's, the Japanese were being regarded as authorities in productivity and quality. Deming & Grey (1981) advocated the Japanese production system for other industrial countries stating "there is little doubt that Japanese quality control concepts can be transplanted" (p. 20). Japanese management works and journals became popular reference texts as typified by ***The Art of Japanese Management*** (Pascale and Athos 1981). The conclusions of Luchs (1986): "successful businesses compete on quality" (p. 12), and Hutchings (1986): "quality is everybody's business" (p. 3) began to get through. Juran (1985) made no bones about Japan's trading and industrial superiority, and asked the question everyone was wondering, "catching up: how is the West doing?" (p. 18). Japanese management began to be seen as more than a flash in the pan, gaining serious recognition (Hall 1985, Lee 1985, Suzawa 1985). Writers in America (Lee & Ebrahimpour 1985, Davis 1986), and

Britain (Trevor 1986, Van de Vliet 1986) have writen with open admiration of the achievements of Japanese management, and strongly recommended that these methods be adopted. Over and again, the basic concept which seems to have represented the essence of Japanese management to western writers was that of the quality circle (QC). An enormous wave of interest in QC's begins in the literature from the late 1970's, and most management journals in 1987 regularly make some mention of QC's.

The first articles in the West appeared to regard QC's as something of a curiosity. Very soon however, authors were overtaken by events as businesses in the USA adopted QC's in attempt to upgrade their productivity. Some writers such as Shea (1986) warned against importing foreign technology to solve domestic problems, and Bowman (1985) felt that QC's were not needed in the USA. There was a wave of literature which "proved" that a technique which was successful in an authoritarian, group-oriented culture such as that of the Japanese, could never work in the democratic, individualistic West. However, whilst Sandholm (1983), Streier (1984), and Drago (1985) continued to debate whether QC's were to be permanent or temporary, businesses were making the question redundant by the large-scale installation of quality circles. By the mid-1980's the thrust was more one of how to maximize the usefulness of the QC concept in the West (Cole & Byosiere 1986). Ferris & Wagner (1985) conceded "QC's may work well in some situations" (p. 164). Indeed it is this question, of whether quality circles have been as popular and as successful as they once promised, which is occupying most authors in the field today.

The Success and Status of Quality Circles Internationally

At the time of writing, quality circles have been implemented in an impressively diverse array of areas. Apart from the

production environments they were originally developed in, quality circles have been put to work in universities, accounting firms, banks, and the military, to name but a few of the more interesting examples. For a more comprehensive list of the applications to be found in the literature in recent years, a short synopsis is given in Appendix 1.

Thus quality circles have been extremely popular in a number of fields of enterprise. Internationally, apart from Japan (Ishikawa 1985) and the USA (Ferris & Wagner 1985), QC's are currently to be found in Australia (Blaich 1984), Brazil, Korea, Egypt, Malaya, (Haridy 1985), Israel (Rafaeli 1985), Italy (Ferrari 1986), Korea, Taiwan and Latin America (Juse 1985), the United Kingdom (Dale 1985), Malaysia, Thailand, Belgium, Denmark and Holland (Sherwood, Guerrier & Dale 1985), and of course South Africa (Heyns 1986), to name some of the more prominent nations of QC implementation.

Whilst viewing the above evidence which is only a sample of the countries in which QC's may be found, it seems appropriate to raise once again the hoary old question of whether or not "Japanese techniques" can be used in such-and-such country. In South Africa in particular, Project Free Enterprise (1986) has no doubts, noting "major successes in the field of participative systems ... tends to make nonsense of the commonly-held belief that participative systems as encountered in other countries cannot be transplanted to the South Africa culture" (p. 70). Spoelstra (1986) agrees, but warns "unless one is willing to change the whole philosophy of managing people, one would be far better off by not altering the existing system of management" (p. 26). This is probably the more balanced of the two attitudes. QC's are merely a tool, and have no special magic of themselves. In a country which has a very poor record of involving people in decision-making at any level, and whose politics for the past forty years has been characterized by a patronizing system aimed at maintaining established power

structures, the idea of real consultation and participation in the work-place will require something of a radical mind-shift. Further, much of the information and applications which exist *will* need to be re-written for the South African situation, where much production takes place within primary and secondary industries, very unlike the high-tech and consumer industries where many of the QC techniques were developed.

Buthelezi (1986) in commenting on the sad state of the nation rather optimistically notes "quality circles can play an important role in getting us out of such a self-destructive bind" (p. 13). Whether this is so or not probably depends on how effective QC's are likely to be, a guide to which is to be found in evidence of their success internationally to date.

In Japan, QC's are judged to be a huge success by virtue of their longevity and the impressive growth in the Japanese economy (Ishikawa, 1985). It is however probably very unwise to attribute all of Japan's industrial success to QC's since the entire country has been transformed politically, socially, and economically over the past four decades, and QC's have been a relatively small feature of these changes. By comparing the progress of countries which have used QC's with those which have not, Bocker & Overgaard (1982) are unequivocal in their praise for the positive effect of QC's on national productivity. In the USA, Miller (1984) found that 63% of all respondents (N=417) in a survey felt that their QC program was "moderately" to "extremely" successful, with only 6% reporting "failures" or "poor" results. On a more micro level, Sherwood et al (1985) found that whilst most firms are unable or unwilling to evaluate their programs formally, most express satisfaction with the usefulness of the QC concept. In this regard Mento & Steel (1985) comment on the poor standard of QC research, and call on researchers to apply scientific evaluation techniques. The problem is basically one of measuring either "soft" results, or "hard" results which are part of a number of simultaneous

changes within an organization, making it very difficult to isolate the effect of the QC intervention. As Bernstein (1983) wryly comments, we are "using the soft approach for hard results" (p. 13). On the "hard" side, the art of productivity measurement has evolved rapidly in recent years, and Siegel (1980) provides a voluminous review of the various tools and techniques available here. In this area, "Lockheed claims to have saved $2 844 000 with only 15 quality circles operating in the first two years" (Wayne, Griffin, & Bateman 1986 p. 80). It is the "soft" side, ie. attitudes, values, and motivation which is more difficult to measure, but various interesting attempts have been made.

In a study of 12 firms in Britain, Cox & Dale (1985) found that 83% of respondents (N=43) felt that QC's had provided them with real benefits, 86% felt that QC's offered benefits to non-members, and 67% felt more involved in decision making. Marks, Hackett, Mirvis & Grady (1986) reported that QC members (N=46) showed enhanced QWL perceptions relative to non-members (N=46) after participation in QC activities. Rafaeli (1985) found that QC members (N=455) had a significantly higher perception of their own influence than non-QC members (N=305), as well as feeling that their jobs had more task variety. Subjective job satisfaction did not show any significant difference between the two groups. In strikingly similar results, Elvins (1985) found that QC membership was associated with a higher degree of perceived power/influence (N=24), but that other variables remained unchanged. In South Africa, Daniel & Huss (1986) felt that quality circles are a positive influence in the South African economy, and Nicholls (1985) found significantly improved employee perceptions of management and better employee-management relations after a participative QC-type intervention (N=156).

Thus well-documented evidence exists which suggests that QC's are associated with a positive effect on productivity and

quality, as well on workers' perceptions of their subjective working conditions, at least as far as their ability to influence those conditions is involved. QC's are also seen to be a positive force for solving problems (Anonymous 1986), and in enhancing communications (Ellis 1984). What has hardly been addressed in the literature at all, is whether participation in QC activities "develops" the human resources of an organization, nor have the criteria for "development" been addressed. This is the point that will be discussed in some detail as part of the rationale for the present design.

Critical Success and Failure Criteria for Circle Programs

As QC programs got underway in the West, painful experiences with failed programs showed that there were certain things which should or should not be done if QC's were to be successful. The experience of researchers in comparing successful and unsuccessful QC programs is worth examining in this regard. In a series of articles, Dale & Hayward (1984a, 1984b and 1984c) identified the main causes for circle failure. They name several reasons, but one of the most significant, as well as being the most pertinent to the present study, is that regarding management style. They note "in a climate where management is too narrow-minded and autocratic, quality circles are unlikely to survive" (1984a p. 12). In a similar vein, Ingle (1982) suggest that poor middle-management support is a prime indicator that a QC program will be in trouble if implemented. QC's as a "quick-fix" or a way to solve industrial relations problems are doomed to failure. Indeed this aspect of management support and commitment to a participative organizational climate has emerged as probably the major success predictor of QC activities (Alie 1986). This is not to say that in successful programs managers are identifying with the aspirations of workers. However, a

more enlightened approach has spread in certain managerial sectors which recognizes that the road to higher productivity and quality lies in the development and involvement of human resources at all levels in the organization. To this end, HR expertise is being sought amongst practitioners who are genuinely concerned with greater work and life enhancement for the man on the shop-floor via more participative work designs such as QC's.

Understanding the causes for failure is often still not enough to ensure success. Barra (1983) has published what is probably the best "hands-on" guide to QC programs which is to be found in the literature. Some of his themes which are echoed by other authors are: the importance of training all levels in the organization to accept and use QC's (Karabatsos & Smith 1984, Donovan 1985); as seen, a participative management style (Smeltzer & Kedia 1985); and the idea of creating "readiness" in the organization for the adoption of the QC concept (Thompson 1982, Hamson 1986).

Some Conclusions on Earlier Assumptions

From the literature and past research it thus appears that job redesigns, particularly the more participative ones such as QC's, can enhance productivity and quality, and result in improved worker attitudes towards their jobs, but it is still uncertain whether they are "developed" by participation in such activities. QC's have been particularly popular and have been used in a host of situations and countries. There seems no reason to assume that QC's are unsuitable for South Africa or any other country. Requirements for successful QC programs include especially a participative organizational "culture", and a consultative and positive approach to organized labour. The exact nature of this relationship is however unclear, as is the

effect of QC membership on QC members. With this in mind, the variables to be examined in the present study will be introduced in the next chapter.

CHAPTER 3

INTRODUCING THE VARIABLES USED IN THE PRESENT STUDY

In introducing the variables under investigation in the present study, it is necessary to briefly recap. From a review of the literature two main points have emerged. The first of these is that job redesign and other OD-type interventions (particularly QC's) have been linked to increased productivity and participation on the part of workers. However, the QWL studies have failed to establish their degree of success at one of their most important objectives, viz. the "development" of the human resources in the organization as represented by the participants in such programs. Possibly one of the reasons for this failure is that no real definition of "development" is to be found in the literature dealing with such interventions. The second major point to emerge is that organizational climate is a critical variable in the success of participative programs, but the nature of the relationship has never been investigated, and the effect of different organizational climates on the participants in such programs remains unclear. What follows is a description of the variables used in the present study which attempt to provide a way of measuring two basic concepts: that of organizational climate which is reflected by managerial style, and that of personal "development".

Adapting the Likert Organizational Climate Questionnaire

Recalling the earlier discussion of organizational culture, it

was noted that its surface, more accessible manifestations are usually referred to as "organizational climate", and a number of instruments have been developed over the years to measure this concept. Cook, Hepworth, Wall, & Warr (1982) list no less than 26 comprehensive devices produced between 1967 and 1981 to tap various aspects of climate. The "father" of all these measures is however the Likert Organizational Climate Questionnaire (Likert 1967). This is a 51-item questionnaire which asks a series of questions relating to the employee's perception of the prevailing conditions in the work-place, and scores the responses on a unidimensional continuum ranging from 1.ØØ to 4.ØØ. Each "station" on the continuum is identified with a particular organizational climate. Thus Ø.ØØ-1.ØØ is "Exploitative Authoritative", 1.ØØ-2.ØØ "Benevolent Authoritative", 2.ØØ-3.ØØ "Consultative", and 3.ØØ-4.ØØ "Participative". An interesting feature of the questionnaire is that it asks subjects to rate the organization "now" (hereafter referred to as "at the present time"), and if they were in the organization a year before "the present time", to also rate the organization as they remember it 12 months previously. Likert (1967) does not report reliability or validity data, and as illustrated below, analysis of his results reveals that his categories were never validated. Despite this fact, the questionnaire has been remarkably long-lived, and the "Likert-scale" as a statistical technique has become a very popular scientific tool particularly for attitude surveys, and has been developed by a number of subsequent authors (eg. Matell & Jacoby 1971 & 1972, Keow & Hakstian 1973, Guy & Norvell 1977). The full Likert Organizational Climate Questionnaire is shown in Appendix 2.

Likert divided the 51 items into eight main categories, each covering a particular aspect of work. In an attempt to cut down on the number of items required to use the Likert Scale, the present author used the correlation table of all items

provided by Likert (1967 pp. 194-195), (N=115) and subjected it to factor analysis, using the "Varimax" program. The results indicated that the optimal number of factors was five (Cureton & D'Agostino 1983), and these were identified with the critical items being compiled into a new shortened form. The new factors were named according to the critical items showing the highest overall correlation with that factor. The relationship between the old items and the new factors is shown in Table 3. The first column lists the new factors, the second shows which of Likert's (1967) items were found to make up this factor (Appendix 2), and the third column shows what numbers these items are in the shortened version of the scale (Appendix 3). Column 4 illustrates the correlation (obtained by factor analysis) of each item with the new factor.

TABLE 3

RELATIONSHIP OF OLD ITEMS TO NEW FACTORS

NEW FACTOR	OLD ITEMS (APP. 2)	NEW ITEMS (APP. 3)	CORR. OF ITEM IN FACTOR
TRUST & INVOLVEMENT	1 3 4 5	4 6 7 9	* SEE BELOW
MOTIVATORS	7 8	5 10	.71 .77
COMMUNICATIONS	20 23 24 40	2 11 13 14	.72 .69 .75 .66
DECISION MAKING	34 35 36	1 8 12	.79 .60 .65
CONTROL DATA	48	3	**

* - THERE ARE NO AVAILABLE "TRUST AND INVOLVEMENT" CORRELATIONS, SINCE THIS WAS A FACTOR IDENTIFIED BY LIKERT AFTER HIS 1967 RESEARCH.

** - THIS ITEM IS MADE UP OF 5 OF THE ORIGINALLY REPORTED ITEMS. THEIR INTER-CORRELATIONS RANGE FROM .63 TO .79.

In establishing the factors shown in Table 3, one issue was that the present author had to take cognizance of was the schooling of the employees being investigated, and certain of the critical items had to be rejected as being too complex for the literacy level of these subjects. The guideline was to attempt to include two to three items on each factor (as recommended by Cattell 1979). The final form of this questionnaire was a 14-item list tapping the five new factors (Table 3). The items constituting these factors were randomly distributed in the questionnaire with certain being reversed to disguise the manifest purpose of the questionnaire, and are identified and briefly discussed below.

The Factors Making up "Organizational Climate"

The first factor is called ***Trust and Involvement*** and consists of four items (4,6,7, and 9). This addresses the issue of the relationship and trust between subordinates and superiors. The next factor is ***Motivators*** and consists of items 5 and 10. This relates to the way in which management attempt to motivate the employees, and compares the addressing of needs with threats versus incentives, as well as the attitude developed towards the organization and its goals. The third factor, ***Communications*** consists of four items (2,11,13, and 14), and looks at various aspects of organizational communication such as its effectiveness, direction, and clarity, as well as the relationship between the people communicating from different organizational levels. The fourth factor is ***Decision Making*** and consists of three items, 1,8, and 12. This looks at the availability and utilization of information available in the organization when decisions are taken. The final factor is ***Control Data***. This consists of only one item (3), since Likert (1967) advocated the compressing the five items originally

making up this concept, which deals with the use to which performance data (costs, production reports etc) is put.

The fact that all the above items are scored on the same unidimensional scale makes it possible to come up with an *Average Climate* score which is simply the mean score on the above 14 items (with correction for the reversed items), and which is therefore a sixth measure of climate in the organization, particularly as it relates to participative style.

The Rationale behind "Personal Growth"

The review of literature in Chapter 2 revealed that the purpose of job redesign was primarily to enhance productivity by encouraging participation and "developing" workers, who were clearly uninterested in, and alienated from, managerial objectives. The idea of development has come to be equated with "personal growth" as discussed and defined earlier from the work of Carl Rogers (eg. 1965), and is aimed at creating an opportunity which "enables the individual to discover his true feelings of positive self-regard and conditions of worth" (Chaplin, 1975 p. 465).

The above quotation contrasts starkly with the work which has been previously reviewed on attitudes and self-concepts related to alienation, particularly amongst industrial workers. The problem which the present author had to address was: which measures could be regarded as possible indicators of the presence or absence of this "personal growth" in subjects? The assumption which is made here is that personal growth will be characterized largely by a reversal of the indices which are usually associated with alienation. What follows is therefore a discussion of the items used in the present study, some of which have been identified as having discriminating value when

attempting to establish whether or not alienation is present, and which are included in the present study.

Neal & Rettig (1963) developed one of the early scales of alienation, which was standardized on manual workers (N=1094). As a construct, alienation was found to be relatively stable by Zeller, Neal & Groat (1980) over an eight-year period (N=334), with "alienation" as a construct being most closely described by a feeling of "powerlessness". Seeman, Seeman, & Sayles (1985) confirm this conclusion, with "a high sense of control" (p. 237) describing the opposite of this subjective state. Fellows (1956) found "occupational choice" to be significantly related to "happiness" (N=96). Thus a number of constructs exist which are loosely related to the ideas of alienation and personal growth as defined above. The present author was concerned to locate suitable measurement tools which had been tested for reliability and validity, and which measured appropriate concepts.

The first variable chosen was that of ***Life Satisfaction***, which based on the above argument would seem to be an obvious indicator of personal growth and a lack of alienation. Whilst Life Satisfaction has been found to be related to a number of issues such as membership of volunteer organizations (Cutler, 1982), family characteristics (Bronzaft & Hayes 1983), and perceived health (Clemente & Sauer 1976), the relationships which are important to the present study are the links between the job and Life Satisfaction (Spreitzer, Snyder, & Larson 1981). Even more important, Parrott & Hewitt (1978) found that participation in the setting of goals - as is the thrust of participative work programs - increased Life Satisfaction. The items chosen for the present study are the three critical items (N=2500), identified by Bachman, Kahn, Davidson, & Johnston (1967) (see Appendix 3, p. 1, items 1-3). According to Robinson & Shaver (1978), the reliability exhibited by these items is "impressive" (p. 16). (Pages 1 of Appendices 3 and 4 are, as

numbered, the pages following the initial page which contains the covering letter.)

The next variable is that of ***Self-Esteem***. It is likely that an individual who experiences feelings of self-worth and positive self-regard, ie. who shows Personal Growth will exhibit a positive sense of Self-Esteem. The suggestion that increased participation might increase Self-Esteem was confirmed by Brennan (1985) (N=202). The items chosen for the present study were the six critical items identified by Bachman et al (1967), and are to be seen on page 1 of Appendix 3, items 4-9. The high degree of reliability previously mentioned is noted for all Bachman et al's (1967) items.

The concept of ***Powerlessness*** has already been discussed as being probably the crucial indicator of a sense of alienation. Powerlessness has been shown to be related to: a sense of political impotence (Guest 1976); unemployment (Levens 1968); social isolation (Martinson, Wilkening, & Rodefeld 1976); and most significantly, non-inclusion in the informal power cliques in an organization (Neal & Seeman 1964). The items chosen for the present study are the seven items reported by Neal & Seeman (1964), with the exception of one item which was excluded as it formed part of the locus-of-control items discussed below. A reproducibility coefficient of Ø.87 and a split-half figure of Ø.7 is reported. The items may be seen in Appendix 3, p. 6, items 1-6.

Locus of Control (LOC) is one of the more widely researched psychological constructs, and differentiates between an "internal" LOC where the individual feels in control of, and responsible for events, and an external LOC, in which the individual feels as if he is a passive pawn in the hands of powerful external forces (Lefcourt 1966). Thus in many respects, a high external LOC is analogous to a sense of powerlessness, and a high internal LOC is just the opposite. A high internal LOC has been correlated with a positive self-concept (Savage,

Stearns, & Friedman 1979), Self-Esteem (Szmajke 1983), and academic achievement (Maqsud, 1983), to name but a few of the numerous investigations in the literature. The best-known of the LOC measures is Rotter's (1966) 23-item scale. A factor analysis by Rotter however revealed 11 critical items which were used to form the shortened Rotter's scale (later used by Valecha 1972), and these are the items used in the present study. An internal reliability of Ø.7 and retest-reliabilities of Ø.72 and Ø.83 were reported (N=4ØØ). The items are items 1-11 on p. 7 of Appendix 3.

The final variable under investigation in the present study is that of ***Purpose-In-Life*** (PIL), "designed to measure the degree to which a person experiences a sense of meaning and purpose in life" (Robinson & Shaver, 1978 p. 271). Once again, the definition of this construct would indicate the very antithesis of an alienated individual. This specific test was designed by Crumbaugh (1968), and consists of 2Ø items. A split-half reliability of Ø.85 was reported, with Ø.47 correlation with church ministers' ratings of the subjects (N=1151). Chang & Dodder (1983) reduced this questionnaire to 1Ø items (N=177 and 2Ø2), and these are the items used in the present study (see Appendix 3, p. 8-9, items 1-1Ø).

Thus a number of variables are used in the present study. In measuring ***Organizational Climate*** the Likert Organizational Climate Questionnaire was adapted using factor analysis to give six factors, viz. ***Trust and Involvement***, ***Motivators***, ***Communications***, ***Decision Making***, ***Control Data***, and an overall ***Average Climate*** score. In terms of ***Personal Growth***, the variables under consideration are ***Life Satisfaction***, ***Self-Esteem***, ***Powerlessness***, ***Locus of Control***, and ***Purpose-in-Life***. The actual administration and scoring of these items will be discussed in some detail in the next chapter.

CHAPTER 4

RESEARCH DESIGN

The preceding chapters have established the issues and variables under consideration in the present study. The purpose of the current chapter is to formalize the experimental hypotheses, and to describe the research methodology of the design. Before specifically addressing the present study however, a few general points can be made about hypotheses and research design. Cawood (1977) has exhaustively reviwed the types of hypotheses which may be encountered in research in the social sciences, and concludes that to be valid, "what is required in the first instance is that the hypothesis be a living one. ... but it need by no means be a forced option, or a momentous hypothesis" (p. 229). Indeed, a theory may be thought of as a set of interrelated propositions, often established progressively over time by a number of hypotheses. The idea of incremental and iterative steps in the creation of knowledge is echoed by Campbell & Stanley (1963) who established the "quasi-experimental design" as a valid form of social research, in response to the inevitability of uncertainity and error when conducting research without the benefit of the controls of a laboratory environment. Hypotheses such as those proposed below may therefore be seen as being formulated in response to two requirements: i) to progressively establish facts with regard to the possible relationship between organizational climate, personal growth, and participation in quality circles; and ii) to fulfill the requirements of valid research, within the framework of the "quasi-experimental" model.

Hypotheses

Based on the literature already reviewed and the arguments presented, for the purposes of the present study the variables constituting ***Organizational Climate*** are regarded as the independent variables (IV's), and the variables constituting ***Personal Growth*** as the dependent variables (DV's). Time spent as a QC member is another IV which will be relevant. The following hypotheses specific to the present study are thus suggested:

Hypothesis 1: ***Personal Growth*** will be greater amongst QC members than non-QC members.

Hypothesis 2: In both QC and non-QC members, ***Personal Growth*** will be correlated positively with ***Organizational Climate*** scores.

Hypothesis 3: The greater the time spent as QC member, the greater will be the ***Personal Growth*** shown by that individual.

Hypothesis 4: QC members will report a greater movement in perceived ***Organizational Climate*** towards a participative mode over the previous 12 months than will non-QC members.

Hypothesis 5: The presence of a participative program in the organization will cause non-QC members to also report an increase in participatory style by management.

Thus a set of interrelated propositions, in the form of the above five hypotheses have been put forward. Together they represent what may be termed a "theory" held by the present author with regard to the possible interrelationship between the variables under consideration in the present study. The means

of testing and the assessment of the viability of this "theory" is therefore what occupies the remainder of the present work.

Instruments

As described in the previous chapter, a number of variables, represented by certain items, were developed from the existing literature. These were combined into a single questionnaire which was to be completed by QC members. A covering letter was attached, explaining the purpose of the investigation, which served the dual purpose of providing management with feedback on the success of the QC program in the organization. The questionnaire was translated into Afrikaans using professional translators, and re-translated into English using a naive translator to check for accuracy. The English questionnaire is shown in Appendix 3, and the translated Afrikaans questionnaire in Appendix 4.

Administration

The present author is a QC facilitator in a large South African engineering organization which has lead the way in the implementation of QC's, and which has one of the most vigorous QC programs in the country. The sample used in the present study was obtained by contacting facilitators in the various regional offices of the organization, and requesting them to distribute the questionnaires to their QC's where possible. QC members were the experimental subjects.

In addition to the experimental subjects, a control group was obtained by requesting facilitators who had QC's which were about to start, to apply questionnaires to the potential members ***before*** any circle meetings took place. This request was only

made to facilitators who already had QC's in operation, and was to match the experimental and control subjects on environmental conditions, and to control for the fact that QC members, being volunteers, constitute a highly selected group.

To differentiate between experimental and control subjects, the questionnaires administered to QC members were printed on blue paper, whilst those administered to control subjects were printed on yellow paper. In addition, in order to determine how long the subject had been a QC member for, the facilitators were requested to note in months on the questionnaire (see top LHS of p. 1 Appendix 3) how long that particular experimental subject had been involved in the QC for. This variable was called ***Age***. In all, 615 experimental and 225 control questionnaires were distributed.

Scoring

As explained earlier, the Likert scale is scored on a continuum from ***0.00*** to ***4.00***. However, the ***Personal Growth*** indices all have different possible maximum scores. In addition, a high score on ***Powerlessness*** would constitute low ***Personal Growth***, whilst a high score on ***Purpose-in-Life*** would mean the opposite. To score all variables, programs were written on a personal computer. The programs were arranged so as to reverse certain of the ***Personal Growth*** scores by obtaining an absolute value after subtracting a constant, thus all ***Personal Growth*** scores would emerge with a high score constituting a high degree of personal growth. Further, all scales were converted to a score out of ***40*** by multiplication by another constant. Thus all ***Personal Growth*** scores had a potential range of ***0.00*** to ***40.00***. This was to provide a degree of casual comparison between the ***Personal Growth*** variables, and the ***Organizational Climate*** variables (***0.00*** to ***4.00***).

Analysis

At least two different forms of analysis were required in terms of the above design. The first of these was to enable comparison between the control and experimental groups on the dependent variables, and the second to determine the strength of relationship between the independent variables and dependent variables for all subjects. In terms of comparing the dependent variable scores for control and experimental groups, the analysis of variance (Anova) design, originally developed for agricultural research (Scheffe 1959), was used. Iversen & Norpoth (1976) note that the requirements for this technique are that the data is: independently collected from each subject; additive (ie. of at least interval level); and is distributed normally. All of these requirements are met by the present design. Further, Auerbach & Zinnes note that this design is particularly useful in experimental designs (such as the present), and when population statistics are unknown, but that variances are assumed to be equal. As Welkowitz, Ewen, & Cohen (1982) however point out, this assumption is not critical, since the design is robust enough to still return highly accurate results even if the data differs quite significantly from normality. Overall, Kerlinger (1981) notes, "we emphatically state that there is no better way ... than through an analysis of variance approach" (p. 148).

Anovas were performed to test the hypotheses described above, using the simplest Anova, the two-group between-subjects design to compare experimental and control groups on the ***Personal Growth*** indices at the present time, and on the ***Organizational Climate*** indices (both at the present time and for 12 months previously). Within-subject Anovas were used to compare the experimental and control subjects with themselves on

their assessments of ***Organizational Climate*** at the present time and 12 months previously.

As part of exploratory data analysis, those subjects in the experimental and control groups who had not been employed by the organization 12 months previously were removed from the samples, and the between-subject Anovas repeated with the smaller groups. This was based on the rationale that those who had been in the organization for under a year would not have had time to have been affected either way in terms of the influence of either Organizational Climate or QC participation on their ***Personal Growth*** indices.

To test the nature of the relationship between the independent variables and dependent variables, a correlational study was undertaken using Pearson's product-moment (r) correlation coefficient. As Wherry (1984) points out, the Pearson's correlation coefficient is the foremost and most powerful of the correlational techniques, requiring as it does the use of at least interval-level data. Additional requirements for this design are the assumption of a linear relationship between the two variables under analysis; the "bivariate" normal distribution (Welkowitz et al 1982); and scores based on independent subjects (Keppel & Saufley 1980). Once again the present research design makes such assumptions possible. The r-coefficient is however unable to detect relationships which are non-linear or curvilinear, and is a measure of association which does not imply causality. It is the appropriate measure of association in a quasi-experimental design such as the present where the nature of relationships, and not the causes of these relationships, is the issue under investigation.

Pearson's correlation coefficient was applied to test the relationship between ***Organizational Climate*** and ***Personal Growth*** for both experimental and control subjects, and between time as a circle member (***Age***) and ***Personal Growth*** for the experimental

group. The same procedure was applied to assess the reliability (test-retest) of the ***Organizational Climate*** scores for the two groups based on their assessment of the climate at the present time, and for 12 months previously.

The results are presented in the next chapter, following which they will be discussed in some detail.

CHAPTER 5

RESEARCH RESULTS

The results presented in this section are based on the means summarized in Table 4. As discussed, the present design is based on a number of interrelated propositions, and these propositions are tested in an incremental fashion. The facts which follow are therefore small bricks in a larger wall which is the overall theory being considered. All these results will thus be integrated and discussed at length in subsequent chapters.

As can be seen from Table 4, usable questionnaires from 187 experimental (ie. QC members) subjects and 63 control subjects (ie. non-QC members) were received. This represented a response rate of 30.4% and 28% for the two groups respectively. Of these subjects, 168 of the experimental group and 48 of the control group had been in the company 12 months previously, and were thus able to rate the organizational climate both at the present time and retrospectively for 12 months previously. 175 and 56 subjects in the two groups respectively provided ***Personal Growth*** data.

Facilitators, despite their verbal and written instructions, indicated on only 38 of the 187 experimental subject questionnaires "***Age***", or how long that subject had been a QC member for. This was due to the fact that most facilitators gave the questionnaires to circle leaders to distribute without passing on this instruction. This was possibly the most serious short-coming in the administration of the present design, and will be discussed further in the critique.

TABLE 4

MEANS SUMMARY TABLE

VARIABLE	CONTROL (N = 48)	(N = 63)	EXPERIMENTAL (N = 168)	(N = 187)
CLIMATE (IV)	12 MONTHS PREV.	AT THE PRESENT TIME	12 MONTHS PREV.	AT THE PRESENT TIME
TRUST & INVOLVEMENT	2.02	2.33	1.93	2.50
MOTIVATORS	2.15	2.46	2.02	2.45
COMMUNICATIONS	1.97	2.27	1.90	2.40
DECISION MAKING	1.92	2.34	1.74	2.29
CONTROL DATA	1.89	2.27	2.56	2.22
AVERAGE CLIMATE	1.99	2.33	1.91	2.40
PERSONAL GROWTH (DV)	THOSE EMPLOYED 12 MONTHS PREV. (N = 43)	AT THE PRESENT TIME (N = 56)	THOSE EMPLOYED 12 MONTHS PREV. (N = 158)	AT THE PRESENT TIME (N = 175)
LIFE SATISFACTION	28.53	29.58	31.96	32.00
SELF-ESTEEM	31.01	31.93	33.69	33.34
POWERLESSNESS	20.31	21.19	20.42	20.19
LOCUS-OF-CONTROL	22.88	22.86	22.96	22.56
PURPOSE-IN-LIFE	28.82	29.70	30.22	30.15

Analysis of Variance

The independent variables, ie. ***Organizational Climate*** will be dealt with first. In the control group, the subjects here expressed perceiving a significantly ($p<Ø.Ø1$) more participative Organizational Climate at the present time as compared to 12 months previously, on ***all Organizational Climate*** variables with the exception of ***Motivators***, which was significant at the 5% level. This is shown in Table 5, and this data is illustrated graphically in Figure 1.

TABLE 5

F-RATIOS FROM ANOVA OF CONTROL GROUP (WITHIN- SUBJECTS) ON ORGANIZATIONAL CLIMATE

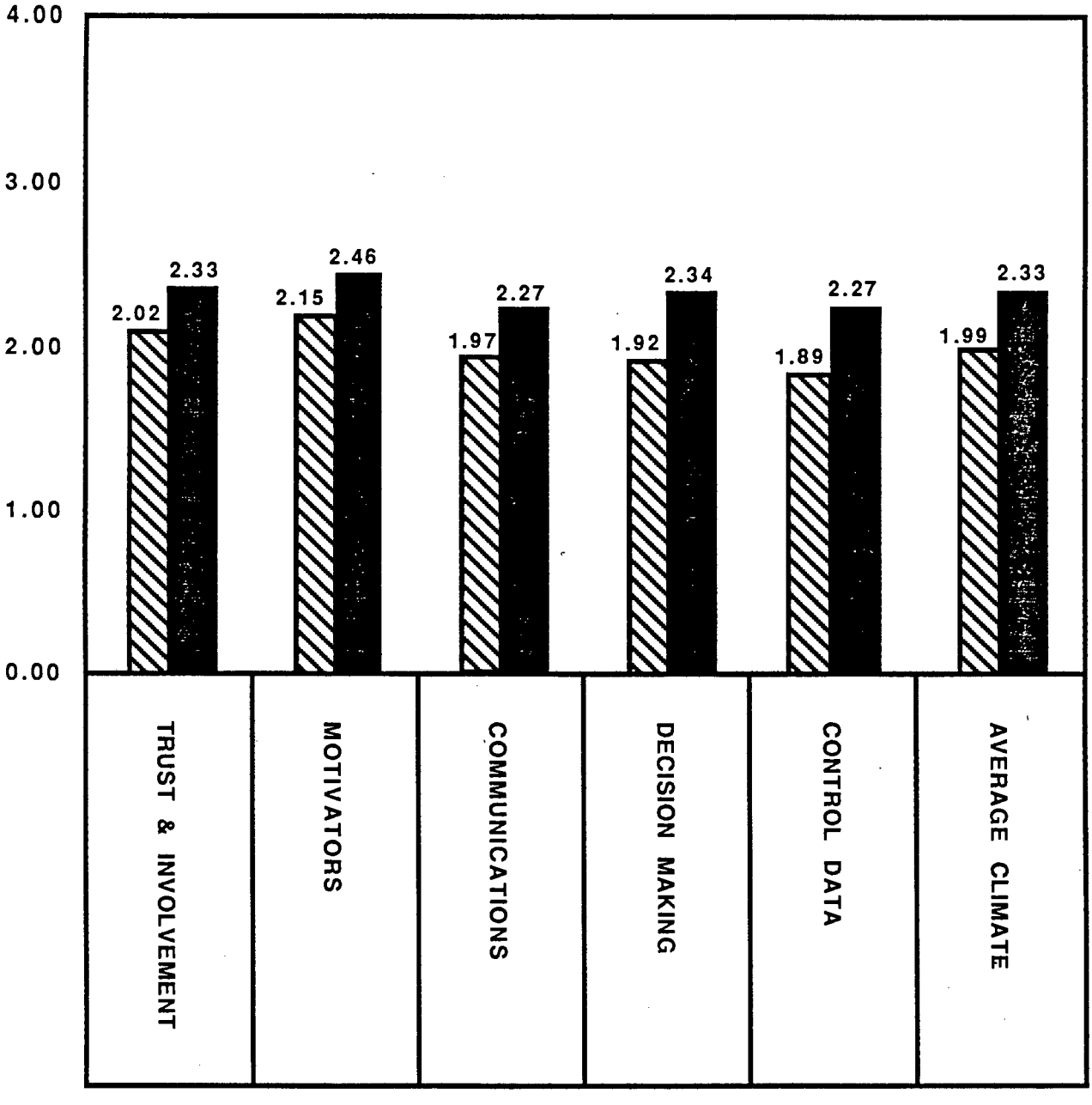
VARIABLE	F-RATIO
TRUST & INVOLVEMENT	9.62 **
MOTIVATORS	4.74 *
COMMUNICATIONS	11.33 **
DECISION-MAKING	10.71 **
CONTROL DATA	10.94 **
AVERAGE CLIMATE	11.85 **

* - $p < 0.05$

** - $p < 0.01$

FIGURE 1

CONTROL SUBJECTS, AT THE PRESENT AND 12 MONTHS PREVIOUSLY (ORGANIZATIONAL CLIMATE)



N=63 - SUBJECTS' RATING FOR THE PRESENT TIME

N=48 - SUBJECTS' RATING FOR 12 MONTHS PREVIOUSLY

In the experimental group, the same trend was observed, with all *Organizational Climate* variables being rated as significantly ($p<.01$) more participative at the present time when compared to 12 months previously, with the exception of *Control Data*, which did not show any significant change ($p>.05$). This comparison is shown in Table 6, and is illustrated in Figure 2.

TABLE 6

F-RATIOS FROM ANOVA OF EXPERIMENTAL GROUP (WITHIN-SUBJECTS) ON ORGANIZATIONAL CLIMATE

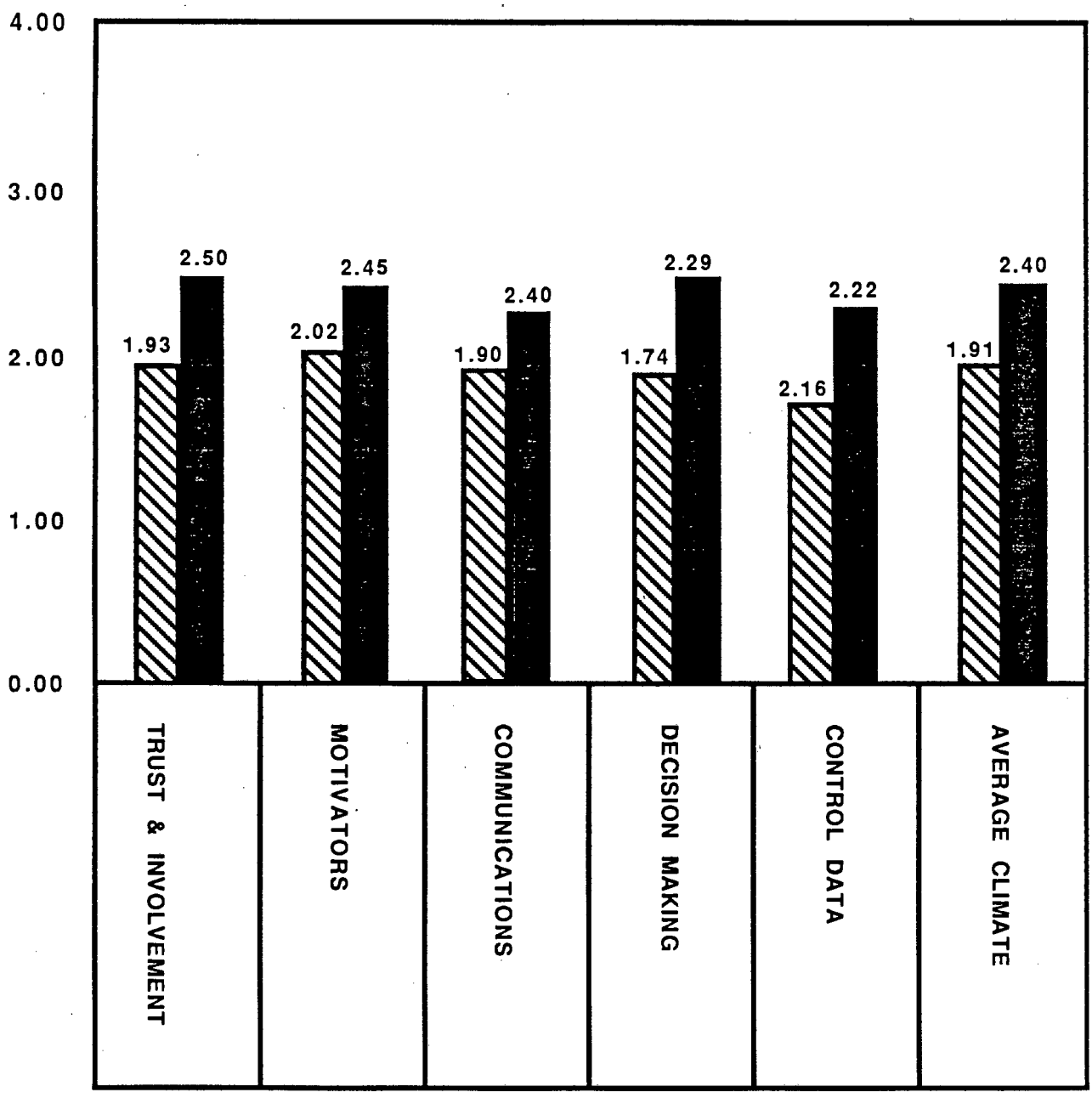
VARIABLE	F-RATIO
TRUST & INVOLVEMENT	123.97**
MOTIVATORS	44.12**
COMMUNICATIONS	91.90**
DECISION-MAKING	82.06**
CONTROL DATA	1.02
AVERAGE CLIMATE	88.23**

* - $p < 0.05$

** - $p < 0.01$

FIGURE 2

EXPERIMENTAL SUBJECTS, AT THE PRESENT AND 12 MONTHS PREVIOUSLY (ORGANIZATIONAL CLIMATE)



N = 187 - SUBJECTS' RATING FOR THE PRESENT TIME

N = 168 - SUBJECTS' RATING FOR 12 MONTHS PREVIOUSLY

In comparing the experimental and control groups on their Organizational Climate ratings for 12 months previously, no significant (p>Ø.Ø5) difference between the two groups was observed on any of the variables, although the means of all variables in the control group were slightly more participative than the experimental group with the exception of ***Control Data***. This is shown in Table 7 and illustrated in Figure 3. In rating for the present time, the same results were obtained, with no significant difference (p>Ø.Ø5) being found between the two groups on any of the Organizational Climate variables. This is illustrated in Table 8 and Figure 4.

TABLE 7

F-RATIOS FROM ANOVA OF EXPERIMENTAL AND CONTROL GROUPS (BETWEEN SUBJECTS) FOR ORGANIZATIONAL CLIMATE AS RATED 12 MONTHS PREVIOUSLY

VARIABLE	F-RATIO
TRUST & INVOLVEMENT	0.88
MOTIVATORS	1.31
COMMUNICATIONS	0.58
DECISION-MAKING	2.81
CONTROL DATA	2.70
AVERAGE CLIMATE	1.05

* - $p < 0.05$

** - $p < 0.01$

FIGURE 3

EXPERIMENTAL VS. CONTROL SUBJECTS 12 MONTHS PREVIOUSLY (ORGANIZATIONAL CLIMATE)

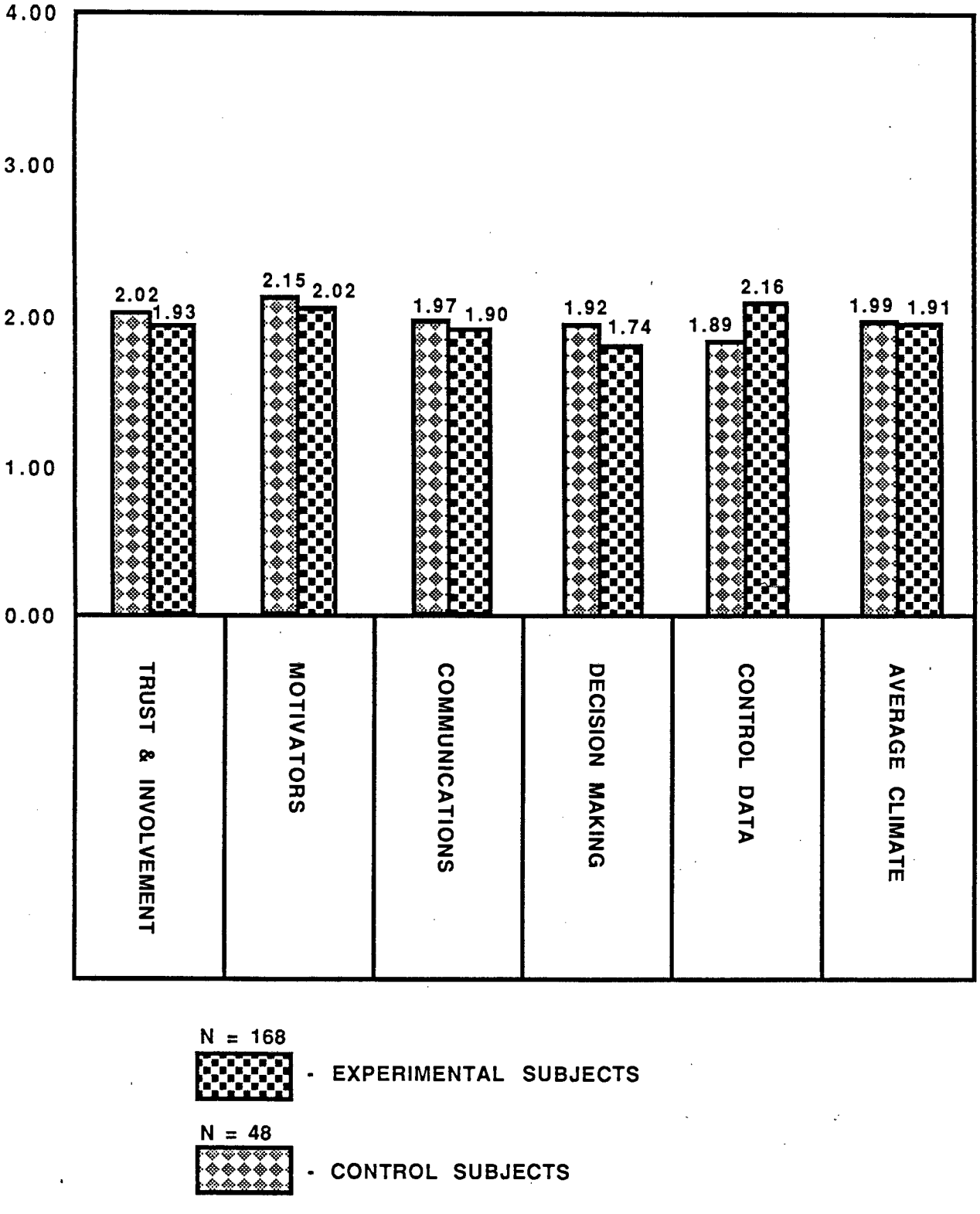


TABLE 8

F-RATIOS FROM ANOVA OF EXPERIMENTAL AND CONTROL GROUPS (BETWEEN SUBJECTS) FOR ORGANIZATIONAL CLIMATE AS RATED AT THE PRESENT TIME

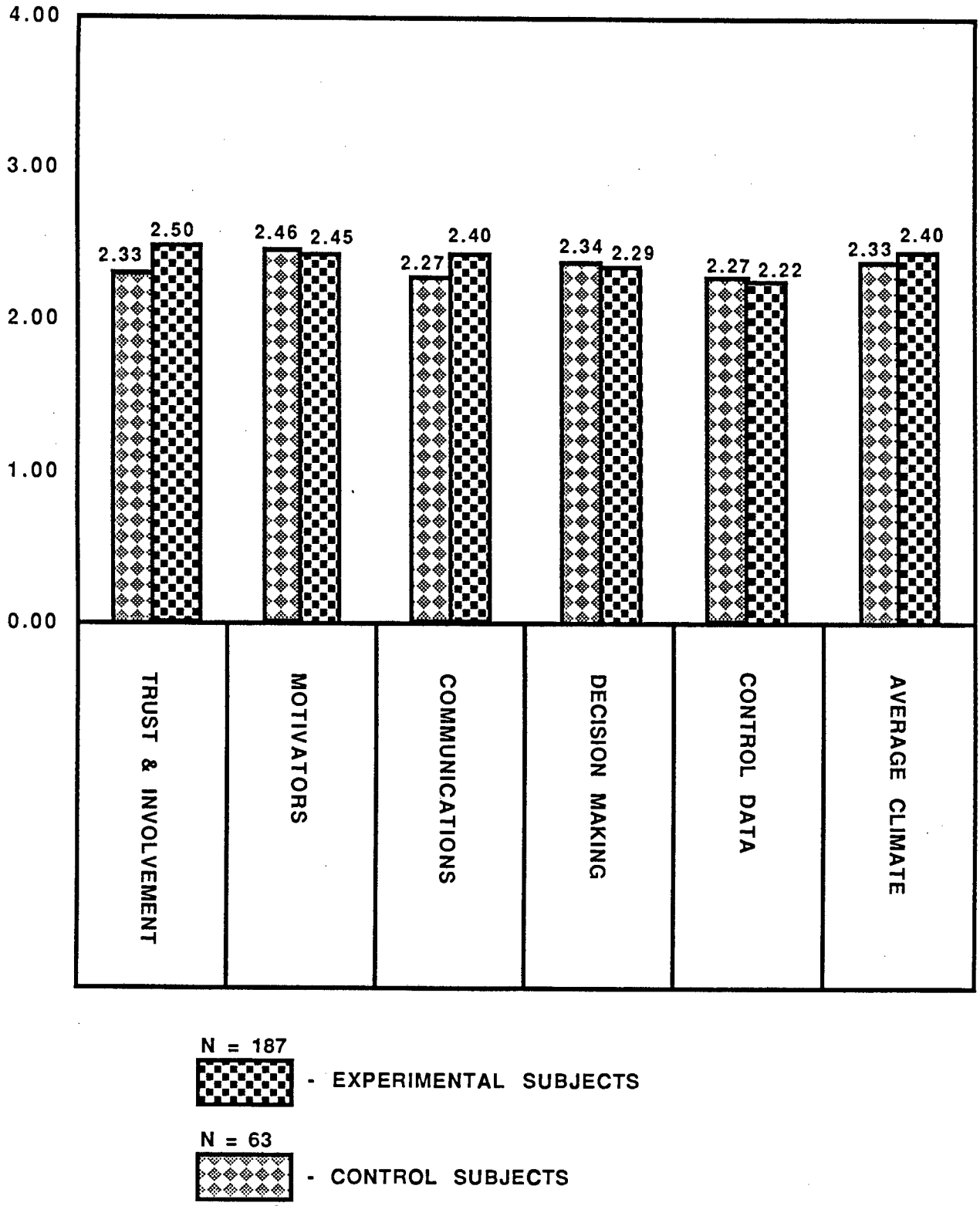
VARIABLE	F-RATIO
TRUST & INVOLVEMENT	2.96
MOTIVATORS	0.01
COMMUNICATIONS	2.35
DECISION-MAKING	0.17
CONTROL DATA	0.12
AVERAGE CLIMATE	0.79

* - $p < 0.05$

** - $p < 0.01$

FIGURE 4

EXPERIMENTAL VS. CONTROL SUBJECTS
AT THE PRESENT (ORGANIZATIONAL CLIMATE)



Moving on to the dependent variables, ie. ***Personal Growth***, the comparison between the experimental and control groups revealed that the experimental subjects scored significantly ($p<.05$) higher on ***Life Satisfaction*** than did the control subjects. On all other Personal Growth variables, there was no significant difference ($p>.05$) between the two groups, although the experimental subjects were slightly higher on all variables with the exception of ***Locus of Control***. This is shown in Table 9 and illustrated in Figure 5.

TABLE 9

F-RATIOS FROM ANOVA OF EXPERIMENTAL AND CONTROL GROUPS (BETWEEN SUBJECTS) FOR PERSONAL GROWTH INDICES

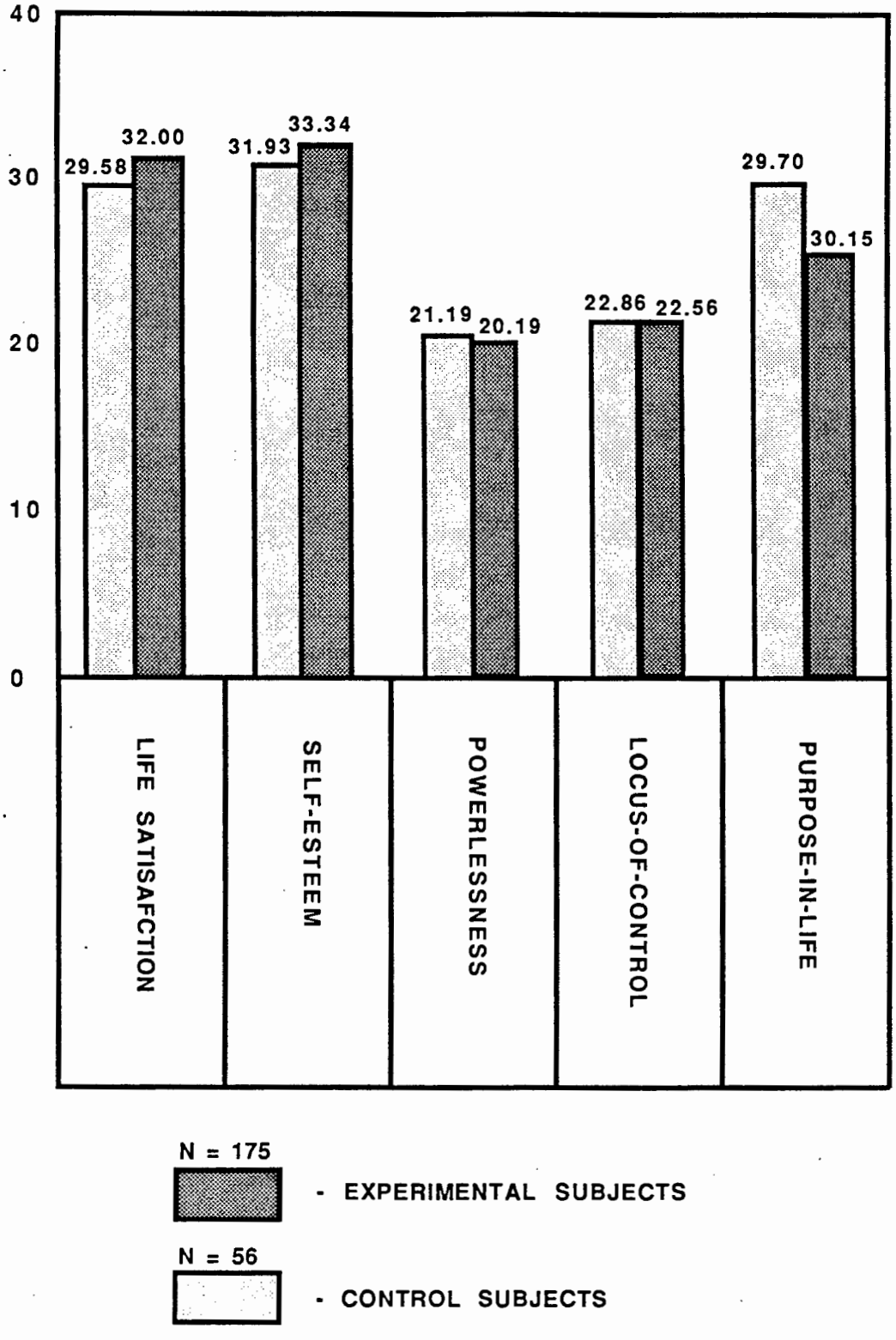
VARIABLE	F-RATIO
LIFE SATISFACTION	4.63*
SELF-ESTEEM	2.50
POWERLESSNESS	0.31
LOCUS-OF-CONTROL	0.05
PURPOSE-IN-LIFE	0.31

* - $p < 0.05$

** - $p < 0.01$

FIGURE 5

EXPERIMENTAL VS. CONTROL SUBJECTS
ON PERSONAL GROWTH INDICES



As explained earlier, as part of exploratory data analysis, the ***Personal Growth*** scores of only those subjects who had been in the organization at least 12 months previously were calculated. The results showed that whilst ***Life Satisfaction*** was again significantly higher ($p<0.01$) in the experimental group, ***Self-Esteem*** was also significantly higher when compared to the control group ($p<0.01$). This is shown in Table 10 and Figure 6 respectively.

TABLE 10

F-RATIOS FROM ANOVA OF EXPERIMENTAL AND CONTROL GROUPS (BETWEEN SUBJECTS) FOR PERSONAL GROWTH INDICES OF THOSE SUBJECTS WHO WERE EMPLOYED 12 MONTHS PREVIOUSLY

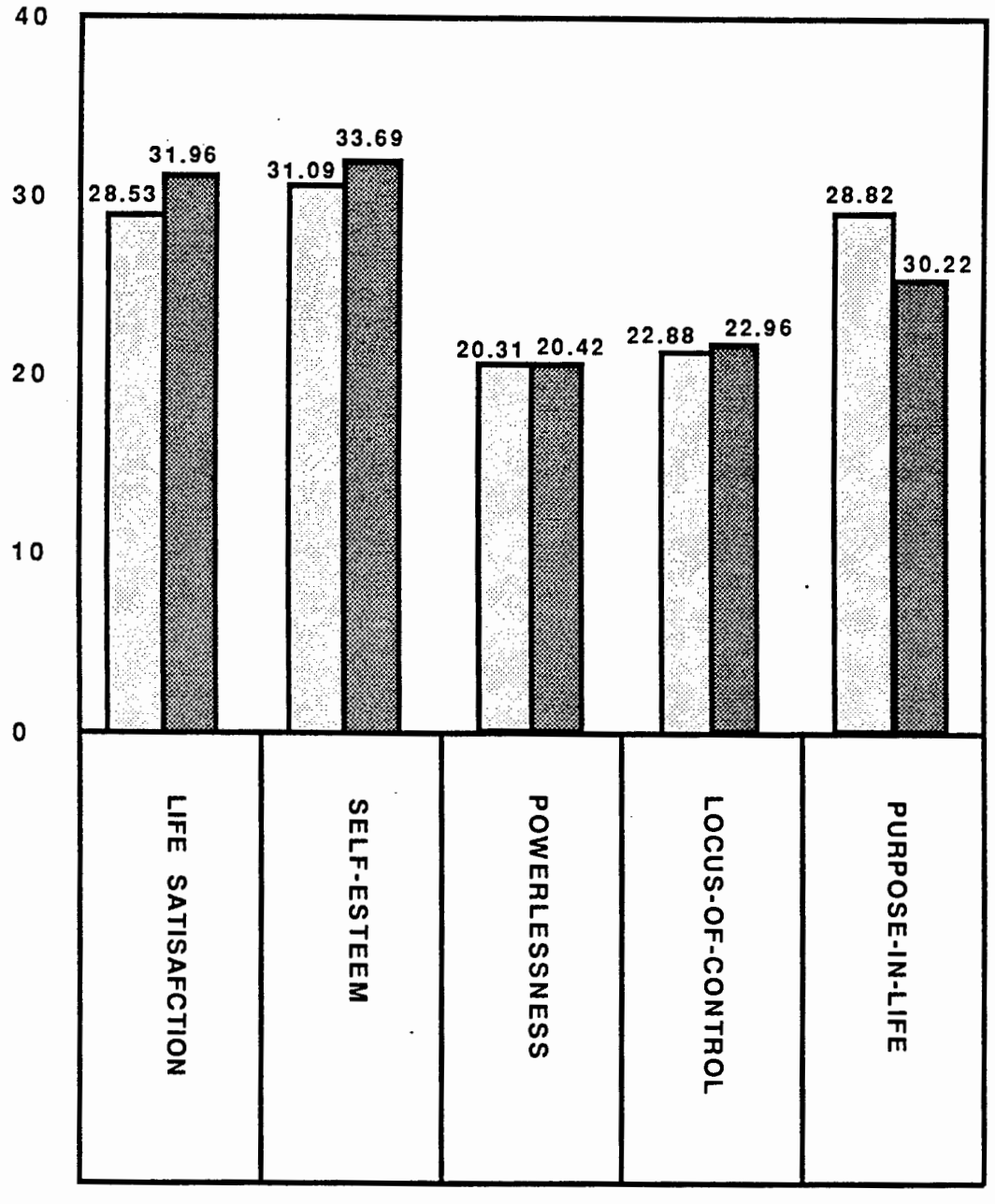
VARIABLE	F-RATIO
LIFE SATISFACTION	7.17*
SELF-ESTEEM	7.07
POWERLESSNESS	0.01
LOCUS-OF-CONTROL	0.01
PURPOSE-IN-LIFE	2.47

* - $p < 0.05$

** - $p < 0.01$

FIGURE 6

EXPERIMENTAL VS. CONTROL SUBJECTS ON PERSONAL GROWTH INDICES FOR THOSE SUBJECTS WHO WERE EMPLOYED 12 MONTHS PREVIOUSLY



N = 158 - EXPERIMENTAL SUBJECTS

N = 43 - CONTROL SUBJECTS

Correlational Coefficients

To go on to the correlations, the independent variables will be again considered first. In the control group, all the independent variables were found to be significantly ($p<.01$) positively related, with the exception of ***Control Data*** which was not significantly related to any of the variables, and in fact showed a significantly ($p<.05$) negative relationship with ***Communications***. The poor performance of ***Control Data*** as a variable is a recurring theme in the results, will be discussed in the next chapter. These results, as well as the other correlations for the control group presented below, are shown in Table 11. The complex nature of these correlational relationships makes the following section somewhat technical, but will largely form the basis for the discussion in the next chapter.

For the dependent variables in the control group, these were also all found to be highly positively correlated with one another ($p<.01$), with the exception of ***Locus Of Control*** which failed to show a significant relationship with ***Self-Esteem*** or ***Powerlessness***.

In comparing the independent variables and dependent variables in the control group, several positive significant relationships were obtained. In view of the number of these, Table 11 presents a far more coherent picture than could be discussed. Some of the more noticeable patterns were however as follows: ***Self-Esteem*** was not significantly ($p>.05$) related to any of the independent variables; ***Control Data*** was not significantly ($p>.05$) related to any of the dependent variables; ***Locus Of Control*** was significantly ($p<.05$) positively related with all the independent variables with the exception of ***Control Data*** as noted; and ***Communications*** and

Motivators were significantly ($p<.05$) positively related to all of the Personal Growth variables with the exception of *Self-Esteem* as noted.

TABLE 11
CORRELATION MATRIX FOR CONTROL SUBJECTS

	CLIMATE (IV'S)						GROWTH (DV'S)				
	TRUST & INVOLVEMENT	MOTIVATORS	COMMUNICATIONS	DECISION MAKING	CONTROL DATA	AVERAGE CLIMATE	LIFE SATISFACTION	SELF-ESTEEM	POWERLESSNESS	LOCUS-OF-CONTROL	PURPOSE-IN-LIFE
	1	2	3	4	5	6	7	8	9	10	11
2	.657	1.00	-	-	-	-	-	-	-	-	-
3	.767	.666	1.00	-	-	-	-	-	-	-	-
4	.656	.672	.535	1.00	-	-	-	-	-	-	-
5	-.220*	-.128*	-.302	.186*	1.00	-	-	-	-	-	-
6	.891	.843	.851	.837	-.101*	1.00	-	-	-	-	-
7	.249*	.346	.481	.217*	-.181*	.338	1.00	-	-	-	-
8	.047*	.049*	.176*	-.093*	-.075*	-.004*	.629	1.00	-	-	-
9	.228*	.317	.284	.091*	-.259*	.233*	.522	.446	1.00	-	-
10	.271	.377	.346	.314	-.042*	.376	.350	.106*	.248*	1.00	-
11	.347	.299	.456	.165*	-.105*	.345	.424	.334	.431	.458	1.00

IN THIS TABLE, AS IN TABLES 12 & 13, THE NON-SIGNIFICANT, RATHER THAN THE THE SIGNIFICANT CORRELATIONS HAVE BEEN HIGHLIGHTED, SINCE THESE ARE IN THE MINORITY.

r_{crit} = .260 ($p<0.05$)
= .335 ($p<0.01$)

* - NOT SIGNIFICANT

For the experimental group, similar trends were obtained, and these correlations are presented in Table 12.

For the independent variables, all variables were significantly positively related ($p<.01$), with the exception again of ***Control Data*** which was not positively correlated with ***Motivators*** or ***Decision Making***. For the dependent variables, all were significantly ($p<.05$) positively related with the exception of ***Powerlessness***, which failed to show a significant ($p>.05$) relationship with ***Life Satisfaction*** or ***Self-Esteem***.

In comparing independent variables and dependent variables, again many significant relationships were found, which are also summarized in Table 12. The more significant patterns being: ***Locus Of Control*** was significantly ($p<.01$) related with all independent variables, as were ***Life Satisfaction*** and ***Purpose-In-Life***, with the exception of ***Control Data***, which was only significantly related with ***Locus Of Control*** as noted; and ***Motivators*** was not significantly ($p>.05$) related to ***Self-Esteem*** or ***Powerlessness***.

Despite the relatively small sample (N=38) of subjects who indicated how long they had been QC members for (***Age***), a correlation coefficient was computed for this variable and the Personal Growth indices. No significant ($p>.05$) relationship was found between ***Age*** and any of the Personal Growth variables, and this is also shown in Table 12.

TABLE 12

CORRELATION MATRIX FOR EXPERIMENTAL SUBJECTS

	CLIMATE (IV'S)						GROWTH(DV'S)					r_{crit} = .30 (p<0.05)
	TRUST & INVOLVEMENT	MOTIVATORS	COMMUNICATIONS	DECISION MAKING	CONTROL DATA	AVERAGE CLIMATE	LIFE SATISFACTION	SELF-ESTEEM	POWERLESSNESS	LOCUS-OF-CONTROL	PURPOSE-IN-LIFE	AGE
	1	2	3	4	5	6	7	8	9	10	11	12
2	.619	1.00	-	-	-	-	-	-	-	-	-	-
3	.714	.619	1.00	-	-	-	-	-	-	-	-	-
4	.734	.512	.751	1.00	-	-	-	-	-	-	-	-
5	.264	.166*	.223	.191*	1.00	-	-	-	-	-	-	-
6	.912	.734	.897	.865	.369	1.00	-	-	-	-	-	-
7	.320	.202	.296	.219	.125*	.315	1.00	-	-	-	-	-
8	.302	.181*	.282	.184*	.111*	.289	.521	1.00	-	-	-	-
9	.234	.139*	.217	.309	.107*	.269	.103*	.013*	1.00	-	-	-
10	.272	.299	.327	.272	.210	.344	.237	.278	.343	1.00	-	-
11	.373	.283	.422	.333	.184*	.423	.488	.413	.319	.449	1.00	-
12	-	-	-	-	-	-	-.043*	-.069*	-.199*	.015*	-.239*	1.00

r_{crit} = .20 (p<0.05)
= .25 (p<0.01)

* - NOT SIGNIFICANT

In the present chapter, a massive amount of data of quite some complexity has been presented in a very compact form. An attempt to meaningfully interpret and discuss these results in follows in the next chapter.

CHAPTER 6

DISCUSSION

In the present chapter, the first step will be to discuss the results presented previously, in terms of the extent to which they support or refute the experimental hypotheses. Each hypothesis will be reviewed in turn, and various possible explanations will be entertained in an attempt to gain clarity on the significance of the results.

Following the discussion of the hypotheses, a broader focus will be taken, and the results as a whole will be integrated into a general picture of just what it is that the present study has achieved. Emphasis here will be laid on returning to the literature already reviewed in earlier chapters, as well as on additional research to be introduced, as a means of assessing the extent to which the findings of the present study are consistent with the existing body of knowledge, and what additional contributions (if any) it makes. The design, administration, and methodology of the present study will be critiqued, and suggestions for improvements will be made.

The Hypotheses and the Results

Hypothesis 1: Personal Growth will be greater amongst QC members than non-QC members.

The above hypothesis appears to have been partially supported, as illustrated in Table 9 and Figure 5. The experimental group (QC members) showed significantly ($p<.05$) higher *Life*

Satisfaction than the control group. In order to have a sample of subjects who would have exposed to the QC processes for a meaningful length of time, those subjects who had not been in the organization for a year or more were then removed, which increased this significance to the 1% level, with ***Self-Esteem*** also emerging as significantly higher in the experimental group. The additional significance obtained by the removal of the subjects who had been employed for less than a year seems to indicate that some sort of maturational process has taken place: that is, exposure to QC activities over time can affect ***Personal Growth*** indices. In addition, Table 4 illustrates that the other means in the experimental group, although not significantly higher than control means ($p>0.05$), tended in the expected direction. It therefore seems that experimental subjects gain more subjective enjoyment from life in general, and are more positive in their own self-evaluations about themselves, than is the case for control subjects. In addition, experimental subjects show non-significantly higher scores on other indices indicating a sense of enriched life experience and empowerment.

Thus experimental hypothesis 1 is partially supported. There are a number of possible reasons for the results. The first and simplest of these is that as suggested by the data, ***Life Satisfaction*** and ***Self-Esteem*** is higher amongst QC members than control subjects. Most question however must rest over whether being a QC member actually *causes* the enhancement of these attributes - this is difficult to establish since there was no "before" measure of the personal growth indices. It is feasible that participation in decision-making and the concomitant increase in work interest does indeed bring about a greater sense of satisfaction with life in general, as well as an improved self-concept as the result of having successfully undertaken various problem-solving activities. On the other hand, it is possible that QC members, being volunteers, are individuals who are naturally higher on these two variables than

the "average" worker, although it was attempted to control for this by only using "potential" QC members as control subjects.

Another point to consider is the fact that QC members only emerged higher on two out of the five ***Personal Growth*** variables. The present author finds it difficult to believe that the other three are simply poor questionnaires, since particularly ***Locus Of Control*** has been extensively researched and validated. It is thus possible that participative programs such as QC's do not enhance these dimensions, or that a one hour weekly meeting does not provide sufficient impetus to effect a significant change. Beyond this suggested explanation, the reasons why certain of the ***Personal Growth*** indices should indicate the expected increase whilst the others do not remains an unresolved issue.

In conclusion on this hypothesis, it seems that QC membership is related positively to certain, but definitely not all of the ***Personal Growth*** variables. Individual, social, and environmental factors in all likelihood play an extremely powerful intervening role in this relationship. It is also possible that the indices used are too general and too tightly linked to basic personality to be sensitive to the relatively minor behavioural changes which participation in QC's might bring about.

Hypothesis 2: In both QC and non-QC members, ***Personal Growth*** will be correlated positively with ***Organizational Climate*** scores.

Tables 11 and 12 provide powerful support for the above hypothesis, particularly for the experimental subjects. Whilst the actual significant correlations are numerous and of a confusing distribution, the description of these results in the previous chapter clearly indicates that a participative management style and organizational environment is positively

related to ***Personal Growth*** amongst employees. Of all the ***Organizational Climate*** indices, ***Communications*** emerged as the one most consistently positively related to the ***Personal Growth*** indices for both experimental and control subjects. This is not surprising, since the purpose of participation is largely to achieve growth by improving communications between workers and management, and by encouraging workers to come forward with their own views and suggestions.

With correlations, it is always tempting, but dangerous and unsupportable to conclude that causal relationships exist. Whilst it is possible that a more participative environment affords the opportunity for personal development and encourages employees to "grow", a number of alternative explanations exist. One of these is that when dealing with more "developed" individuals, management will tend to delegate with more confidence, thus creating a participative environment. Alternatively, employees with high ***Personal Growth*** scores may naturally gravitate towards more participative work sections, whilst less "developed" workers may find security in closer supervision, and thus actively seek out and provide support for this style of management. Nevertheless, the correlations shown in Tables 11 and 12 are impressive, and would appear to indicate a relationship of significance between ***Organizational Climate*** and ***Personal Growth***.

In conclusion, Hypothesis 2 seems to have been supported by the data. Taking the above argument into consideration together with the discussion on Hypothesis 1, it seems that the actual climate in the organization, rather than the specific presence of QC's or their ilk, is the vital determining factor in encouraging employee development in terms of the ***Personal Growth*** measures used in the present study. This result is particularly consistent with the literature already reviewed, which pointed out the vital importance of real managerial commitment in behavioural terms towards the success of participative systems.

QC's are thus more a symptom than a cause of the sort of environment where employee growth is more likely to occur.

Hypothesis 3: The greater the time spent as QC member, the greater will be the Personal Growth shown by that individual.

Table 12 reveals that ***Age*** emerges as not significantly related ($p>0.05$) to any of the ***Personal Growth*** indices, thus failing to confirm this hypothesis. An interesting if contradictory point however is that in addition to being of very low significance, the relationships all emerged as slightly negative, ie. in the opposite direction to what had been predicted.

The first possible reason for the lack of significant result is that there was a small sample for this exercise (N=38), because of the failure of the facilitators in most cases to complete the space on the questionnaire indicating how long that individual had been a QC member for. Secondly, and possible most seriously, the actual unit used, viz. months spent as a circle member, is a very gross measure which gives no clue to the quality of the process over that time, nor does it take account of differences in the pace of individual development. A further point is that like all organizational systems, QC's move through a life-cycle, and at various points in the cycle employee morale (and therefore possibly ***Personal Growth*** scores) may be higher than at others - for example, shortly after forming a circle, employees may feel highly motivated and empowered, whilst after a few months, a "reality shock" sets in as limitations and disadvantages become apparent, followed again later by an upswing as the long-term benefits of QC membership become more apparent. It is also possible that a number of mediating variables such as the external economic and political situations, the circumstances of the organization, and various personal issues, may by far outweigh the possible influence of overall time on ***Personal Growth***.

In conclusion, Hypothesis 3 is not supported by the available evidence. If a relationship does exist between ***Personal Growth*** and time spent as a quality circle member, it is unlikely that this will be a linear relationship, which would necessitate an alternative means of analysis, since the Pearson's product-moment correlation coefficient only tests for linear relationships. The fact that the removal of those subjects who had not been present in the organization 12 months previously produced results more consistent with Hypothesis 1 indicates that some relationship, albeit not a linear one, may exist between time and ***Personal Growth***, and may therefore be worth pursuing. Account should also be taken of factors such speed of individual development, and the quality of individual circle processes.

Hypothesis 4: QC members will report a greater movement in perceived management style towards a participative mode over the previous 12 months than will non-QC members.

The consideration of this hypothesis is somewhat more complex than the previous three already reviewed. Tables 7 and 8 reveal that neither at the present time, nor 12 months previously, did the experimental or control groups show significant differences on *any* of the ***Organizational Climate*** indices. However, *both* groups reported, as can be seen in Tables 5 and 6, a highly significant ($p<0.01$) increase in the perceived participativeness of the climate over the previous 12 months. Thus initially there is little support for the hypothesis under consideration. When examining the F-ratios however, a different picture emerges. Whilst both experimental and control groups, as noted, have significant F-ratios at the 1% level of confidence, these F's are far *higher* in the experimental group that the control group, with the exception of ***Control Data***. Thus the means tend

very much in the expected direction. (***Control Data*** has emerged as one of the variables that shows a low correlation with the other independent variables and being only based on a single item, seems to be possibly less valid than the others).

In conclusion, whilst both experimental and control groups show highly significant increases in the participative nature of their work environments, it would not be correct to conclude that they have both shown the same amount of change, although after a year the difference is still non-significant. If this is indeed a trend, then a follow-up study undertaken in a few month's time after the present measures should reveal a significantly more participative style amongst QC members than amongst the control subjects. Thus the hypothesis is supported to the extent that the experimental group's change is notably ***more*** significant than for that of the control group. Alternatively however, it is possible that nothing more than a "Hawthorne effect" is being observed, resulting in both groups indicating greater participativeness at the present time, with QC-members being unconsciously influenced by the fact that they have been part of an intervention.

Hypothesis 5: The presence of a participative program in the organization will cause non-QC members to also report an increase in participatory style by management.

As already discussed in the previous few paragraphs, and as illustrated by Table 5, this hypothesis is strongly supported by the evidence. On all ***Organizational Climate*** indices the control group reported a significantly ($p<0.01$) more participative climate than for 12 months previously, as was the case for the experimental group, with the exception of ***Control Data*** as noted.

The reason suggested by the hypothesis for these results is that participative OD interventions send ripples through the

organization, and bring about the desired change in far more areas than merely those where QC's physically exist. The fact that the control subjects were all drawn from sections where QC's were actually operating means that these subjects all had literally been "rubbing shoulders" with QC members for the past several months. It is possible that management style had changed in these sections to accommodate the requirements of QC's or in response to the increased maturity of the QC members, and this changed style has been equally applied to non-QC members as employees in the same section.

If the above argument is correct, then a possibility emerges which fits the conclusions reached about the other hypotheses in this section. If participative management encourages ***Personal Growth***, and if it is so that the presence of a QC in a section will bring about changed management attitudes leading to a more participative approach, then it is likely that QC members and non-QC members in the same section will *both* experience increased growth. This may explain why the experimental sample has shown little in the way of more ***Personal Growth*** than the control group. Before this hypothesis could be confirmed however, the reported change in the same period would have to be established for an area in which no QC's were operating, having controlled for differences in the perceived climate. These and other possible areas for further research will be reviewed in the final chapter of the present paper.

To return to the hypothesis under discussion, there are other possible explanations for the fact that the control group has also reported a significant increase in the participative nature of the work-place. As mentioned, part of the reason is possibly simply due to the Hawthorne or "halo" effect, with a strong tendency to socially desirable responses, with subjects in both groups feeling it incumbent upon them to indicate an improved climate over the past year. It is also not clear from Likert's (1961) writing to what degree the before-after part of

his design will be effected by external aspects such as changes in the economic and socio-political systems over the assessment period. For example, the partial economic revival which occurred over the year of assessment created a greater amount of work to be done, and the increased load on management may be partially responsible for greater delegation and therefore perceived participativeness. Thus it is just possible that the reported improvement (for both groups), has very little to do with the fact that a QC has been in operation in the area, or that management style has objectively changed very much.

In conclusion, it seems that Hypothesis 5 is well supported by the existing data, and that it is the organizational dynamics associated with, rather than those created by, a QC program which leads to an increase in the participativeness of the work-place for all employees in the vicinity, and not just for the QC members.

Given the variety of possible interpretations suggested above, attempts to establish the validity of the various experimental hypotheses in the present study are meaningless without being placed into perspective in terms of the established body of knowledge which exists in this area.

The Fit with Existing Knowledge

The implications of the present study will be divided into three basic areas, viz. the contribution it makes to what is known about: i) employee attitudes, motivation, and growth; ii) organizational culture, management style, and the effect of these aspects on attitudes and productivity; and iii) quality circles, the requirements for their success, and their viability as an OD-type intervention. The intention is however not to again review the material examined in Chapter 2, but is rather to examine some of the more relevant facts in the light of the

findings of the present study.

To begin therefore with the question of employee attitudes, in South Africa relatively little work has been done in this field. This has lead Hofmeyer & Maitland (1987) to remark whilst discussing the ignorance in which most managers live in terms of knowledge about their workers' values and beliefs, that "perhaps a greater use of attitude surveys would go some way towards alleviating the latter problem!" (p. 21). Internationally however, Blau (1978) has noted that "a number of studies show worker attitudes to be influenced positively by job enrichment" (p. 2). To the degree that QC's constitute job enrichment, this is consistent with the finding in the present study of a greater perception of participative management amongst workers.

In terms of the actual effects of QC membership on the individual members, Goldberg (1982) has found that it results in more "interest and pride" (p. 120). This is slightly in contradiction with actual findings of researchers such as Rafaeli (1985), who, as noted earlier, found QC membership related to empowerment, but not job satisfaction. Using the same ***Communications*** part of the Likert questionnaire, Elvins (1985) found that QC members reported significantly more participative communications than did control subjects (N=102). Interestingly, Nicholls (1985), working in South Africa after a similar intervention, found enhanced attitudes amongst uninvolved workers in the same areas as those formally involved in participative systems, and attributed this to the "spillover" or "halo" effect. Both of the previous conclusions are very similar to the possible explanations suggested in the previous section.

These results are also roughly in line with the findings of the present study that ***Life Satisfaction*** and ***Self-Esteem*** was improved amongst QC members, whilst other indices were no different from those in the control group. The caution of Zahra

and Lundstroom (1984) is very applicable here, viz. "the decision to volunteer is, in several ways, an extension of an employees's non-work life" (P37), ie. as volunteers, a QC always constitutes a highly pre-selected group. This raises the necessity of further research which considers what it is which makes QC members different from the rest of the work-force, and in what ways these differences may be manifested.

In conclusion on the above point therefore, the present study confirms the tendency reported in the literature towards enhanced worker attitudes, perception of management style, and personal growth in the general area where a quality circle program has been in operation. This effect extends throughout the work-force as a whole, rather than merely amongst the QC members.

Regarding organizational climate and management style, the present study seems to make several important points. In the review undertaken earlier on the requirements for successful QC programs, it was noted that a participative management climate was necessary for the programs to succeed. Gelfand (1975) has found that whilst "the grouping of people into problem-solving units ... will result in an increase in human creativity ... the developmental strategy which determines this increase, however, is linked to the prevailing organizational climate" (p. 111). This is the same conclusion echoed by Biesheuvel (1984), "the successful operation of QC's is dependent on a truly cooperative management climate throughout the enterprise" (p. 125), and Gibson (1982), who notes that "quality circles are people with points of view about becoming involved in a participative problem-solving process. These viewpoints can make or break the process" (p. 5).

If by "success" of QC programs is meant the development of the individuals involved, then the present study strongly supports the above arguments, in that highly significant correlations have been found between ***Organizational Climate*** and

certain of the ***Personal Growth*** indices. Indeed, it seems very likely that as suggested by the title of the present work, organizational climate is a powerful mediating factor in determining the effectiveness and success of participative interventions such as quality circles. This has important implications for the effective training of management in the coming years. As Yamaki (1984) wryly notes, "Japanese management seems to be traditionally more conscious of the fact that employees are human beings than that of western countries" (p. 11). The importance of this aspect of values and their role in changing attitudes towards work cannot, in the opinion of the present author, be over-emphasized, and the quotation of McTague (1986) is worth repeating in this context: "productivity is shaped by forces beneath corporate culture" (p. 20). Beginning with the right organizational climate is thus of paramount importance - if this is present, an intervention such as QC's may be successful, but if it is not, no technique yet demonstrated will allow a participative environment and the associated employee development to evolve whilst autocratic management practices still exist.

The final area which the present study impacts upon is that of quality circles specifically. No attempt is made in the present study to actually evaluate the "hard" effects of the QC program on productivity and profitability, since this is a separate and highly technical field in its own right. However, the research reviewed in Chapter 2 presented extensive evidence of the dramatic financial implications which QC programs can have. Work independent of the present author undertaken in the same organization as the present study has shown a 2:1 return on investment based on a very conservative full-costing approach. Drago (1986) suggests that participative programs tend to come and go in cycles, but that QC's are more broad-based than any of the earlier systems, hence "the future of the circles movement will probably depend more than anything else upon managerial

attitudes and commitment to participation" (p. 16). This conclusion is totally consistent with the arguments concerning organizational climate, and is further supported by the most significant finding of the present study, viz. that the development of employees is far more strongly related to the actual management style, reflecting as it does basic values towards workers and the legitimacy of their aspirations, than any particular intervention such as quality circles.

To conclude this section, the present study has produced results which are not specifically contradictory to any research available in the literature, and in fact support the findings of several of the better-known studies. A significant possible original contribution is the positive relationship which was discovered between ***Organizational Climate*** and ***Personal Growth***. This finding, in the opinion of the present author, goes a long way to explaining why some QC programs achieve results, and others fail. Organizational climate, and its *alter ego* management style, would appear to be an extremely powerful mediating influence in both the development of employees, and in the success of any participative OD-type program. Far from being a magic formula, quality circles are an interesting and charming way to develop a work-force as part of a basic change in organizational culture, but are all-too vulnerable to resistance and sabotage in the face of that change.

Critique of the Present Study

The voluntary nature of quality circles makes a true experimental design very difficult, since randomization, the basic requirement for true experimentation, is virtually impossible. To counter this, it was necessary to use a "matched" control group, which in all instances was drawn from the same area, and in fact the same department as one in which a

QC was already operating and was made up from "potential" circle members. The present author thus decided to use a quasi-experimental design, with an interesting variation of the "posttest-only control group" design (Campbell & Stanley, 1963 p. 25). The variation, apart from the inability to randomize, is that whilst both the control and experimental groups are rated "after", *both* groups are rated "before" in terms of their own memories of the situation 12 months previously for the *independent variables*, rather than an objective "before" measure for the experimental group on the *dependent variables* as specified by the above design. This weakens the design in that an assumption has to made, viz. that the recollections of subjects are reliable over a 12 month period. As discussed earlier, this is not necessarily true, since employees are particularly prone to give socially-desirable responses, which in the present case would mean indicating an improvement in the participativeness of the climate over the assessment period. A "halo" effect induced by the measurement process would also achieve a similar effect.

The techniques for analysis, viz. the Anovas (both within and between-subject designs), and the Parson's product-moment correlation coefficient, would seem to have been appropriate for the present design. An additional test for a possible non-linear or curvilinear relationship between time spent as a QC member and ***Personal Growth*** would have been useful, since nothing close to the expected relationship was found using a linear analysis. However, in view of the small sample (N=38) and the grossness of the units used, this would not have been worthwhile.

The reliability of memory is impossible to establish in the present case, since in both groups a change in the perceived climate was expected and obtained, and this change necessarily lowered the test-retest reliability, as illustrated in Table 13. The present author does not however see this as a serious design

problem, since the items constituting the independent variables in the present study are drawn from Likert's (1967) work, which over the years has provided sufficient evidence of both split-half and test-retest reliability, from re-analysis of the original data, as well as several subsequent studies. The references quoted earlier for the dependent variables also gave extensive reliability data, which is why these items were chosen. Reliability therefore, does not seem to be a particular weakness of the present design.

In looking at test-retest reliability of ***Organizational Climate***, correlational coefficients were calculated for the independent variables in the experimental and control groups, based on the scores for the present time, and for 12 months previously. The results are presented in Table 13.

TABLE 13

TEST-RETEST RELIABILITIES FOR THE ORGANIZATIONAL CLIMATE VARIABLES BASED ON SCORES AT THE PRESENT TIME AND 12 MONTHS PREVIOUSLY

VARIABLE	CONTROL	EXPERIMENTAL
CLIMATE (IV)	N = 48	N = 168
TRUST & INVOLVEMENT	.364	.151*
MOTIVATORS	.353	.333
COMMUNICATIONS	.441	.275
DECISION MAKING	.498	.275
CONTROL DATA	.525	.314
AVERAGE CLIMATE	.357	.160*
r (crit) =	.27 (p<0.05) .35 (p<0.01)	.20 (p<0.05) .25 (p<0.01)

* - NOT SIGNIFICANT

In both groups, all independent variables showed significant ($p<.01$) reliability, with the exception of ***Trust and Involvement*** and ***Average Climate*** in the experimental group ($p>.05$). A complicating aspect here is that of actual climate change bought about by the QC intervention, as oppoosed to variation due to error. Since a significant increase in the participativeness of climate has been noted, the test-retest reliability will obviously be somewhat lower than it would have been had such a change not taken place. This makes the test-retest reliability less useful in the present case.

In considering validity, both the independent variables and dependent variables require some close scrutiny. As discussed in the design chapter, the factors used in the present study to make up the superordinate independent variable category ***Organizational Climate*** were obtained by factor analysis of the data provided in Likert's (1967) work. The use of this procedure must lend some face validity to the factors, but the construction of factors is only the first step in a validation process - the data from the present study should be used to perform a factor analysis to check whether the items again cluster into the required factors. This is an exercise beyond the ambit of the present study, but would provide an interesting statistical follow-up. Perusal of the intercorrelations of the independent variables (Tables 11 and 12) suggests a satisfactorily high, but not overly-high intercorrelation of the factors, which suggests that these are indeed semi-independent constructs tapping aspects of the underlying Organizational Climate. This is born out by the very high (.734 - .912) intercorrelations of the factors with ***Average Climate***, which is a composite measure of all factors. A notable exception here is ***Control Data***, which exhibits low intercorrelations with all other factors. The fact that this factor is made up of only one item makes variations more severe, but it would appear that the validity of this factor as a measure of organizational climate

must be in question.

Concerning the dependent variables, the actual constructs have high face validity and proven construct and criterion validity based on the references quoted earlier, particularly for variables such as ***Locus Of Control***, which has been extensively researched. In an attempt to raise the overall validity of the present study, the present author only selected questionnaires for which a sufficiently convincing amount of data existed. The question which persists for the present study is whether or not the superordinate category ***Personal Growth*** has validity as a construct, particularly since it was composed of factors chosen on the basis of the intuition of the present author. However, the intercorrelations of these factors (again illustrated in Tables 11 and 12), whilst showing lower significance and more variation than the ***Organizational Climate*** factors, show sufficient inter-relationship to retain the construct at this time. The predictive or criterion validity of the ***Personal Growth*** items against such issues as absenteeism, performance, promotions, psycho-somatic illness, stability of marriage, etc. have not been tested in the present study, and this would need to happen by way of an extensive and separate criterion-based validation exercise before any final conclusions about this construct could be made.

Moving away from reliability and validity, a more difficult problem, and one endemic to latitudinal designs, is the issue of assuming change over time, when actual measurement has only taken place once. Thus in one argument in the discussion of results in the present study it has been assumed that experimental subjects show "increased" growth on ***Life Satisfaction*** and ***Self-Esteem***, and that where there is no evidence of differences, that this is attributable to "spillover" growth amongst non-QC members. In fact, without a "before" measure of ***Personal Growth***, there is no absolute basis for making this assumption at all. A related problem is that

since it was suggested that the mere proximity to, and not necessarily participation in, a QC can increase the perceived participation of the climate and enhance personal growth, a necessary test of this hypothesis would be a further set of control subjects who were working in an area where QC's had not been introduced in any way. Thus in a sense, having "matched" control subjects may not have been a good idea, since these subjects might have become "contaminated" by the effect of the QC intervention. A second independent set of control subjects as described would have been a very good idea.

In terms of the actual administration of the present study, the most obvious flaw was the failure of facilitators to indicate on the questionnaires how long the person had been a QC member for. This to an extent invalidated the investigation of the effect of length of membership on ***Personal Growth***. The present author would probably have done better to have distributed the questionnaires personally, but since the subjects were drawn from around the country, there was actually little which could be have been done. The obvious solution would have been to ask respondents to indicate for themselves how long they had been members for, however, such an item would have had no relevance to the control subjects, and would have made QC membership a prominent issue, exacerbating the "halo" effect.

The question of generalizability of the results is another matter, since the present study took place wholly within a single, albeit nation-wide, organization. The "corporate culture" no doubt brought about a restriction in the range of the ***Organizational Climate*** scores, and the fact that the QC's were all based on the same basic QC program, and used the same facilitation process and support material makes the results very specific to this one program. On the other hand, taking a cross-section of organizations with QC's would have provided so many "nuisance" variables in the forms of different cultures,

structures, pay systems, facilitation processes etc, that a meaningful comparison of QC members and non-members would probably not have been possible due to variations between organizations. This is however a study which could be considered now that an initial investigation such as the present study has been completed.

Finally, in critiquing of the present study it is necessary to consider the effect of various intervening variable which may have played a role. The most obvious of these must be factors which may have brought about changes in the organizational climate independent of the QC program and the drive towards participative work forms. The socio-political climate and the economic situation in the 12 months preceding measurement had exhibited a great deal of upheaval in the former case, and a marked depression followed by a revival in the latter. Further, the organization in question went through the largest restructuring in its 84-year career, precisely in the year before measurement. There was a great deal of uncertainty, insecurity, and in fact a number of retrenchments, largely amongst that level in the organization which makes up QC members. These and other factors could have severely effected the recollections of subjects of the previous year, and may have had an inhibiting effect of the growth of these subjects. Awareness of the lack of control over these factors is therefore necessary, which is the price which is payed for conducting research in industry and out of the laboratory.

In conclusion, the present author feels that whilst certain reservations must be noted about aspects concerning the reliability, validity, and administration of the present study, and whilst certain improvements could undertaken in a follow-up study, sufficient care has been taken for the design to be regarded as viable, and for the results to have validity. Further research in this field has however been indicated and will be reviewed after conclusions in the final chapter.

CHAPTER 7

CONCLUSIONS

The present study began with a review of the South African situation, in order to provide a background to the examination of managerial and worker attitudes to the idea of worker participation, and to establish the economic reality behind the logic of what is sometimes seen as the "welfare" function of human resources development.

There seems little question that the economy in this country is currently, and has in fact been for some time, in a serious crisis. The present minor "upswing" is in fact simply a lessened "downswing", since the growth rate remains below that of our main trading partners, and low productivity and high inflation rates continually increases this gap, making South Africa less and less competitive on world markets. Any solution will be composed of two distinct legs: the first of which being a new socio-political-economic dispensation, and the second being increased productivity and competitiveness on the world's markets. Taking their cue from the Japanese experience, businessmen in this country and in the West in general are seeing participative work systems as the means for achieving this increased productivity. The role of such systems is to "develop" workers by allowing them to participate in decision-making, and thereby improve productivity. Of the various interventions, quality circles have proved amongst the most popular, and are to be found today in one form or another in most countries having an industrialized economy. Whilst "hard" results from QC programs are well documented, the "soft" side, viz. the effect of participation in QC programs on circle members, has remained relatively under-researched, which is the

area addressed in the present paper.

The skepticism with which organized labour views such participative systems is well-founded. There is a strong tendency amongst managers to see systems such as QC's as a "quick-fix" which will solve industrial relations problems, improve productivity and profitability, and at the same time relieve managers of the responsibility of addressing any of the very real socio-political problems facing their work-force. This is nothing more than the Human Relations school using a technique called a "quality circle", and such a cynical and manipulative attempt to hoodwink workers into being more "happy" at work is doomed to failure. Workers and their representatives will reject what boils down nothing more than an attempt to obtain further profitability by disguising authoritarian controls, and which is in fact exploiting the creativity of the worker on the shop-floor without material recognition. Conversely, in order to be successful such schemes require sincerity in behavioural terms, beginning with a HR function in the organization which, with top management support in every aspect of their behaviour, manifests genuine respect and concern for the aspirations of workers, and is prepared not only to listen, but to act on their requests and problems. A real change in the balance in an organization towards a broadening of the power-base is necessary, and it requires a truly enlightened management approach for this to succeed. Only an organization prepared to fundamentally restructure the definition of "management", "worker", and "decision-making", should seriously contemplate a participative work design such as QC's. In terms of this requirement, it is almost certain that most companies using QC's in South Africa at the present time are using them wrongly, and their programs are therefore very likely to fail.

The present study investigated the QC program in a single nation-wide engineering concern, using a sample of subjects drawn from around the country, with ***Organizational Climate***

making up the independent variables, and ***Personal Growth*** the dependent variables. For both the independent variables and dependent variables a questionnaire was designed. The decisions regarding the design were that despite various flaws which might be addressed in subsequent studies, and the lower level of control characteristic of field studies, the reliability and validity appeared to be sufficient to make conclusion with some confidence.

The present investigation discovered a number of interesting points. Whilst quality circle members may be higher on certain ***Personal Growth*** indices than non-QC members, notably ***Life Satisfaction*** and ***Self-Esteem***, a more significant determining factor is the organizational climate which correlates strongly with the Personal Growth amongst both QC and non-QC members. Another interesting finding is that for both groups, ***Organizational Climate*** was perceived as far more participative at the present time than for 12 months previously. Aside from a probable "halo" effect, another interpretation of this may well be that such systems increase the perceived participativeness of the climate for non-members as well as for members. Thus the QC may well be a focus or catalyst for organizational change, making it a very cost-effective and useful intervention - where this is a part of a broad-based attempt to change the organizational culture. This reasoning is further confirmed by the fact that whilst both the experimental and control groups reported an increase in the participativeness of the climate over the previous 12 months, the experimental group reported a *greater* increase in participativeness. Since QC membership was not manifestly part of the design in the eyes of the subjects, thus eliminating the possibility of a specific (as opposed to the general) "halo effect", this result is significant.

Time spent as a QC member was not found to correlate significantly with ***Personal Growth***, although there was a very

small sample for this analysis. It seems likely however that QC's pass through stages in a definite life-cycle so such a relationship would not be expected to be linear.

The point which cannot be made often enough in the present paper, and is in fact echoed repeatedly in the literature, is that QC's are no panacea. They can be wildly successful, indifferent, or very destructive, depending on how they are used. The common thread running though most successful QC programs is genuine management commitment to the idea of worker participation, and an accompanying participative management style. Worker responsibility, the ability to make and execute decisions, and a forum for having suggestions and requests given a serious airing are basic symptoms of such a style. No "con" jobs can be successful, since such a system does not develop the work-force, and without development, the hidden creativity and problem-solving ability of the man on the shop-floor will never be tapped.

In conclusion, the present study has provided an interesting confirmation to what Japanese managers have known for many years - actions speak far louder than words. Workers *can* be developed, and productivity *can* be increased through participative work systems, but management commitment must be there in the tangible form of a participative supervisory style. A great need therefore exists to make management competent in implementing and operating within such a style, and to sell the idea that managers cannot carry the productivity burden of organizations alone. Involving workers in decision-making should not mean abdication by mangement. It is rather part of basic restructuring of the way businesses are run, towards a model of industrial democracy.

To return to one of the earlier comments in the present paper, changing the socio-political face of South Africa is only one way of ensuring future wealth and quality of life for its inhabitants. The other important requirement is to begin to

practice participation in actions and not words, and the first steps towards this is to extend simple human dignity and respect to the workers on the shop-floor. The reason for this is not simply moralistic - productivity involves and effects everyone, and everyone should be involved in productivity. Managers in this country have a choice: they can either retain autocratic control of firms which have less international competitiveness every day; or they can recognize and involve every employee towards creating profitable businesses which will provide a firm foundation for whatever form the social and political structure in South Africa may take in the years to come.

Further Research Indicated

Finally, recommendations for further research within the general area covered by the present study will be made in order to suggest a means whereby still unresolved questions arising from both the present and previous works may be answered.

The first, and probably major piece of research which needs to be undertaken is a concerted and large-scale project to determine just what the productivity situation in South Africa is, and to relate specific productivity figures in given firms to the prevailing organizational climate in that firm. Once these facts are available, a longitudinal, as opposed to the present latitudinal investigation needs to be undertaken, which will examine the effects of an OD intervention on productivity, climate, and "growth" amongst employees, before, during, and after the intervention. A straight correlational study between personal growth and productivity of workers also needs to be attempted.

More specific to quality circles, a question which remains unresolved is the nature of the relationship between time spent as a quality circle member, and personal growth. The

indications from the present study are that this is not a linear relationship, thus the possibility of a curvilinear or non-linear association should be investigated. Also important for further examination is the life-cycle of QC's, and the consequent effect that the various stages within that cycle has on ***Personal Growth.***

Whilst the present study addressed five different psychological constructs in measuring the effect of QC membership, there is a potential for an investigation into the effect of participative work systems on a number of other pre-selected variables, in an attempt to more narrowly define the consequences of such participation. Related to this, it seems possible that certain personality types or value configurations will be better suited to such participation than others. An investigation into what personal characteristics are more appropriate for participative work designs might therefore be useful, and is in line with attempting to "fit" the employee and the job. A related concept here is an investigation into how QC members, as volunteers, differ from other employees in the organization.

From the present study itself, certain areas for further investigation have also arisen. As was noted earlier, the various items used in the ***Organizational Climate*** construct should be re-subjected to factor analysis to establish whether the expected clustering is obtained. Further, a follow-up study on a second control group would be relatively simple, using the same questionnaire, but this time using subjects from areas where QC's are in no way in operation. This would hopefully avoid the "contamination" of the control group by the proximity of the QC program. Care would however have to be undertaken to match this group with the experimental and other control group on the "before" measure of ***Organizational Climate.*** Another follow-up from the present study would be to re-measure the present experimental and control groups in a year's time. This

would provide for a measure of change after another 12 months participation in quality circles, and would provide real test-retest reliability data for the ***Organizational Climate*** variables (since the "present" measure would then be the "before" measure). An additional bonus would be "before" and "after" figures for the ***Personal Growth*** measures. This would address the question posed in the present study of whether or not ***Personal Growth*** has in fact increased in both groups, or whether this construct has shown no change over time.

The complexity of the topic surrounding "personal growth" makes a more qualitative design viable. A well-conceived structured interview, whilst subject to the time problem and other disadvantages of this kind of research, such as the difficulty in quantifying results, would possibly provide much valuable data on just how workers perceive, and are affected by participative work systems. The criterion validity of growth indices in explaining productivity, performance, absenteeism, etc. needs to be established before the construct can finally be said to have any viability as a concept.

In addition to the suggested additional research presented above, a potential exists for all of these studies to take place using a cross-section of firms engaged in participative programs such as QC's. Not only could the different firms be compared on results, but different interventions could be examined in terms of their effectiveness - just because QC's are presently so wide-spread does not mean that they are the best possible design.

In summary, a great deal of research awaits to be undertaken in the field of organizational climate, personal growth, and management style. Certain facts are known, but more importantly there is the beginnings of appreciation for the inter-relationships which are not yet understood, and that is the departure step in establishing a more complete body of knowledge.

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APPENDIX 1

SAMPLE OF QUALITY CIRCLE APPLICATIONS

IMPLEMENTATION (FIELD OR COMPANY)	REFERENCE
ARMY (USA)	Skaggs (1985)
AUSTIN-ROVER (UK)	Barr (1986)
AUTOMOTIVE INDUSTRY (USA)	Whiteside (1986)
BANK	Seiple (1983)
CAMPBELL SOUP	Kendall (1986)
COMPUTER SYSTEMS	Pickler (1983)
CONSTRUCTION MACHINERY	Hiraoka (1982)
DAYTON POWER & LIGHT	Forster (1985)
FORD SA	Nicholls (1985)
HARLEY-DAVIDSON	Willis (1986)
HONEYWELL	Anonymous (1980)
HOSIERY	Nelton (1985)
HOSPITAL	Baird (1981)
IBM	Doran (1986)
INDUSTRIAL DISTRIBUTION	Allen (1985)
INSURANCE	Townsend (1985)
LAVALLE BUSINESS EQUIPMENT	Campbell (1986)
MANAGEMENT ACCOUNTANTS	Briner, Wiebe & Zahra (1984)
MARKETING	O'Neal (1982)
NASA	Anonymous (1986)
NIPPON STEEL	Saito (1986)
NISSAN	Wickens (1985)
RECORDS MANAGEMENT	Ellis (1984)
3M	Cudworth (1985)
UNIVERSITY	Kay & Love (1986)

Many more companies and areas of commerce and industry are in the literature as having QC's. Shown here is merely a sample of those which have provided case studies in recent years.

APPENDIX 2

FULL LIKERT CLIMATE QUESTIONNAIRE

PROFILE OF ORGANISATIONAL CHARACTERISTICS

INSTRUCTIONS:

1. On the lines below each organisational variable (item), please place an n at the point which, in your experience, describes your organisation at the present time (n = now). Treat each item as a continuous variable from the extreme at one end to that at the other.
2. In addition, if you have been in your organisation one or more years, please also place a p on each line at the point which, in your experience, describes your organisation as it was one to two years ago (p = previously).
3. If you were not in your organisation one or more years ago, please answer as of the present time, i.e. answer only with an n.

ORGANISATIONAL VARIABLE					ITEM NO
1. Leadership processes used					
a. Extent to which superiors have confidence and trust in subordinates	Have no confidence and trust in subordinates	Have condescending confidence and trust, such as master has in servant	Substantial but not complete confidence and trust; still wishes to keep control of decisions	Complete confidence and trust in all matters	1
b. Extent to which subordinates, in turn, have confidence and trust in superiors	Have no confidence and trust in superiors	Have subservient confidence and trust such as servant has to master	Substantial but not complete confidence and trust	Complete confidence and trust	2
c. Extent to which superiors display supportive behaviour toward others	Display no supportive behaviour or virtually none	Display supportive behaviour in condescending manner and situations only	Display supportive behaviour quite generally	Display supportive behaviour fully and in all situations	3
d. Extent to which superiors behave so that subordinates feel free to discuss important things about their jobs with their immediate superior	Subordinates feel completely free to discuss things about the job with their superior	Subordinates feel rather free to discuss things about the job with their superior	Subordinates do not feel very free to discuss things about the job with their superior	Subordinates do not feel at all free to discuss things about the job with their superior	4

PROFILE OF ORGANISATIONAL CHARACTERISTICS (CONTINUED)

ORGANISATIONAL VARIABLE					ITEM NO
e. Extent to which immediate superior in solving job problems generally tries to get subordinates' ideas and opinions and make constructive use of them	Always get ideas and opinions and always tries to make constructive use of them	Usually gets ideas and opinions and usually tries to make constructive use of them	Sometimes gets ideas and opinions of subordinates in solving job problems	Seldom gets ideas and opinions of subordinates in solving job problems	5
2. Character of motivational forces a. Underlying motives tapped	Physical security, economic needs, and some use of the desire for status	Economic needs and moderate use of ego motives, e.g., desire for status, affiliation, and achievement	Economic needs and considerable use of ego and other major motives, e.g., desire for new experiences	Full use of economic, ego, and other major motives, as, for example motivational forces arising from group goals	6
b. Manner in which motives are used	Fear, threats, punishment, and occasional rewards	Rewards and some actual or potential punishment	Rewards, occasional punishment, and some involvement	Economic rewards based on compensation system developed through participation; group participation and involvement in setting goals, improving methods appraising progress toward goals, etc.	7
c. Kinds of attitudes developed toward organisation and its goals	Attitudes are strongly favourable and provide powerful stimulation to behaviour implementing organisation's goals	Attitudes usually are favourable and support behaviour implementing organisation's goals	Attitudes are sometimes hostile and counter to organisation's goals and are sometimes favourable to the organisation's goals and support the behaviour necessary to achieve them	Attitudes usually are hostile and counter to organisation's goals	8

PROFILE OF ORGANISATIONAL CHARACTERISTICS (CONTINUED)

ORGANISATIONAL VARIABLE					ITEM NO
d. Extent to which motivational forces conflict with or reinforce one another	Marked conflict of forces substantially reducing those motivational forces leading to behaviour in support of the organisation's goals	Conflict often exists; occasionally forces will reinforce each other, at least partially	Some conflict, but often motivational forces will reinforce each other	Motivational forces generally reinforce each other in a substantial and cumulative manner	9
e. Amount of responsibility felt by each member of organisation for achieving organisation's goals	Personnel at all levels feel real responsibility for organisation's goals and behave in ways to implement them	Substantial proportion of personnel, especially at higher levels, feel responsibility and generally behave in ways to achieve the organisation's goals	Managerial personnel usually feel responsibility; rank and file usually feel relatively little responsibility for achieving organisation's goals	High levels of management feel responsibility; lower levels feel less; rank and file feel little and often welcome opportunity to behave in ways to defeat organisation's goals	10
f. Attitudes toward other members of the organisation	Favourable, cooperative attitudes throughout the organisation with mutual trust and confidence	Cooperative, reasonably favourable attitudes toward others in organisation; may be some competition between peers with resulting hostility and some condescension toward subordinates	Subservient attitudes toward superiors; competition for status resulting in hostility toward peers; condenscension toward subordinates	Subservient attitudes toward superiors coupled with hostility; hostility toward peers and contempt for subordinates; distrust is widespread	11

PROFILE OF ORGANISATIONAL CHARACTERISTICS (CONTINUED)

ORGANISATIONAL VARIABLE					ITEM NO
g. Satisfaction derived	Relatively high satisfaction throughout the organisation with regard to membership in the organisation, supervision and one's own achievements	Some dissatisfaction to moderately high satisfaction with regard to membership in the organisation, supervision, and one's own achievements	Dissatisfaction to moderate satisfaction with regard to membership in the organisation, supervision and one's own achievements	Usually dissatisfaction with membership in the organisation, with supervision, and with one's own achievements	12
3. Character of communication process					
a. Amount of interaction and communication aimed at achieving organisation's objectives	Very little	Little	Quite a bit	Much with both individuals and groups	13
b. Direction of information flow	Downward	Mostly downward	Down and up	Down, up, and with peers	14
c. Downward communication (1) Where initiated	Initiated at all levels	Patterned on communication from top but with some initiative at lower levels	Primarily at top or patterned on communication from top	At top of organisation or to implement top directive	15
(2) Extent to which superiors willingly share information with subordinates	Provide minimun of information	Gives subordinates only information superior feels they need	Gives information needed and answers most questions	Seeks to give subordinates all relevant information and all information they want	16

PROFILE OF ORGANISATIONAL CHARACTERISTICS (CONTINUED)

ORGANISATIONAL VARIABLE					ITEM NO
(3) Extent to which communications are accepted by subordinates	Generally accepted, but if not, openly and candidly questioned	Often accepted but, if not, may or may not be openly questioned	Some accepted and some viewed with suspicion	Viewed with great suspicion	17
d. Upward communication (1) Adequacy of upward communication via line organisation	Very little	Limited	Some	A great deal	18
(2) Subordinates' feeling of responsibility for initiating accurate upward communication	None at all	Relatively little, usually communicates "filtered" information and only when requested; may "yes" the boss	Some to moderate degree of responsibility to initiate accurate upward communication	Considerable responsibility felt and much initiative; group communicates all relevant information	19
(3) Forces leading to accurate or distorted upward information	Virtually no forces to distort and powerful forces to communicate accurately	Occasional forces to distort along with many forces to communicate accurately	Many forces to distort; also forces for honest communication	Powerful forces to distort information and deceive superiors	20
(4) Accuracy of upward communication via line	Accurate	Information that boss wants to hear flows; other information may be limited or cautiously given	Information that boss wants to hear flows; other information is restricted and filtered	Tends to be inaccurate	21
(5) Need for supplementary upward communication system	No need for any supplementary system	Slight need for supplementary system; suggestion systems may be used	Upward communication often supplemented by suggestion system and similar devices	Great need to supplement upward communication by spy system, suggestion system, and similar devices	22

PROFILE OF ORGANISATIONAL CHARACTERISTICS (CONTINUED)

ORGANISATIONAL VARIABLE					ITEM NO
e. Sideward communication its adequacy and accuracy	Usually poor because of competition between peers, corresponding hostility	Fairly poor because of competition between peers	Fair to good	Good to excellent	23
f. Psychological closeness of superiors to subordinates (i.e. friendliness between superiors and subordinates)	Usually very close	Fairly close	Can be moderately close if proper roles are kept	Far apart	24
(1) How well does superior know and understand problems faced by subordinates?	Knows and understands problems of subordinates very well	Knows and understands problems of subordinates quite well	Has some knowledge and understanding of problems of subordinates	Has no knowledge or understanding of problems of subordinates	25
(2) How accurate are the perceptions by superiors and subordinates of each other?	Often in error	Often in error on some points	Moderately accurate	Usually quite accurate	26
4. Character of interaction influence process a. Amount and character of interaction	Extensive, friendly interaction with high degree of confidence and trust	Moderate interaction often with fair amount of confidence and trust	Little interaction and usually with some condescension by superiors; fear and caution by subordinates	Little interaction and always with fear and distrust	27
b. Amount of cooperative teamwork present	Very substantial amount throughout the organisation	A moderate amount	Relatively little	None	28

PROFILE OF ORGANISATIONAL CHARACTERISTICS (CONTINUED)

ORGANISATIONAL VARIABLE					ITEM NO
c. Extent to which subordinates can influence the goals, methods, and activity of their units and departments					
(1) As seen by superiors	None	Virtually none	Moderate amount	A great deal	29
(2) As seen by subordinates	None except through "informal organisation" or via unionisation	Little except through "informal organisation or via unionisation	Moderate amount both directly and via unionisation (where it exists)	Substantial amount both directly and via unionisation (where it exists)	30
d. Amount of actual influence which superiors can exercise over the goals, activity, and methods of their units and departments	Believed to be substantial but actually moderate unless capacity to exercise severe punishment is present	Moderate to somewhat more than moderate, especially for higher levels in organisation	Moderate to substantial, especially for higher levels in organisation	Substantial but often done indirectly, as, for example, by superior building effective interaction-influence system	31
e. Extent to which an effective structure exists enabling one part of organisation to exert influence upon other parts	Highly effective structure exists enabling exercise of influence in all directions	Moderately effective structure exists; influence exerted largely through vertical lines	Limited capacity exists; influence exerted largely via vertical lines and primarily downward	Effective structure virtually not present	32
5. Character of decision-making process a. At what level in organisation are decisions formally made?	Bulk of decisions at top of organisation	Policy at top, many decisions within prescribed framework made at lower levels but usually checked with top before action	Broad policy decisions at top, more specific decisions at lower levels	Decision making widely done throughout organisation, although well integrated through linking process provided by overlapping	33

PROFILE OF ORGANISATIONAL CHARACTERISTICS (CONTINUED)

ORGANISATIONAL VARIABLE					ITEM NO
b. How adequate and accurate is the information available for decision making at the place where the decisions are made?	Information is generally inadequate and inaccurate	Information is often somewhat inadequate and inaccurate	Reasonably adequate and accurate information available	Relatively complete and accurate information available based both on measurements and efficient flow of information in organisation	34
c. To what extent are decision makers aware of problems, particularly those at lower levels in the organisation?	Generally quite well aware of problems	Moderately aware of problems	Aware of some, unaware of others	Often are unaware or only partially aware	35
d. Extent to which technical and professional knowledge is used in decision making	Used only if possessed at higher levels	Much of what is available in higher and middle levels is used	Much of what is available in higher, middle and lower levels is used	Most of what is available anywhere within the organisation is used.	36
e. Are decisions made at the best level in the organisation as far as (1) Availability of the most adequate and accurate information bearing on the decision	Overlapping groups and group decision proceses tend to push decisions to point where information is most adequate or to pass the relevant information to the decision making point	Some tendency for decisions to be made at higher levels than where most adequate and accurate information exists	Decisions often made at levels appreciably higher than levels where most adequate and accurate information exists	Decisions usually made at levels appreciably higher than levels where most adequate and accurate information exists	37

PROFILE OF ORGANISATIONAL CHARACTERISTICS (CONTINUED)

ORGANISATIONAL VARIABLE					ITEM NO
(2) The motivational consequences (i.e., does the decision-making process help to create the necessary motivations in those persons who have to carry out the decision?)	Substantial contribution by decision-making processes to motivation to implement	Some contribution by decision making to motivation to implement	Decision making contributes relatively little motivation	Decision making contributes little or nothing to the motivation to implement the decision, usually yields adverse motivation	38
f. To what extent are subordinates involved in decisions related to their work?	Not at all	Never involved in decisions; occasionally consulted	Usually are consulted but ordinarily not involved in the decision making	Are involved fully in all decisions related to their work	39
g. Is decision making based on man-to-man or group pattern of operation? Does it encourage or discourage teamwork?	Man-to-man only, discourages teamwork	Man-to-man almost entirely, discourages teamwork	Both man-to-man and group, partially encourages teamwork	Largely based on group pattern, encourages teamwork	40
6. Character of goal setting or ordering a. Manner in which usually done	Except in emergencies, goals are usually established by means of group participation	Goals are set or orders issued after discussion with subordinates of problems and planned action	Orders issued, opportunity to comment may or may not exist	Orders issued	41
b. To what extent do the different hierarchical levels tend to strive for high performance goals?	High goals sought by all levels, with lower levels sometimes pressing for higher goals than top levels	High goals sought by higher levels but with occasional resistance by lower levels	High goals sough by top and often resisted moderately by subordinates	High goals pressed by top, generally resisted by subordinates	42

PROFILE OF ORGANISATIONAL CHARACTERISTICS (CONTINUED)

ORGANISATIONAL VARIABLE					ITEM NO
c. Are there forces to accept, resist, or reject goals?	Goals are overtly accepted but are covertly resisted strongly	Goals are overtly accepted but often covertly resisted to at least a moderate degree	Goals are overtly accepted but at times with some covert resistance	Goals are fully accepted both overtly and covertly	43
7. Character of control process					
a. At what hierarchical levels in organsation does major or primary concern exist with regard to the performance of the control function?	At the very top only	Primarily or largely at the top	Primarily at the top but some shared feeling of responsibility felt at middle and to a lesser extent at lower levels	Concern for performance of control functions likely to be felt throughout organisation	44
b. How accurate are the measurements and information used to guide and perform the control function, and to what extent do forces exist in the organisation to distort and falsify this information?	Strong pressures to obtain complete and accurate information to guide own behaviour and behaviour of own and related work groups; hence information and measurements tend to be complete and accurate	Some pressure to protect self and colleagues and hence some pressures to distort; information is only moderately complete and contains some inaccurasies	Fairly strong forces exist to distort and falsify; hence measurements and information are often incomplete and inaccurate	Very strong forces exists to distort and falsify; as a consequence, measurements and information are usually incomplete and often inaccurate	45
c. Extent to which the review and control functions are concentrated	Highly concentrated in top management	Relatively highly concentrated, with some delegated control to middle and lower levels	Moderate downward delegation of review and control processes; lower as well as higher levels perform these tasks	Review and control done at all levels with lower units at times imposing more vigorous reviews and tighter controls than top management	46

PROFILE ORGANISATIONAL CHARACTERISTICS (CONTINUED)

ORGANISATIONAL VARIABLE					ITEM NO
d. Extent to which there is an informal organisation present and supporting or opposing goals of formal organisation	Informal organisation present and opposing goals of formal organisation	Informal organisation usually present and partially resisting goals	Informal organisation may be present and may either support or partially resist goals of formal organisation	Informal and formal organisation are one and the same; hence all social forces support efforts to achieve organisation's goals	47
e. Extent to which control data (e.g., accounting, productivity cost etc.) are used for self-guidance or group problem solving by managers and non-supervisory employees, or used by superiors in a punitive, policing manner	Used for policing and in punitive manner	Used for policing coupled with reward and punishment, sometimes punitively; used somewhat for guidance but in accord with orders	Used for policing with emphasis usually on reward but with some punishment; used for guidance in accord with orders; some use also for self-guidance	Used for self-guidance and for co-ordinated problem solving and guidance; not used punitively	48
8. Performance goals and training					
a. Level of performance goals which superiors seek to have organisation achieve	Seek to achieve extremely high goals	Seek very high goals	Seek high goals	Seek average goals	49
b. Extent to which you have been given the kind of management training you desire	Have received no management training of kind I desire	Have received some management training of kind I desire	Have received quite a bit of management training of kind I desire	Have received a great deal of management training of kind I desire	50
c. Adequacy of training resources provided to assist you in training your subordinates	Training resources provided are excellent	Training resources provided are very good	Training resources provided are good	Training resources provided are only fairly good	51

APPENDIX 3

ENGLISH QUESTIONNAIRE

MEMORANDUM

KC - 19

REV. 0
39/1

AAN/TO:	VAN/FROM:
SBU MANAGERS	PRODUCTIVITY SERVICES MEGAWATT PARK
ATTENTION: PRODUCTIVITY SERVICES	

U Verw./Your Ref.	Ons Verw./Our Ref.	Navrae/Enquiries	Datum/Date
		R.J. Robinson	13 November 1986

SIEN KEERSY VIR AFRIKAANS

Dear Colleague

As you are no doubt aware, a number of major changes have taken place in Escom in recent months. Escom management is concerned about the effect this may have had on the attitudes of employees towards their work and Escom in general.

With this in mind, we invite you to complete the attached questionnaire which will provide us with much valuable information. The questionnaire is completely anonymous. The analysis will be directed to overall trends and averages, and not investigating any individual response.

By taking the time to complete this questionnaire, you will be helping Escom to provide the type of management which you the employee would like to see. Please answer all questions as best you can, and return the questionnaire as promptly as possible to the person who gave it to you.

Your co-operation will be greatly appreciated.

Thank you in advance

R.J. Robinson
Productivity Services
Megawatt Park B2C26 (Tel. 800-5253)

SIEN KEERSY VIR AFRIKAANS

M:_____

- 1 -

PLEASE INDICATE WITH AN "X" IN THE APPROPRIATE SPACE HOW TRUE THE FOLLOWING STATEMENTS ARE FROM "ALMOST ALWAYS TRUE" TO "NEVER TRUE". PLEASE DO ALL ITEMS.

		Almost always true	Often true	Sometimes true	Seldom true	Never true
(1)	I generally feel in good spirits					
(2)	I am very satisfied with life					
(3)	I find a good deal of happiness in life					
(4)	I feel that I'm a person of worth, at least on an equal level with others					
(5)	I feel that I have a number of good qualities					
(6)	I am able to do things as well as most other people					
(7)	I feel I do not have much to be proud of					
(8)	I have a positive attitude toward myself					
(9)	Sometimes I think I am no good at all					

2/....

PROFILE OF ORGANISATIONAL CHARACTERISTICS

INSTRUCTIONS:

1. On the lines below each item , please place an "N" at the point which, in your experience, describes Escom at the present time (N = now).
2. In addition, if you have been in Escom one or more years, please also place a "P" on each line at the point which, in your experience, describes Escom as it was one to two years ago (P = previously).
3. If you were not Escom one or more years ago, answer only with an "N".

					ITEM NO
1. To what extent are decision makers aware of problems, particularly those at lower levels?	Generally quite well aware of problems	Moderately aware of problems	Aware of some, unaware of others	Often are unaware or only partially aware	35
	0	1	2	3	4
2. Closeness of superiors to subordinates (i.e. friendliness between superiors and subordinates)	Usually very close	Fairly close	Can be moderately close if proper roles are kept	Far apart	24
	0	1	2	3	4
3. Extent to which control data (e.g., accounting, productivity, costs etc.) are used for self-guidance or group problem solving by managers, or used by superiors in a punishing disciplinary manner.	Used for discipline and punishment.	Used for discipline coupled with reward and punishment, used somewhat for guidance but in accord with orders	Used for discipline with emphasis usually on reward but with some punishment; used for guidance in accord with orders; some use also for self-guidance	Used for self-guidance and for co-ordinated problem solving and guidance not used for punishment.	48
	0	1	2	3	4
4. Extent to which subordinates have confidence and trust in superiors	Have no confidence and trust in superiors	Have subservient confidence and trust such as servant has to master	Substantial but not complete confidence and trust	Complete confidence and trust	2
	0	1	2	3	4

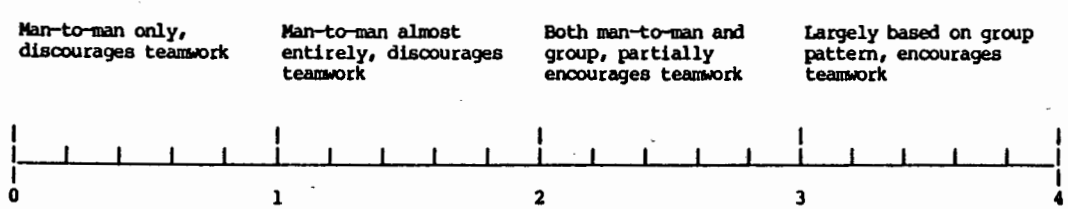
ORGANISATIONAL VARIABLE					ITEM NO
5. Kinds of attitudes developed toward Escom and its goals	Attitudes are strongly favourable and provide powerful incentive to behaviour implementing Escom's goals.	Attitudes usually are favourable and support behaviour implementing Escom's goals	Attitudes are sometimes hostile and counter to Escom's goals, and are sometimes favourable to Escom's goals and support the behaviour necessary to achieve them	Attitudes usually are hostile and counter to Escom's goals	8
	0	1	2	3 4	
6. Extent to which superiors have confidence and trust in subordinates	Have no confidence and trust in subordinates	Have condescending confidence and trust, such as master has in servant	Substantial but not complete confidence and trust; still wishes to keep control of decisions	Complete confidence and trust in all matters	1
	0	1	2	3 4	
7. Extent to which immediate superior in solving job problems generally tries to get subordinates' ideas and opinions and make constructive use of them	Always get ideas and opinions and always tries to make constructive use of them	Usually gets ideas and opinions and usually tries to make constructive use of them	Sometimes gets ideas and opinions of subordinates in solving job problems	Seldom gets ideas and opinions of subordinates in solving job problems	5
	0	1	2	3 4	
8. How adequate and accurate is the information available for decision making at the shop floor?	Information is generally inadequate and inaccurate	Information is often somewhat inadequate and inaccurate	Reasonably adequate and accurate information available	Relatively complete and accurate information available based both on measurements and efficient flow of information in Escom.	34
	0	1	2	3 4	

	ORGANISATIONAL VARIABLE					ITEM NO
9.	Extent to which superiors behave so that subordinates feel free to discuss important things about their jobs with their immediate superior	Subordinates feel completely free to discuss things about the job with their superior	Subordinates feel somewhat free to discuss things about the job with their superior	Subordinates do not feel very free to discuss things about the job with their superior	Subordinates do not feel at all free to discuss things about the job with their superior	4
		0	1	2	3 4	
10.	Manner in which needs are used	Fear, threats, punishment, and occasional rewards	Rewards and some actual or potential punishment	Rewards, occasional punishment, and some involvement	Economic rewards based on pay system developed through participation; group participation and involvement in setting goals, improving methods, performance appraisal, etc.	7
		0	1	2	3 4	
11.	Sideward communication, its adequacy and accuracy	Usually poor because of competition and hostility between employees.	Fairly poor because of competition between employees	Fair to good	Good to excellent	23
		0	1	2	3 4	
12.	Extent to which technical and professional knowledge is used in decision making	Used only if possessed at higher levels	Much of what is available in higher and middle levels is used	Much of what is available in higher, middle and lower levels is used	Most of what is available anywhere within Escom is used.	36
		0	1	2	3 4	

ORGANISATIONS
VARIABLE

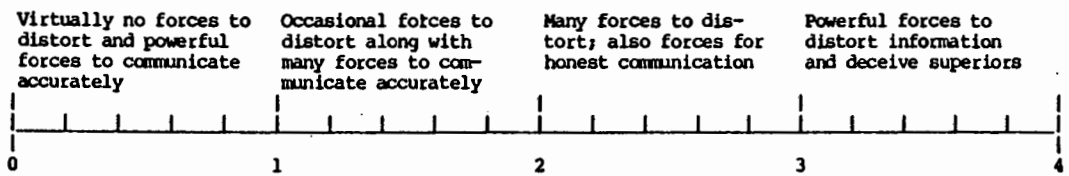
ITEM NO

13. Is decision making based on man-to-man or group pattern of operation? Does it encourage or discourage teamwork?



40

14. Forces leading to accurate or distorted upward information



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SIEN KEERSY VIR AFRIKAANS

- 6 -

This is a survey to find out what the public thinks about certain events which we face in our society. Each item consists of a pair of statements. Please select the one statement of each pair (and only one) which you more strongly believe to be true. Be sure to circle the one you actually believe to be more true, rather than the one you think you should check or the one you would like to be true. This is a measure of personal belief; obviously, there are no right or wrong answers. Again, be sure to make a choice between each pair of statements.

1. i) I think we have adequate means for preventing run-away inflation.

   ii) There's very little we can do to keep prices from going higher.

2. i) Persons like myself have little chance of protecting our personal interests when they conflict with those of strong pressure groups.

   ii) I feel that we have adequate ways of coping with pressure groups.

3. i) A lasting world peace can be achieved by those of us who work toward it.

   ii) There's very little we can do to bring about a permanent world peace.

4. i) There's very little persons like myself can do to improve world opinion of South Africa.

   ii) I think each of us can do a great deal to improve world opinion of South Africa.

5. i) It is only wishful thinking to believe that one can really influence what happens in society.

   ii) People like me can change the course of world events if we make ourselves heard.

6. i) More and more, I feel helpless in the face of what's happening in the world today.

   ii) I sometimes feel personally to blame for the sad state of affairs in our government.

7/....

- 7 -

PLEASE CIRCLE THE RESPONSE WHICH YOU FEEL IS MOST APPROPRIATE FOR EACH QUESTION:

1. i) Children get into trouble because their parents punish them too much.
   ii) The trouble with most children nowadays is that their parents are too easy with them.

2. i) In the long run people get the respect they deserve in this world.
   ii) Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

3. i) The idea that teachers are unfair to pupils is nonsense.
   ii) Most pupils don't realize the extent to which their marks are influenced by accidental happenings.

4. i) Becoming a success is a matter of hard work, luck has little or nothing to do with it.
   ii) Getting a good job depends mainly on being in the right place at the right time.

5. i) The average man can have an influence in government decisions.
   ii) This world is run by the few people in power, and there is not much the average man can do about it.

6. i) In my case getting what I want has little or nothing to do with luck.
   ii) Many times we might just as well decide what to do by flipping a coin.

7. i) Who gets to be the boss often depends on who was lucky enough to be in the right place first.
   ii) Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

8. i) Most people don't realize the extent to which their lives are controlled by accidental happenings.
   ii) There really is no such thing as "luck".

9. i) In the long run the bad things that happen to us are balanced by the good ones.
   ii) Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

10. i) Many times I feel that I have little influence over the things that happen to me.
    ii) It is impossible for me to believe that chance or luck plays an important role in my life.

11. i) What happens to me is my own doing.
    ii) Sometimes I feel that I don't have enough control over the direction my life is taking.

SIEN KEERSY VIR AFRIKAANS

- 8 -

For each of the following statements, circle the number that would be most nearly true for you. Note that the numbers always extend from one extreme feeling to its opposite kind of feeling. "Neutral" implies no judgement either way. Try to use this rating as little as possible.

1. Life to me seems:

7	6	5	4	3	2	1
always exciting			(neutral)		completely routine	

2. In life I have:

1	2	3	4	5	6	7
no goals or aims at all			(neutral)		very clear goals and aims	

3. Every day is:

7	6	5	4	3	2	1
constantly new and different			(neutral)		exactly the same	

4. If I could choose, I would:

1	2	3	4	5	6	7
prefer never to have been born			(neutral)		like nine more lives just like this one	

5. If I should die today, I would feel that my life has been:

7	6	5	4	3	2	1
very worthwhile			(neutral)		completely worthless	

6. In thinking of my life, I:

1	2	3	4	5	6	7
often wonder why why I exist			(neutral)		always see a reason for my being here	

7. As I view the world in relation to my life, the world:

1	2	3	4	5	6	7
completely confuses me			(neutral)		fits meaningfully with my life	

9/...

SIEN KEERSY VIR AFRIKAANS

- 9 -

8. With regard to death, I am:

7	6	5	4	3	2	1
prepared and unafraid			(neutral)		unprepared and frightened	

9. My life is:

7	6	5	4	3	2	1
In my hands and I am in control of it			(Neutral)		out of my hands and controlled by external factors	

10. Facing my daily tasks is:

7	6	5	4	3	2	1
a source of pleasure and satisfaction			(neutral)		a painful and boring experience	

APPENDIX 4

AFRIKAANS QUESTIONNAIRE

MEMORANDUM

KC - 19

REV. 0
39/1

AAN/TO:	VAN/FROM:
SSE BESTUURDERS	PRODUKTIWITEISDIENSTE MEGAWATT PARK
AANDAG: PRODUKTIWITEITSDIENSTE	

U Verw./Your Ref.	Ons Verw./Our Ref.	Navrae/Enquiries	Datum/Date
		R.J. Robinson	13 November 1986

SEE REVERSE FOR ENGLISH

Beste Kollega

U is seker bewus daarvan dat 'n aantal groot veranderinge die afgelope paar maande in Evkom plaasgevind het. Evkom bestuur is besorg oor die uitwerking wat dit op die houding van werknemers teenoor hulle werk en Evkom in die algemeen kon hê.

Na aanleiding hiervan, wil ons u uitnooi om die aangehegte vraelys te voltooi. Die voltooiing daarvan is anoniem en sal aan ons waardevolle inligting verskaf.

Die ontleding is gemik op algemene neigings en gemiddeldes en ondersoek nie individuele response nie.

Deur die voltooiing van hierdie vraelys sal u Evkom help om die soort bestuur te voorsien wat u, die werknemer, wil hê. Antwoord asseblief alle vrae na die beste van u vermoe. Gee asseblief so gou as moontlik die vraelys terug aan die persoon wat dit aan u gegee het.

U samewerking word hoog op prys gestel.

By voorbaat dankie

R.J. Robinson
Produktiwiteitsdienste
Megawatt Park B2C26 (Tel. 800-5253)

SEE REVERSE FOR ENGLISH

M:_____

- 1 -

DUI ASSEBLIEF MET 'n "X" IN DIE TOEPASLIKE BLOKKIE AAN HOE WAAR DIE VOLGENDE STELLINGS IS. DOEN ASSEBLIEF AL DIE ITEMS.

		Byna altyd waar	Dikwels waar	Soms waar	Selde waar	Nooit waar nie
(1)	Ek is oor die algemeen opgewek					
(2)	Ek is baie tevrede met die lewe					
(3)	Ek vind baie geluk in die lewe					
(4)	Ek voel dat ek iets werd is en op dieselfde vlak as ander is					
(5)	Ek voel dat ek 'n aantal goeie eienskappe het					
(6)	Ek kan dinge net so goed doen soos die meeste ander mense					
(7)	Ek voel dat ek nie veel het om op trots te wees nie					
(8)	Ek het 'n positiewe ingesteldheid ten opsigte van myself					
(9)	Soms dink ek dat ek niks werd is nie					

2/...

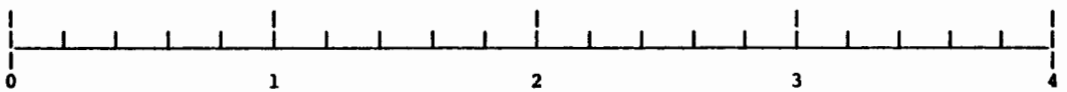
PROFIEL VAN ORGANISASIEKENMERKE

OPDRAGTE:

1. Plaas 'n "N" (n = nou) op die lynskaal onder elke item op die punt waar Evkom na u mening vandag staan.
2. As u 'n jaar of langer in Evkom was, plaas ook 'n "V" (v = voorheen) op elke lyn op die punt waar Evkom volgens u ondervinding 'n jaar of twee gelede was.
3. As u nie 'n jaar of meer gelede in Evkom was nie, antwoord slegs met 'n "N".

ITEM NO.

1. Tot watter mate is besluitnemers bewus van probleme, veral die op laer vlakke.



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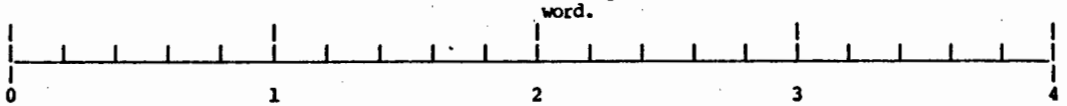
2. Bande tussen lynbestuur en werknemers (d.w.s. vriendelikheid tussen lynbestuur en werknemers.



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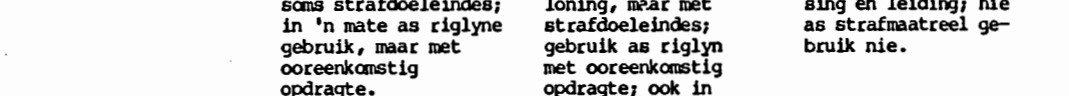
3. Mate waartoe beheerdata (bv. boekhouding, produktiwiteit, koste, ens.) gebruik word as self-riglyne of groepprobleemoplossing deur lynbestuur, of deur lynbestuur vir straf- en dissiplinêre doeleindes.



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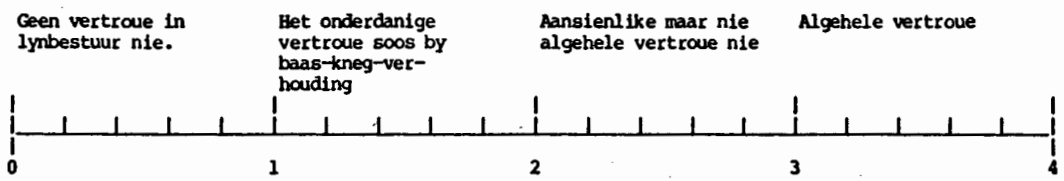
ORGANISASIEVERANDERLIKE

ITEM NO.

4. Mate waartoe werknemers hul lynbestuur vertrou en vertroue in hom het.



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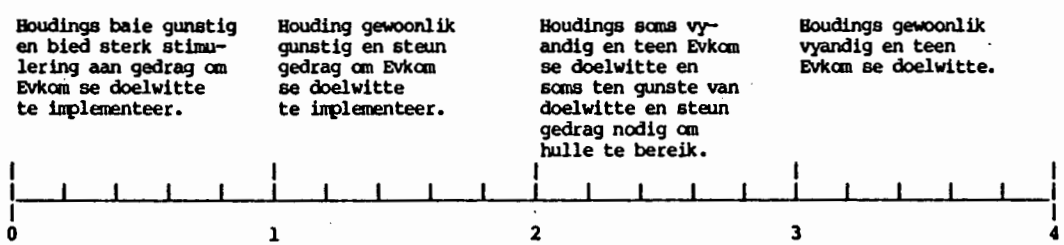
5. Soort houdings wat ontwikkel jeens Evkom en sy doelwitte.



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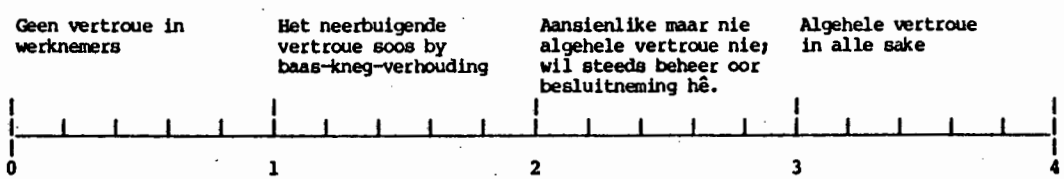
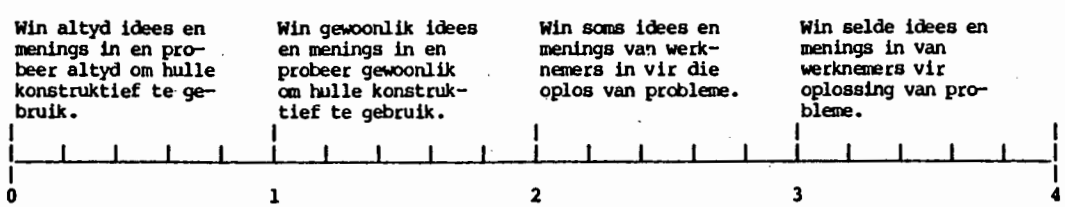
6. Mate waartoe lynbestuur vertroue het in, en vertrou op werknemers.



1

7. Mate waartoe onmiddellike toesighouer oor die algemeen probeer om werknemers se idees en menings in te win en konstruktief te gebruik vir oplossing van probleme



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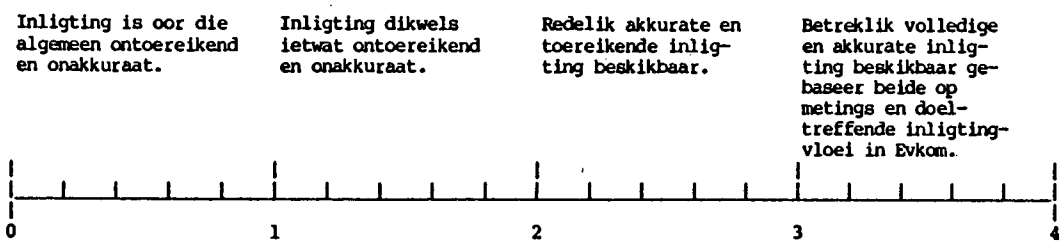
ITEM NO.

8. Hoe toereikend en akkuraat is die beskikbare inligting vir besluitneming op bedryfsvlak?



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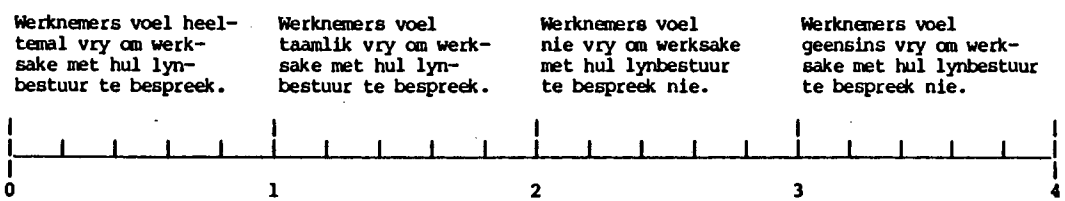
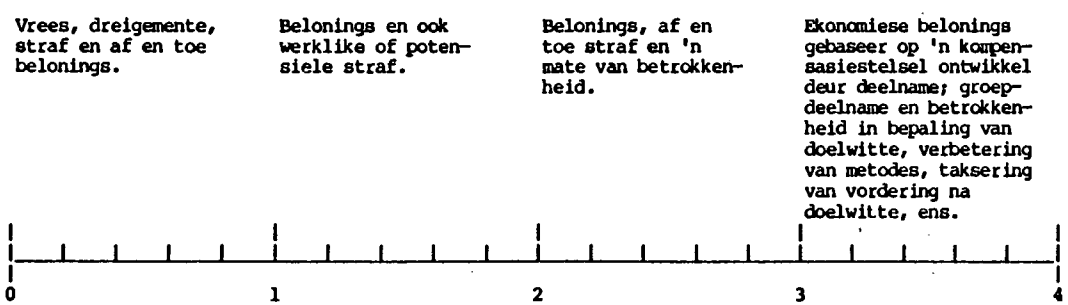
9. Mate waartoe lynbestuur se gedrag werknemers aanmoedig om belangrike dinge in verband met hul werk met hul onmiddellike senior senior te bespreek



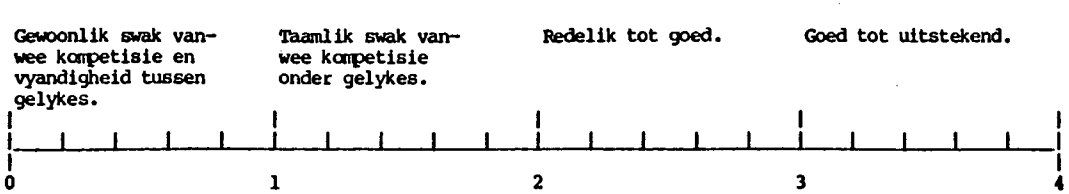
4

10. Wyse waarop motiveringskragte benut word.



7

11. Sywaartse kommunikasie toereikendheid en akkuraatheid daarvan.



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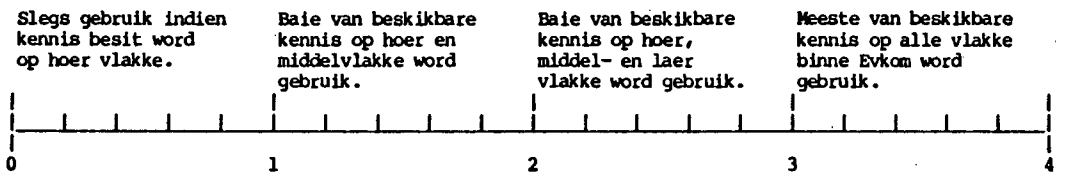
ITEM NO.

12. Mate waartoe tegniese en professionele kennis in besluitneming gebruik word.



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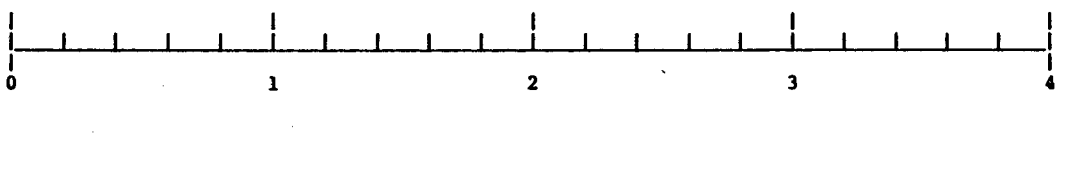
13. Word besluitneming gebaseer op individuele of groepwerkpatroon? Moedig dit spanwerk aan of ontmoedig dit spanwerk?



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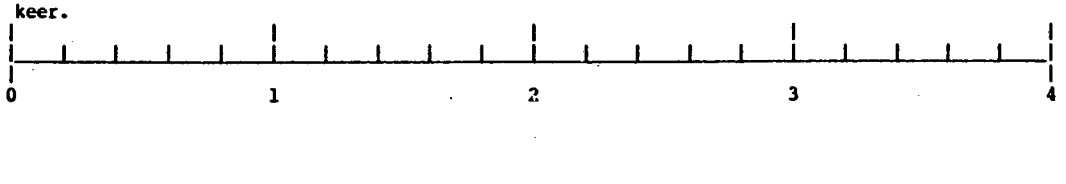
14. Kragte wat aanleiding gee tot akkurate of verdraaide opwaartse inligting.



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- 6 -

Hierdie is 'n opname om uit te vind wat die publiek van sekere gebeure wat ons samelewing in die gesig staar, dink. Elke item bestaan uit 2 stellings. Kies uit elke paar een stelling wat volgens u waar is. Omkring diê stelling wat u werklik glo die naaste aan waar is en nie die een wat u dink u behoort te merk of die een wat u wil hê waar moet wees nie. Daar is geen regte of verkeerde antwoorde nie aangesien u hier u persoonlike mening lug. Maak seker dat u een uit elke paar stellings kies.

1. i) Ek dink ons beskik oor voldoende middele om weghardloop-inflasie te verhoed.

   ii) Daar is bitter min wat ons kan doen om te keer dat pryse verhoog.

2. i) Mense soos ek het min geleentheid om ons persoonlike belange te beskerm wanneer dit bots met die van sterk drukgroepe.

   ii) Ek voel dat ons voldoende maniere het om drukgroepe te hanteer.

3. i) Blywende wêreldvrede kan bereik word as almal van ons daaraan werk.

   ii) Daar is min wat ons kan doen om permanente wêrelvrede te bewerkstellig.

4. i) Daar is min wat mense soos ek kan doen om die wêreld se opinie van Suid-Afrika te verbeter.

   ii) Ek dink daar is baie wat elkeen van ons kan doen om die wêreld se opinie van Suid-Afrika te verbeter.

5. i) Dit is wensdenkery om te glo dat 'n mens werklik 'n invloed kan hê op wat in die groot samelewing gebeur.

   ii) Mense soos ek kan die verloop van wêreldgebeure verander as ons ons stem laat hoor.

6. i) Ek voel al hoe meer hulpeloos in die lig van wat vandag in die wêreld gebeur.

   ii) Ek voel soms persoonlik aanspreeklik vir die somber stand van sake in ons regering.

7/...

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- 7 -

OMKRING ASSEBLIEF DIE RESPONS WAT U AS DIE MEES TOEPASLIKE BY ELKE VRAAG BESKOU

1. i) Kinders kom in die moeilikheid omdat hulle ouers hulle te veel straf.
   ii) Die probleem met die meeste kinders deesdae is dat hulle ouers te sag is met hulle.

2. i) Op die ou einde kry mense die respek wat hulle in hierdie wêreld verdien.
   ii) Ongelukkig gaan 'n individu se woorde dikwels ongesiens verby ondanks sy harde pogings.

3. i) Dit is onsin dat onderwysers onregverdig is teenoor studente.
   ii) Die meeste studente besef nie tot watter mate hulle punte deur toevallige gebeure beinvloed word nie.

4. i) Sukses kom net deur harde werk, geluk het min of niks daarmee te doen nie.
   ii) Om 'n goeie pos te kry hang grootliks daarvan af om op die regte tyd op die regte plek te wees.

5. i) Die gemiddelde burger kan regeringsbesluite beinvloed.
   ii) Die wêreld word beheer deur 'n paar mense met mag en daar is min wat Jan Alleman daaraan kan doen.

6. i) In my geval het geluk min of niks te doen met wat ek wil hê nie.
   ii) Dikwels kan ons besluit wat om te doen deur 'n muntstuk op te gooi.

7. i) Om baas te word hang dikwels af van wie gelukkig genoeg was om eerste in die regte plek te wees.
   ii) Om mense te kry om die regte ding te doen hang van vermoe af en nie van geluk nie.

8. i) Die meeste mense besef nie tot watter mate hulle lewens deur toevallige gebeure beheer word nie.
   ii) Daar is regtig nie iets soos "geluk" nie.

9. i) Op die langtermyn beskou word die slegte dinge wat met ons gebeur gebalanseer met die goeie.
   ii) Die meeste ongeluk word veroorsaak deur 'n gebrek aan vermoe, onkunde, luiheid of al drie.

10. i) Ek voel dikwels dat ek min beheer het oor die dinge wat met my gebeur.
    ii) Dit is vir my onmoontlik om te glo dat toeval of geluk 'n belangrike rol in my lewe speel.

11. i) Dinge gebeur met my as gevolg van my eie toedoen.

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- 8 -

Omkring die nommer wat volgens u die naaste aan die waarheid is. Die nommers strek van die een uiterste na die ander uiterste van 'n gevoel. "Neutraal" impliseer dat u nie werklik enige spesifieke gevoel oor die onderwerp het nie. Probeer om "Neutraal" so min as moontlik te gebruik.

1. Vir my is die lewe:

7	6	5	4	3	2	1
altyd opwindend			neutraal			net roetine

2. Ek het in die lewe:

1	2	3	4	5	6	7
geen doel of rigting nie			neutraal			baie duidelike rigting en doel

3. Elke dag is:

7	6	5	4	3	2	1
konstant nuut en anders			neutraal			presies dieselfde

4. As ek kon kies, sou ek:

1	2	3	4	5	6	7
dit verkies om nooit gebore te wees nie			neutraal			hou van nog nege lewens net soos die een

5. As ek vandag moet doodgaan, sal ek voel my lewe was:

7	6	5	4	3	2	1
beslis die moeite werd			neutraal			totaal waardeloos

6. As ek aan my lewe dink:

1	2	3	4	5	6	7
wonder ek waarom ek bestaan			neutraal			sien ek altyd die rede vir my bestaan

7. As ek die wêreld met my lewe vergelyk:

1	2	3	4	5	6	7
dan verwar die wêreld my heeltemal			neutraal			dan pas die wêreld en my lewe sinvol bymekaar

9/...

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8. Met betrekking tot die dood, is ek:

7	6	5	4	3	2	1
voorbereid en onbeangs			neutraal			onvoorbereid en bang

9. My lewe is:

7	6	5	4	3	2	1
in my hande en ek is in beheer daarvan			neutraal			uit my hande en word deur eksterne faktore beheer

10. Om my daaglikse aan te pak is:

7	6	5	4	3	2	1
'n bron van plesier en bevrediging			neutraal			'n pynlike en vervelige ondervinding