Assessing the willingness to change

Metselaar, E.E.

1997

VRIJE UNIVERSITEIT

Assessing the willingness to change

Construction and validation of the DINAMO

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor aan
de Vrije Universiteit te Amsterdam,
op gezag van de rector magnificus
prof.dr. T. Sminia,
in het openbaar te verdedigen
ten overstaan van de promotiecommissie
van de faculteit der psychologie en pedagogiek
op donderdag 11 december 1997 om 13.45 uur
in het hoofdgebouw van de universiteit,
De Boelelaan 1105

door

Erwin Eduard Metselaar

geboren te Oegstgeest

promotor:	prof.dr. P.J.D. Drenth
copromotor:	dr. A.J. Cozijnsen

Assessing the willingness to change

Construction and validation of the DINAMO

Erwin E. Metselaar

Colofon
Druk en bindwerk; VU-huisdrukkerij
Ontwerp omslag: Studio JC, Aalsmeer

To my mother and father,
for their love and support

Contents

Acknowledgements

Although this thesis only has the author's name on the cover, its realization has been the result of a joint effort. First of all, I would like to thank Anton Cozijnsen, my copromotor and creative director, for his support and enthousiasm. Anton, I have enormously enjoyed working with you and hope that we can extend our cooperation beyond this thesis. Secondly, I wish to thank my promotor, professor P.J.D. Drenth, for providing the methodological back-bone of this work.

Next, I would like to express my gratitude to the students I worked with; Rik, Emilie, Jeroen, Muriel, Ulrike, Raj, Anita and Matthijs. You have all contributed in your own way to the realization of this thesis and I am especially proud to say that some of you have become close friends over the past years.

My colleagues of the department of work and organizational psychology can not be left unmentioned here. I would like to thank you all for your valuable comments and for creating the colleagial atmosphere necessary to keep me going. A special word of thanks goes to Ida, Karin and Rhonda for welcoming me all mornings with tea and a warm smile. It was a great pleasure working with you.

Some special friends I would also like to mention here; Jan, Anne Kee, Arjan en Ingrid. I feel you were an indispensable element in this five year process. It would have been much harder without your support.

Next, I would like to thank Boertien en Partners for their financial support. Their sponsorship has allowed me to present and discuss my ideas for an international audience. This has enriched my time at the VU to a great extend.

My parents have contributed to this thesis in two important ways. Firstly, by believing in me and secondly by providing all the conditions necessary to fulfil this job. I want to thank you for the love and support that you have given me and dedicate this thesis to you.

Last but not least a word of thanks goes to Zuzana. You have accompanied me for two years now on this journey that is called 'my life'. During these two years you have proven to be a great partner to live and travel with. I wonder in which country we will meet next.

Erwin Metselaar, Aalsmeer / oktober 1997

Preface

This thesis contains a description of the construction and validation of the DINAMO, a self-report questionnaire for the assessment of willingness to change among middle managers in organizations. The questionnaire estimates the amount of effort which middle managers are willing to invest in order to implement an organizational change. This effort is referred to as a middle manager's 'willingness to change'. With this thesis the author aims to redress the current imbalance between tentative notions and empirical findings related to this subject and to further understanding of the psychological factors that impede or support organizational change processes.

The theory behind the DINAMO supposes that middle managers' willingness to change is a key element for the successful implementation of organizational change. Middle management is often charged with the task of implementing such change and therefore plays a principal part in this process. Due to the position of middle managers within an organization, they are confronted with the wishes and demands of the top management as well as the consequences of the change for their staff. Middle managers are often also a vulnerable group in organizational change processes. For these reasons, it is towards this group that focal attention is directed in this thesis.

The DINAMO originates from a social psychological model, known as 'Ajzen's model of planned behaviour', a model that has frequently been used to explain and predict various types of behaviour (voting behaviour, traffic behaviour, blood donation, shoplifting, lying) and which already has proven its usefulness. The theory underlying Ajzen's model is based on the notion that three motivational factors influence a person's behavioural intention: the person's attitude towards the behaviour, the subjective norm towards the behaviour and the person's perceived behaviour control. The premise that willingness to change forms a positive behavioural intention, whereas resistance forms a negative behavioural intention, forms the starting point for the construction of the DINAMO.

In order to further develop and test the above premise, the DINAMO research project was divided into three main parts. In the first part an attempt was made to underpin the concept of willingness to change, using theories and insights drawn from work and organizational psychology. The results of this effort are presented in Chapters 1, 2 and 3. The second part of the research project focused on the

construction and validation of the DINAMO for the assessment of willingness to change. The resulting structure and contents of the DINAMO are presented in Chapters 4 and 5. Finally, the third part of the research project aimed at integrating the theoretical chapters and Chapters 4 and 5 in order to develop and test a theoretical model of manager behaviour in changing work settings. The chapters will be introduced in more detail below.

Chapter 1 deals with several conceptual issues relating to the study of organizational change. It sets out to evaluate how the study at hand can further the understanding of the psychological factors that impede or support ongoing change. An overview will be given of past and present research on these topics and the concept of organizational change will be defined. Subsequently, a process analysis will be presented of change processes. In the final section of this chapter the DINAMO will be depicted in a theoretical framework based on the literature explored so far.

In Chapter 2, attention is focused towards the literature on resistance to change. Research and theory relating to this phenomenon will be discussed and antecedents of resistance to change will be presented. It will be argued that in order to understand the dynamics of resistance, theories that depict resistance as an irrational, to-be-expected element of change processes should be refuted while theories which shed light on its rational character should be invited. It will also be argued that organizations and workers might benefit from a view on resistance in which staff are seen not so much as a barrier to change but rather as resources that can support change provided certain conditions are met. Finally, at the end of this chapter, Ajzen's model of planned behaviour will be put forward as a useful framework for explaining willingness or resistance to change.

Chapter 3 deals with the middle manager's role in the change process. For this purpose, several insights from management theories and from work and social psychology will be surveyed. The main issue dealt with in this chapter is that in addition to the 'strategy' or 'tactics' which the manager applies, his motivation, skills and attitudes toward change essentially cause actions and ultimately determine the success or failure of organizational change processes. Subsequently, Ajzen's model of planned behaviour will be operationalized for the middle manager's role in the change process, resulting in a hypothetical path model of manager behaviour under changing work conditions.

Chapter 4 contains a description of the construction of the DINAMO. Firstly, in section 4.1 three pilot studies will be briefly discussed; these lead to an a priori version of this inventory. Secondly, in section 4.2 the a priori structure and the contents of the DINAMO will be presented and sample items of the a priori scales will be given. In section 4.3 the results of factor and reliability analyses which were performed in order to construct the final version of the DINAMO will be presented. In Chapter 5 the focus is on the validity of the DINAMO. The content validity will be dealt with in section 5.1. Based on expert ratings an overview will be presented of the representativeness and completeness of the inventory for its purpose. Section 5.2 deals with the construct validity of the DINAMO. In this section the relation will be discussed between the willingness to change and several more familiar constructs adopted from the field of work and organizational psychology. Section 5.3 deals with the concurrent validity of the DINAMO. In this concurrent validity study, results of a retrenchment processes will be related to measures of willingness to change taken at departmental level.

In Chapter 6 the focus is on testing a theoretical model of manager behaviour in changing work conditions, using data collected with the DINAMO over past years. In this study the preceding chapters will be integrated to test whether Ajzen's model of planned behaviour offers a workable scheme for the assessment of middle managers' willingness to change and their change-related behaviour. Finally, in Chapter 7 the scientific value and practical use of the DINAMO will be discussed.

1 Organizational change re-acted

Summary

This chapter will present an overview of research and theory on organizational change. It sets out to evaluate how the study at hand can further the understanding of the psychological factors that impede or support ongoing change processes. Organizational change is defined as the planned modification of an organization's structure or work and administrative processes, initiated by the organization's top management, and which is aimed at improving the organization's functioning. In this chapter the question of how this definition emanates from several conceptual issues related to the study of innovation and change is examined. In the first section an overview will be given of past and present research on these topics, and the concepts of innovation and change will be defined. Subsequently, in section 1.2 a process analysis will be presented of the process of organizational change. In the final section of this chapter the diagnostic inventory described in this thesis will be set in a theoretical framework based on the literature explored so far.

1.1 Conceptual issues in the study of organizational change

By far the largest part of the literature on organizational change and innovation (i.e. Burns & Stalker, 1961; Argyris, 1965; Aiken & Hage, 1971; Daft, 1982; Meyer & Goes, 1988; Damanpour & Evan, 1984; Damanpour, 1991) has concentrated on major changes in the organizational environment and the impact of these changes on the structure of the organization (West & Farr, 1990). In this research area, primary importance seems to be given to the ability of organizations to deal with change successfully, an ability which is also referred to as their 'innovativeness' (Cozijnsen, 1989). A central theme in the literature on this phenomenon is the classification of organizations as highly, moderate or slightly innovative, on the basis of their formal characteristics (see for instance Rogers & Shoemaker, 1971 and Rogers, 1983)[1].

The results of these research efforts have demonstrated how widely organizations differ in successfully adopting changes and innovations. Determinants and moderators of successful change and innovation were found at the individual level (e.g., Kalunzy, 1974; Kirton, 1976, 1989; Hull & Hage, 1982), the group level (e.g. King & Anderson, 1990), the organizational level (e.g. Corwin, 1975; Daft & Becker, 1978; Dewar & Dutton, 1986) and the environmental level (e.g. Kim, 1980; Meyer & Goes, 1988).

According to Downs and Mohr (1976) the massive amount of research on these phenomena can be explained by the fact that organizational innovativeness, like efficiency, is a characteristic that we want social organisms to possess. They state (1976, p.700), 'Unlike the ideas of progress and growth, which have long since been casualties of a new consciousness, innovation, especially when seen as more than purely technological change, is still associated with improvement.' As can be concluded from Downs's and Mohr's observation, both change and innovation are associated with the growth and improvement of organizations. Because this thesis mainly focuses on organizational change, the extent to which the concepts of innovation and change differ remain to be explored.

According to Damanpour (1991, p. 560-561) three pairs of types of innovation are put forward in the relevant literature; administrative and technical, product and process, and radical and incremental innovations. Technical innovations are

---

[1] For a meta-analysis on this subject the author refers to Damanpour (1991).

referred to in his scheme as the renewal of products, services or production processes. Administrative innovations are referred to in Damanpour's classification as changes in organizational structure or administrative processes and are more directly related to the management of the social system. Product innovations are defined as new products or services introduced to meet an external market need. Process innovations are defined as new elements introduced into an organization's production or service operations. Finally, according to Damanpour's classification, radical innovations represent revolutionary changes that effect an organization as a whole, whereas incremental innovations are referred to as minor adjustments in the existing practices of an organization.

It would appear that the distinction between change and innovation is not so much a matter of content but of definition. Innovation comes with change, and change does not preclude innovation. To prevent unnecessary entanglement, in this thesis innovation is referred to as the result of a systematic research and development effort which can concern either product or process. The concept of change applied in this thesis is related to the process of modifying an organization's structure, or work and administrative processes. Later in this chapter we shall return to this issue when we introduce our definition of organizational change in more detail.

It should be noted that many authors (Downs & Mohr, 1976; Bigoness & Perrault, 1981; Zmud, 1982; Fennell, 1984; Meyer & Goes, 1988) have called into question the validity and generalizability of innovation studies. A first criticism has concerned the finding that factors found to enhance the adoption of innovations in one study were found to exert an impeding influence on the adoption of innovations in others. A second criticism of innovation research refutes the possibility of a successful quest for a universalistic theory of innovation processes that applies to all types of innovation. According to Downs & Mohr (1976) such a quest may be inappropriate given the fundamental differences that exist between innovation types and organizations. Finally, a third criticism concerns the lack of an one-dimensional continuum on which organizations can be positioned according to their degree of innovativeness (Bigoness & Perrault, 1981).

From the early 1980s, such criticism has led to a shift of interest in innovation research towards the individual and group level of analysis, and attention is now paid to the process and antecedents of innovation and change rather than to outcomes such as innovative products and services. Added to this criticism is the growing awareness that research on innovation is characterized by a so-called 'pro-innovation bias' which leaves the demerits of innovation and change out of focus (Kimberly & Evanisko, 1981). Due to this bias, according to Vrakking and Cozijnsen (1990), research has tended to neglect the consequences of innovation and change for the individual worker. This observation parallels the findings of several other investigators (i.e. Nicholson, 1990; King & Anderson, 1990; Hosking & Anderson, 1992; Metselaar, 1994; Metselaar, Cozijnsen & Vrakking, 1995) that research on innovation and organizational change has been largely dominated by premises arising from the upper management's point of view (see also: Kanter, 1983; Peters & Austin, 1986; Leavitt, 1986 & Niehoff, Enz & Grover, 1990).

As was noted above, many researchers have sought to relate both cultural and structural aspects of organizations to the failure or the success of change. Psychologists who have studied this topic have provided a perspective on human causes. Sociologists and economists have emphasized social or economic causes. At this point the question arises as to how contemporary research can contribute to the understanding of successful or unsuccessful organizational change. If so many variables do indeed play a role, then the question of which variable(s) to focus on becomes more and more important.

This thesis attempts to provide a solution to this problem by looking at one variable only, which most change theorists believe to be mainly responsible for failure or success. Instead of focusing on many potential variables, a valid and reliable measure will be constructed for the one primary factor. Furthermore, the measure will be directed toward a specific group within the organization which plays a principal part in the change process. Finally, in order to assure maximum specificity, the measure will be linked to specific stages in a change process. How this is achieved will be described in the following two sections of this introductory chapter.

1.2 A process analysis of organizational change

The process of organizational change is treated by many investigators as consisting of several stages, each of which has its own characteristics and pitfalls. Unfortunately, due to the length of many change processes, these investigators have generally approached the relevant issues in a restricted, stage-bound way. As a result of this tendency, a fragmented image of the process of organizational change has emerged, leaving many multistage issues inadequately covered. For this reason, before introducing the central topic in this thesis, a process analysis of organizational change will be presented in the following paragraphs.

Due to a shift in attention from the organizational level to the individual and group level, in the last ten years more attention has been paid to the process of innovation and change. Early examples of process approaches can be found, for instance, in the works of Lewin (1947), Lippitt, Watson & Westley (1958), and Huse & Cummings (1985). More recent descriptions include the works of Meyer & Goes (1988), Barton (1988), Marcus (1988) Vrakking & Cozijnsen (1990) and Damanpour (1991).

The models presented by the above-mentioned researchers all find their origin in the literature on organizational development (OD), defined by Beckhard (1969, p.9) as; 'an effort (1) planned, (2) organization- wide and (3) managed from the top, to (4) increase organization effectiveness and health through (5) planned interventions in the organization's processes, using behavioural-science knowledge.'

The process of organizational change has been described extensively in the literature on OD. Lewin's first typology of the stages of a change process can still be found in more recent works on this topic. However, what distinguishes OD-literature from the research on organizational change is its emphasis on the role of the change agent. In the research on OD, the change-agent's relation with the client-organization and the techniques the change-agent applies to change the client-organization play a prominent role. These are less frequently discussed in the literature on organizational change.

Despite the fact that interest in the field of organizational change has increased at the cost of OD research efforts, research can still profit from the insights that emanated from the latter. For instance, Lippitt, Watson and Westley's model of

planned change (1958) offers an overview of the process of organizational change which is still valid today. They also elaborated Lewin's three-stage model, resulting in the following seven-stage model:

1. Development of a need for change
2. Establishment of a change relationship between the client organization and the change agent
3. Clarification or diagnosis of the organization's problem
4. Establishing goals and plans
5. Transformation of intentions to change into change efforts
6. Generalization and stabilization of change
7. Achieving a terminal relationship between the client organization and the change agent

This stage model is similar to the action research model presented more recently by Huse and Cummings (1985); the only difference between the two is a stronger emphasis of the latter on periodic evaluation between the stages. It is also worth noting that compared to Lewin's model, both the action research model and planned change model focus more on improving the problem-solving skills of the client system as a condition for successful change (Huse & Cummings, 1985).

Complementary to the behavioural science models described above, diffusion theory as presented by Hage and Aiken (1970), Corwin (1975), Ettlie (1983), Rogers (1983) and Dewar and Dutton (1986) has explored the process of organizational change in greater detail. According to Rogers (1983, p.5), 'diffusion is the process by which an innovation is communicated through certain channels over time among members of a social system. It is a special type of communication, in that the messages are concerned with new ideas.' In diffusion research these 'new ideas' are referred to as innovations adopted from outside the organization as well as change processes initiated from within the organization in order to cope with environmental turbulence.

For a review of the extensive body of literature on the adoption of innovations the reader is referred to Rogers and Shoemaker (1971). Because this strand of research mainly deals with the process of inter-organizational diffusion of innovations, further elaboration on this topic would go beyond the scope of this thesis. However, diffusion theory from the intra-organization point of view offers several stage models of organizational change that are closely linked to those

present in the OD literature. As a matter of fact, many recent works that emanated from the intra-organizational point of view (see for instance Meyer & Goes, 1988; Barton, 1988 and Vrakking & Cozijnsen, 1990; Cozijnsen & Vrakking, 1995) echo the early insights from the works of Lewin and other OD researchers.

For a complete description of the process of organizational change, Vrakking and Cozijnsen's four-stage model (Vrakking & Cozijnsen, 1990, p.24) serves a useful function. It is largely based on the OD models discussed at the beginning of this section and also draws heavily on the insights from diffusion research. Below, their model consisting of four primary stages and six subphases will be presented briefly and, where necessary, supplemented with complementary theory.

Stage 1: Idea development

In the first stage, the idea development stage, a distinction can be made between a search and a development phase (Vrakking & Cozijnsen, 1990). In the search phase (subphase 1) an organization scans the environment for threats and opportunities and assesses the organization's need to alter its existing practices. If the decision is made to alter part of the organization, in the development phase (subphase 2) this idea is further elaborated and a plan is designed. The idea development stage equals Hage and Aiken's (1970) evaluation stage and Lewin's unfreezing stage (Lewin, 1947), in which the organization's present functioning is compared with the desired level. Furthermore, it captures the first four stages of the action research model presented above (Huse & Cummings, 1985) and model of planned change (Lippitt, Watson & Westley, 1958). As was pointed out earlier, it differs from these models in that it leaves the role of the change-agent out of focus.

Stage 2: Initiation

In the initiation stage the decision is made by top management to add the newly designed programme or activity to the organization's existing practices, causing a chain reaction of adjustments among staff, management, departments and financial resources. Diffusion (subphase 3) of the new idea through the organization, and adoption (subphase 4) of the new programme or activity by members of the organization then follow. The initiation stage parallels Rogers' (1983) knowledge, persuasion and decision phases, leading to acceptance of a

new idea by a member of an organization. Similar approaches toward an organizational member's decision-making process can be found in the works of Meyer and Goes (1988) and Barton (1988).

Stage 3: Implementation

In the implementation stage the attention shifts away from abstract missions and visions communicated by top managers and towards the actual realization of the change. Although top management may identify the need for change, their strategies for change are mediated by the leadership skills of managers responsible for its implementation (Beatty & Lee, 1992). As middle managers stand between the top executives and the operational core of the organization, they have to execute change projects and projects that actually alter the organization's existing practices. Due to sources of discontinuity between the change programme and the existing organization, it is in this stage that conflicts are especially likely to occur (see for instance, Ginzberg 1979; Fidler & Johnson, 1984; Leonard-Barton, 1988 and Marcus, 1988).

Stage 4: Incorporation

In the fourth and last primary stage of Vrakking and Cozijnsen's model the change is incorporated into the existing organization. In this stage, which equals Lewin's refreezing stage (Lewin, 1947), the boundaries between the 'new' and the 'old' organization merge and the change becomes part of daily routine. According to Rogers (1983), in this stage - which he terms 'routinization' - the change is integrated into the structure of the organization and new rules and procedures relating to the change are established. Furthermore, in the incorporation stage the effectiveness of the change should be evaluated (subphase 5) and any necessary adjustments made (subphase 6).

Of course, there is much to say about the linear character of the above stage model. It is often the case that there is overlap between the stages and many feedback loops exist between them. Still, the above stage model serves well as a first introduction of the process of organizational change. For an extensive critique on linear stage models the reader is referred to King (1992).

1.3 A framework for the current study

As was stated above, the present thesis attempts to contribute to the understanding of the factors that impede or support ongoing change by focusing on the one variable that is believed to explain, to a considerable extent, change failure or success. Furthermore, in order to assure maximum specificity, the measure for this variable will be directed toward a specific group within the organization and linked to only part of the change process. In the subjoined paragraphs this measure will be depicted in a framework based on the literature and research discussed so far, and questions worthy of further exploration will be presented.

As stated in the first section of this chapter, the concept of change applied in this thesis is related to the process of modifying an organization's structure or work and administrative processes. Using the insights derived from the stage models described above, organizational change is more sharply defined as:

'A planned modification of an organization's structure, work and administrative processes, initiated by the organization's top management, aimed at improving the organization's functioning.'

This definition builds upon descriptions advanced in the OD literature. Just as in Beckhard's (1969) description of the process of OD it approaches organizational change as a goal-directed process whose goal is the improvement of organization effectiveness. Furthermore, the change should be planned, and while lower levels within the organization might be responsible for its implementation, it should at least be initiated by the organization's top management. Contrary to many OD approaches, the change does not necessarily have to affect the whole organization. Furthermore, the use of planned interventions based on behavioural science knowledge is not included, leaving the change-agent's role out of focus.

The above definition comprises the four primary stages of Vrakking and Cozijnsen's model (Vrakking & Cozijnsen, 1990): idea development and initiation, followed by the implementation of the change and incorporation into the existing practices. Finally, instead of looking at change as a bottom-up process, the main focus in this thesis is on top-down planned change processes.

Having based the specification of the concept of organizational change upon insights from diffusion theory as well as planned change theory, the variable studied in this thesis should be introduced. In research on planned change as well as diffusion theories, acceptance or rejection of change by members of an organization is seen as a crucial part of the change process. According to planned change theories, complete rejection would mean that top management's intentions to change will not be transformed into real change efforts by lower echelons. According to diffusion theory, rejection would impede adoption of the change by members of the organization. Full acceptance of the change is seen in planned change and diffusion theory as an important condition for success.

Since different degrees of acceptance or rejection can be subsumed, a worker's response to a change is not a dichotomous variable but varies in intensity. The response can either positively or negatively affect the change process in various degrees. Support for this notion can be found, for instance, in the works of Zaltman and Duncan (1977), Bryant (1979), King (1990) and King and Anderson (1995). In both classical and contemporary views on this phenomenon reference is made to the worker's resistance to change (Coch & French, 1948; Lewin, 1951; Shephard; 1967; Salaman, 1979; Wilson, 1992). It is this variable that will receive focal attention in this thesis.

Vrakking and Cozijnsen's model suggests that various groups in the organization play distinct roles in a top-down planned change process. The question that arises from this perspective is whether a measure of resistance to change should take these differences into account. More specifically, three groups of organizational members can be distinguished that play distinct roles in a change process; top management, middle management and the operational core. Whereas top management may identify the need for change, the execution of change projects is in the hands of managers lower in the organizational hierarchy. It is the staff at the operational core of the organization who have primary responsibility for incorporating the newly developed projects into their daily work activities.

The literature on strategic decision-making has primarily focused on the role of top management. The literature on resistance to change has paid attention primarily to the worker's role in the change process, as will be shown in Chapter 2. These briefly outlined considerations provide the background for the subjoined figure in which the level of involvement in a planned change process of the three groups mentioned above is related to Vrakking and Cozijnsen's stage model.

Table 1. *Level of involvement in the planned change process of top management, middle management and staff at the operational core of the organization*

Stage ⇒	*Idea development*	*Initiation*	*Implementation*	*Incorporation*
Organizational level ⇓				
Top Management	High involvement: scanning of the environment on threats and opportunities	High involvement: change-related decision-making	Medium involvement: evaluation of the implementation strategy	Low involvement: scant evaluation and adjustment of the change process
Middle management	Low involvement: evaluation of internal processes	Medium involvement: participation in change-related decision-making	High involvement: realization of the change through the execution of change projects	Medium involvement: evaluation and adjustment of the change process
Operational core	Low involvement: evaluation of internal processes	Low involvement: participation in change-related decision-making	High involvement: participation in change projects	Medium involvement: routinization of the change

As is shown in Table 1, top management involvement decreases as the planned change process develops. Whereas there is high involvement in the early decision-making stages, in the final stages of the change its contribution is restricted to scant evaluations and adjustments of the process. The opposite holds for the role of middle management in the planned change process. Middle management's part increases as the process nears implementation. Of course, their contribution to the change process is strongly determined by the degree to which they participate in the decision-making preceding the implementation. The level of involvement of the operational core chiefly depends on the impact of the change on the organization's primary production process. This group is often little involved in the phases of idea development and initiation. Its role increases in the implementation and incorporation stages as the workers participate more in change projects and contribute to the routinization of the change.

In sum, a measure of resistance to change should take into account the different roles played by top and middle management and employees. Furthermore, because the degree of involvement of these groups varies as the planned change process develops, a measure of resistance to change should incorporate the specific stages of a planned change process.

This thesis will investigate the antecedents of a middle manager's resistance to a planned change process. His or her role differs from the of top management or subordinates in that middle management actually executes change projects and projects to alter an organization's existing practices. The role of middle management is particularly interesting because it is confronted with the wishes and demands of the top management as well as the consequences of the change for their employees. This makes their task more complex. The stage of the planned change process which the measure of resistance focuses on is Vrakking and Cozijnsen's fourth subphase, in which the potential adopter accepts or rejects the change. This subphase equals Huse and Cummings' (1985) phase 5 in which an organization member's intentions to change are transformed into change efforts. Following this line of reasoning, the starting point for this thesis is the premise that if a middle manager approves of the contents of the change and the procedures to implement it, he or she is willing to invest time and effort to support the change. If, on the other hand, the manager disapproves of the change, he or she will not be willing to invest time and effort. This approach differs from previous perspectives on resistance in that it focuses on a specific group and on a specific part of the change process in which this group's role is most important. Furthermore, in contrast with many previous investigations on the process of change, assumptions from the top-management's point of view will not dominate. The merits as well as the demerits of change, especially for the individual employee, will be brought into focus. In order to further develop these claims, in the next two chapters the following questions will be pursued:

- Does contemporary research on organizational change offer a framework for the development of a reliable and valid measure of resistance to change? This question will be addressed in Chapter 2, in which theory on resistance will be discussed;

- What determines middle managers' willingness to contribute to the implementation of organizational change? This question will be further elaborated on in Chapter 3, in which insights from management theory and

work and social psychology will be applied to describe the middle manager's role in a change process.

Chapters 4 and 5 contain the nucleus of this thesis. In these chapters the construction and validation of a diagnostic inventory for the assessment of middle managers' resistance to change will be described. Chapter 6 draws together the present research and the theory on resistance to change. Based on the data collected with the inventory, a contribution will be made to an elaborated theory on resistance. Finally, Chapter 7 concludes with an evaluation of the scientific value and practical use of the inventory.

2 An overview of research on resistance to change

Summary

This chapter starts with an overview of four main perspectives on resistance to change. Three of these perspectives - the political, the social and the psychological perspective - emanate from a rational point of view. It is shown in the first section that these perspectives offer more leads for the investigation of resistance than does the fourth, the so-called irrational approach. It will be argued that in order to understand the dynamics of resistance, theories should be refuted which depict resistance as an irrational, to-be-expected element of change processes while theories should be invited which shed light on its rational character. The second section of this chapter presents some influential readings on resistance to change. It aims to classify the plethora of issues related to resistance into a workable scheme. In the third section of this chapter an alternative 'positive' model of resistance will be opposed to the frequently used 'negative' model. It will be argued that organizations and employees might benefit from a more constructive approach in which employees are not so much seen as a barrier to change but rather as resources who will support change if certain conditions are fulfilled. To underline the fact that a different view on resistance is being taken, the term 'willingness to change' will be used in substitution for it. The final section of this chapter concludes with a rational empirical approach to the assessment of willingness to change. A social psychological model will be presented which, in Chapter 4, will form the starting point for the construction of a reliable and valid measure of the willingness to change.

2.1 Main perspectives on resistance to change

Studies regarding resistance as an irrational, unavoidable behavioural response to change are plentiful (e.g. Lewin, 1948; Coch & French, 1948; Gray & Stark, 1984). As a result of this tendency, the literature on this topic is characterized by an emphasis on strategies for overcoming resistance. Early examples of definitions of resistance arising from this perspective can be found in the works of Lippitt, Watson and Westley (1958) and Zaltman and Duncan (1977). Lippitt et al. (1958) describe resistance as 'any force directed away from the change process'. Zaltman and Duncan (1977) define resistance as 'any conduct that serves to maintain the status quo in the face of pressures to alter the status quo'. A common element in the above studies is the view that resistance is a to-be-expected aspect of change, encouraging other researchers in their quest for do's and don'ts that help top management change their organization (King & Anderson, 1995). However, closer inspection of the literature on resistance reveals three other dominant perspectives providing complementary views on this topic.

From a political point of view, organizations are coalitions and made up of coalitions. From this perspective change may be resisted because it leads to alternations in the existing balances of power between coalitions. Lines of authority and use of rules might alter as a result of change processes, leading to a struggle for power among interest groups. This idea is advanced by Boonstra (1995) who argues that change causes resistance because it affects both employment relationships as well as relationships between interest groups. From a political point of view managing resistance becomes managing colliding interests such as career aspirations and personal values. According to Morgan (1986, p. 149) the chances for complete convergence of interests are small, causing tensions at the centre of political activity. The same point has been argued by King and Anderson (1995) who expect a restricted distribution of power and authority to stimulate the emergence of resistance.

From a social point of view, organizations are socially constructed realities. From this perspective resistance develops during the course of social interaction. Causes of resistance might lie in group norms as much as in the attitudes of individual employees. An instance of this approach is the management of meaning, described by Morgan (1986, p. 126) as 'the management of sense making and understanding'. According to Morgan (1986), the attitudes and

visions of top corporate employees in particular tend to have a significant impact on the meaning system pervading the whole organization. For instance, the language that top management uses in talking about the change is expected to influence employees' perceptions of the change as well as the way they expect their jobs to be affected by it. Of course, the images and themes explored in conversations are only two examples of the way values and ideas are expressed. Nevertheless, the social point of view stresses the notion that resistance is to be expected when the rituals of daily routine are broken.

The third main perspective that dominates the literature on resistance is the psychological perspective. From a psychological point of view, persons confronted with change strive for a balance between change and stability, also referred to by Olthof (1985) as a 'tendency towards homeostasis'. The causes of resistance might lie in the perception of a constant threat to the status quo, leading to lower levels of well-being, motivation and satisfaction. Especially when the change collides with the objectives and responsibilities associated with specific work roles, resistance is likely to occur. Feelings of frustration and anger and even aggression may result. According to Morgan (1986, p. 221) loss of basic identities often generates a reaction out of all proportion to the importance of the issue when viewed from a more detached point of view. Although Morgan refers to this process as an 'unconscious dynamic' it may help to explain the occurrence of resistance from a psychological perspective.

The perspectives described above underline the need for thorough investigation of the phenomenon of resistance. From a political point of view, understanding the emergence of resistance might prevent the occurrence of serious conflicts and power struggles affecting the organization's efficiency and effectiveness. From a social point of view, knowledge about resistance might help to gain insight into group processes that hinder the acceptance of change by organization members. Finally, from a psychological perspective, furthering the understanding of resistance may prevent unnecessary decline in work satisfaction or motivation and more broadly, improve the well-being of organization members confronted with major changes in their work environment. Trying to understand the dynamics of resistance therefore means refuting theories that depict resistance as an irrational, to-be-expected element of change processes and inviting theories which shed light on its rational character. Only in this way can propositions be empirically tested and discussed.

2.2 Major issues on resistance to change

Manifestations of resistance can range from hidden covert forms to overt forms (King & Anderson, 1995). Hostility to those who initiated the change and reduced performance are only two examples that underline the variety of forms by which resistance can manifest itself. A continuum ranging from harmless covert manifestations to harmful overt manifestations would include for instance grievances, rumours and gossip, a 'wait and see' policy, talking negatively about the change in private and in meetings, incendiary and protest letters to the management, trade union activity (King & Anderson, 1995), and more serious forms of resistance such as sabotage of work processes and aggression against management (Coch & French, 1948).

It goes without saying that harmful manifestations of resistance can have severe effects on the well-being of organizational members. Structural resistance can result in a high turnover of staff, reduced efficiency and effectiveness of the organization, reduced organization commitment, increased absenteeism and lateness, and conflicts. In order to understand the emergence and manifestation of resistance, an overview will be given below of causes of and remedies for this phenomenon, starting with the causes.

Causes of resistance

In this section a continuum is proposed ranging from primary to secondary causes of resistance. Primary causes are defined as antecedents of resistance directly related to the contents of the change. Secondary causes of resistance are defined as barriers that directly or indirectly hinder the acceptance or implementation of change. For instance, detrimental effects of change processes on work conditions, as well as the impact that change has on the methods and jobs of organization members, are primarily considered primary causes of resistance. Other examples of primary causes include the number of employees affected by the change process or the range of activities altered. Examples of secondary causes of resistance would include a lack of time to implement the change, insufficient material or financial means, the absence of a clear change project, and a lack of experience or know-how amongst the implementers.

Secondary causes of resistance have often been referred to in the literature as barriers to successful change. (Kiesler, 1971; Watson, 1973; Patti, 1974; Bryant, 1979, Olthof, 1985; Cozijnsen, 1989). Foster (1962), Zaltman and Duncan (1977) and Werther and Davis (1986, p. 470) distinguish four types of barriers: psychological, social, cultural and organizational barriers. In order to understand the emergence and existence of these barriers, Armenakis, Harris and Mossholder (1993, p.686) adopted insights from three theories of social dynamics: individual differences theory, social differentiation theory and social relationships theory. The following section examines how these theories can contribute to an understanding of the emergence of barriers to organizational change.

According to Armenakis et al. (1993) individual differences theory offers useful leads for the explanation of psychological barriers to change. Individual differences theory argues that the response of one individual may diverge from that of another because of differing cognitive structures. One example of this can be found in research by Kirton (1980). Kirton's adaptors-innovators theory suggests that innovators are likely to respond favourably to programmes for radical change, while adaptors are more likely to respond favourably to programmes for incremental change. Other examples of psychological barriers include a perception of a lack of personal control over unfolding events (Winter, 1973), previous experiences with organizational change, lack of trust and misunderstanding the intentions of the change (Kotter & Schlesinger, 1979) and personality factors such as low emphatism, dogmatism and the fear of failure (Rogers and Shoemaker ,1971).

Social differentiation theory offers leads for the explanation of cultural barriers to change. Social differentiation theory argues that the responses of individuals will be determined partly by their cultural or subcultural membership. Such cultural memberships may polarize members' beliefs, attitudes and intentions. For instance, hierarchical differentiation within organizations (i.e., executives, managers, supervisors and employees) shapes group membership and results in psychological boundaries that affect the way the change is perceived by different subgroups. As a result, cultural barriers to change could emerge, such as feelings of mutual solidarity against the change and polarization of social norms (King & Anderson, 1995). In particular, cultural barriers come to the fore when there is incongruence between the organization's present norms and values and the norms on which the organization will be based in the future. Theorists who have sought to address this issue include Cook and Wall (1980) and Miles and Snow (1978).

Following Armenakis et al. (1993) social relationships theory offers useful leads for the explanation of social barriers to change. Social relationships theory suggests that responses to change attempts are dependent on the network of relationships which individuals have. In this view, friendship, rivalry and different types of trust and distrust make up a network of relationships in which members are linked to each other by communication paths. From a relationships perspective, the frequency, duration and specific aim of contacts between organizational members are relevant to the explanation of social barriers to change. For instance, the centrality of a member might be indicative of the potential impact which this member has on attitudes and intentions of others in the network. The influence of opinion leaders on others' feelings can be powerful in affecting those others' resistance to change. Identifying and recognizing the influence of opinion leaders in the organization may enable management to more effectively design change programmes. Other examples of phenomena related to social relationships theory are increased group cohesiveness and 'groupthink' (Janis, 1982).

Next to psychological, social and cultural barriers, organizational barriers may also hinder the implementation of change. Organizational barriers occur when the organization does not provide sufficient information or personnel and material means to implement the change. In terms of Rotter's concept of locus of control (Rotter, 1966; Kren, 1992), organizational barriers pertain to external control factors, as opposed to self-control factors such as experience and skills. A way to influence perceived locus of control in relation to change is the use of participative decision-making strategies. Through participation employees can influence the development of performance goals. Participation, when it is present, then provides an internal source of control. In contrast, when participation is absent, the individual is denied control, and the source of control is located outside the employee (for instance, with the supervisor).

Approaches for overcoming resistance

The second major issue frequently discussed in the literature on resistance is how resistance can be prevented from occurring or, once present, how it can be minimized. Among the first to present strategies for overcoming resistance were Coch and French (1948). They investigated the effect of group consultation on the amount of resistance shown. From their research they concluded that participation in group meetings increased the commitment of team members to

the change and decreased their resistance. Another pioneer in the field of resistance is Lewin, whose 'force field analysis' presented in 1951 contributed significantly to our contemporary understanding of the emergence of resistance. Although his model of 'resisting' and 'driving' forces is helpful in identifying these forces, it does not offer an explanation for the reasons underlying the resistance shown by particular groups (King & Anderson, 1995). As had Coch and French (1948), Lawrence (1969) stressed the importance of employee participation and involvement in strategies for overcoming resistance. Lawrence (1969) was also convinced that resistance could be kept to a minimum as long as the quality of social relationships at work was maintained. The same point is argued for by Dubrin (1974) who stresses the importance of minimizing social changes in order to prevent resistance. Other approaches mentioned by Dubrin (1974) include the selection of positive employees and tentative introduction of the change to organization members. A slightly different perspective on strategies for overcoming resistance is taken by Wortelboer and Metselaar (1996a, 1996b) who promote the application of self-management strategies to increase the self-efficacy of managers confronted with organizational change.

In 1976 Kotter and Schlesinger synthesized the gamut of approaches for overcoming resistance presented by a number of the preceding authors in 6 strategies. King and Anderson (1995) extended Kotter and Schlesinger's model, producing the following classification of strategies and methods:

1. Communication:	- providing information on the change - presenting a rationale for the proposals - challenging misrepresentations of the change process
2. Participation:	- involvement of employees' groups affected by change - gaining commitment to the change process - participation in decision-making
3. Facilitation:	- exploring areas of resistance - facilitating attitude and behaviour change - persuading for commitment to the change
4. Negotiation:	- formal and informal negotiations to overcome resistance - third-party arbitration

5. Manipulation:	- use of position power to manipulate compliance
6. Coercion:	- explicit or implicit coercion - rewards for compliance

Although some authors (e.g. Hosking & Anderson, 1992; Carnall, 1990; Cozijnsen, 1995) have presented more recent descriptions of strategies for overcoming resistance, suffice it to say here that no new issues have been injected since Kotter and Schlesinger's model. Furthermore, a more extensive overview of strategies would go beyond the scope of this thesis, which is primarily focused on the measurement of resistance.

2.3 Let's bury the term 'resistance' (I)

So far, in this thesis the term 'resistance' has been used to describe reactions of employees to organizational change. However, because the term 'resistance' is heavily laden with a negative connotation, the application of this term could put false colour on employees confronted with change. The application of this term supposes that reactions of employees to change are primarily directed towards impeding or even sabotaging the change process, that employees are resistance-prone and that resistance can be understood as a harmful outcome of any organizational change effort.

Because in both theory and practice little attention has been paid to the positive aspects of resistance, this section will argue an alternative view on resistance which focuses on both the positive and the negative sides of the resistance continuum. Many authors (see the sections above) have focused on negative aspects of resistance. Only a few authors (i.e. Antonioni, 1994; Merron, 1993; Fiorelli & Margolis, 1993; Goldstein, 1988) have contributed to a positive view on resistance. In the following paragraphs these two perspectives will be combined to allow a deeper, more effective way of looking at this phenomenon.

In his article of the same name as this section, Merron (1993) argues that labelling individuals or groups as 'resisting' gives the resistance power. Instead of the blame-oriented view which many managers take, Merron proposes a alternative view in which '...the key to successful change is in supporting the full expression of differing desires and finding ways of working with them' (Merron,

1993, p.82). According to Merron (1993), if one does not allow for that expression, resistance will persist. Instead of giving the resistance power by working against the resistance, Merron argues that resistance is something that should be worked *with*. Following Merron (1993), employees may not actually be resistant to change at all, but simply express differing views of the truth and differing views of the kind of organization they want to be a part of. In his view, managers often contribute to what they call 'resistance' by focusing on what is not working. Consequently, their judgement of this resistance invites further feelings of resistance in reaction to it, and to a persistent gap between two groups: those in favour of the change see themselves as opposed to those who had initially had reservations. In fact, by calling it resistance, '....managers or consultants reinforce the resistance, or even worse, play a part in its creation' (Merron, 1993, p. 83).

The same line of arguments followed by Merron (1993) can be found in the works of Goldstein (1988). According to Goldstein (1988, p.17), 'the term resistance conjures up a picture of employees acting stubbornly, rebelliously, and obstinately'. However, following Goldstein, this 'negative' model of resistance typically leads to a response in which employers push against the resistance that much harder. Thus, the push for change is followed by employees' pushing back and by employers pushing still harder for change by adding more authority, force or persuasiveness to the change effort (Goldstein, 1988, p.17). A common counterresponse to resistance which emanates from this negative model is the blunt enforcement of the change. According to Goldstein (1988), this may only work in the short run because ill will and distrust are created at the same time. In Goldstein's view a more 'positive' model of resistance would go beyond the image of wilful opposition and would focus instead on the constructive value of resistance within a work group or organization. By explaining how resistance may function as a survival mechanism when change is perceived as a threat, such a model would lead to a counterresponse which was shaped more by respect and less by coercion (Goldstein, 1988, p.19).

Further support for the need for a 'positive' model of resistance is given by Fiorelli and Margolis (1993). According to these authors it is a mistake to view resistance as simply being a reaction to the magnitude of the changes proposed by top management. Instead, they argue that employees are likely to resist change because it pushes them out of their comfort zone: their ways of doing things and their relationships with others. Following Fiorelli and Margolis it would also be a mistake to view resistance as the response of malevolent or unsupportive people.

In a 'positive' model of resistance, resistance can be productive and legitimate and can serve the needs of both individuals and systems. In fact, state Fiorelli and Margolis (1993, p. 2), 'a lack of conflict in an organization signals rigid conformity, blind compliance and stagnant thinking.' For instance, when rigid group norms hinder a critical evaluation of the change, 'groupthink' (Janis, 1982) could be one of the possible reasons for the absence of resistance which, in turn, could result in the acceptance of ill-conceived strategies for change. A similar viewpoint is taken by Antonioni (1994) who stresses the fact that managers or consultants need to learn how to welcome resistance as a signal of the losses about which stakeholders are concerned or as a sign of problems with the proposed change itself.

To complete the ideas of the authors cited above, an alternative view on organizations and organizational change is needed which parallels a positive model of resistance. Where a negative model of resistance coincides with a view of organizations as systems with natural tendencies to resist change, a positive model of resistance would parallel a view of organizations as systems with built-in mechanisms to cope with change: people. From this perspective, organizational change can be best considered as collective behavioural change. Furthermore, in a positive model of resistance, resistance would be regarded as an avoidable, desired response to organizational change which is beneficial for the organization. Accordingly, resistance could be understood as a reaction of stakeholder concern which should be taken seriously. Finally, the focus in a positive model of resistance would be on trying to understand and respond to the resistance through communication, facilitation and participation, as opposed to fighting and minimizing resistance through negotiation, manipulation and the coercion of the employees involved. Table 2 presents a summary of the negative and positive models of resistance.

Table 2. Elements of a negative and positive model of resistance

	Negative model of resistance	*Positive model of resistance*
Labelling resistance as:	Unavoidable reaction to organizational change Undesired response Unhealthy, harmful reaction to change efforts Expression of disapproval	Avoidable reaction to organizational change Legitimate response Healthy, beneficial reaction to change efforts Expression of concern
Focus on:	Fighting and minimizing resistance	Understanding and responding to resistance
Strategies for overcoming resistance:	Negotiation Manipulation Coercion (working against resistance)	Communication Participation Facilitation (working with resistance)
View on organizations:	Organizations are traditionally designed for stability and control	Organizations have built-in mechanisms to cope with change and renewal
View on organizational change:	Organizational change is collective systems change (changing structures)	Organizational change is collective behavioural change (changing people)

Whether the above models are complementary or whether one should choose one to support change processes is of course dependent on many preconditions, including the type of change involved (structural change versus cultural change), the way the change process is organized (top down versus bottom up) and the nature of the change process (downsizing versus growth). The fact is that to date more attention has been paid to the negative aspects of resistance and that, although many variables have been mentioned as possible sources of resistance, little empirical evidence supports these tentative notions.

It can be concluded that the literature on resistance is strongly characterized by many case-like descriptions of change processes and the negative impact of change on organization members. It also draws heavily on general management theories with an emphasis on strategies for overcoming resistance. Causes, manifestations, outcomes and effects all seem to be easily interchangeable, blurring the relationship between the causes of resistance on the one hand and its outcomes and effects on the other. Furthermore, despite the many questions that remain unanswered, to date no reliable and valid instrument has been developed to measure resistance. Such an instrument could serve a useful function in redressing the imbalance between the tentative notions and empirical findings related to this subject.

Before turning to the introduction of such an instrument, in this section one final issue should be addressed. It was stated earlier in this chapter that by using the term 'resistance' managers and consultants often contribute to its emergence and manifestation. It is likely that the same mechanism applies to researchers in the field of organizational change, especially to those who focus on resistance. In order to avoid this mechanism, in this thesis (and in its underlying research project) an alternative is used for the term 'resistance'. In accordance with the above positive model, employees' responses will be described with reference to their 'willingness to change'. As a consequence, instead of focusing on resistance, the inventory described in the following section and chapters aims at the measurement of the willingness to change.

2.4 A social psychological approach towards the willingness to change

From the above sections it follows that an explanatory model is demanded which captures possible antecedents of the willingness to change. On the one hand, such a model would enable the researcher to make accountable choices with respect to the type and number of variables included in a reliable and valid measure of the willingness to change. On the other hand, such a model could offer practical guidelines for the development of interventions to prevent or reduce resistance and increase the willingness to change. The theory underlying the explanatory model should parallel the literature on resistance and encompass a selection of the issues discussed in sections 2.2 and 2.3. This section proposes such an explanatory model, based on the theoretical works of Ajzen and colleagues (Ajzen & Madden, 1986; Ajzen, 1991).

Like work motivation, willingness to change is a construct which could be helpful in understanding and predicting organizational behaviour. From this perspective, the question arises as to which organization behaviour theories can help define this construct. Reinforcement theorists such as Skinner (1953, 1969) and Luthans, Paul and Baker (1981) provide a number of models for behavioural change based on stimuli, responses and rewards for satisfactory performance. Because these studies have focused on the modification of relatively simple behaviour, these reinforcement principles do not fit the complex character of change processes and the difficulties this entails in identifying desired performance levels. Following social and cognitive learning theorists, however, behaviour modification is more than a process of forming associations. Whereas

advocates of reinforcement theory ignore cognitive behaviours as judgement and concept formation, cognitive theorists such as Vroom (1964), Porter and Lawler (1968) and Locke (1975,1980) take the position that people use their cognitive abilities to understand associations between behaviour and response, and make decisions about how they will act.

According to Vroom's Expectancy Theory (Vroom, 1964) people's behaviour results from conscious choices between alternatives, and these choices are systematically related to psychological processes such as perception and the formation of beliefs and attitudes. Following Vroom (1964), a person's motivational force is determined by the affective orientation the person holds with regard to outcomes (valence), the anticipation that these outcomes will lead to other outcomes (instrumentality) and a person's belief about whether a particular outcome is possible (expectancy).

Porter and Lawler (1968) have provided a useful elaboration of Vroom's VIE model. Their theory suggested that employee effort is jointly determined by the value placed on certain outcomes by the individual, and the degree to which the person believes that his efforts will lead to the attainment of these rewards. As had been predicted by Vroom (1964), Porter and Lawler (1968) found that these two factors interact to determine effort level. They argued that people must both positively value outcomes and believe that these outcomes result from their effort for any further effort to be forthcoming (Pinder, 1991).

When considering employees' willingness to put effort into the goals of a change process as a special case of work motivation, both Vroom's expectancy theory and Porter and Lawler's elaboration of Vroom's VIE model offer useful leads for the explanation of employees' willingness to change and change-related behaviour. However, studies conducted by researchers interested in VIE Theory have been subject to a number of deficits. For instance, Campbell and Pritchard (1976) mention the use of incorrect mathematical procedures for testing VIE models, low validity and reliability of valence, instrumentality and expectancy measures and assuming that the valence, instrumentality and expectancy beliefs which people hold are independent of one another. Nevertheless, it can be concluded that formation of the willingness to change can be regarded as a cognitive process which includes valence, instrumentality and expectancy beliefs about the outcomes of the change process and beliefs about whether the goals of the change are attainable.

One important aspect of motivation in the context of organizational change is not included in the above cognitive models. Several studies (e.g. Abbey & Dickson, 1983; Paolillo & Brown, 1978; Amabile & Gryskiewicz, 1989; Scott & Bruce, 1994) have pointed to the relevance of a climate which supports innovation and individual innovative behaviour. 'Climate' represents the signals which individuals receive concerning organizational expectations for behaviour and potential outcomes of behaviour (Scott and Bruce, 1994, p. 582). Within the context of organizational change, 'climate for change' can be considered as consisting of the attitudes of co-workers (such as colleagues and supervisors) toward the change process. Following climate research in the context of innovation, co-worker attitudes towards change are expected to influence employees' motivation to put effort into the goals of a change process.

A model for explaining social behaviour that includes value and control beliefs as well as perceptions of climate (e.g. co-worker attitudes) is Ajzen's model of planned behaviour (Ajzen & Madden, 1986; Ajzen, 1991). The model is based on the notion that several motivational factors underlie a person's behavioural intentions. The theory has proven to have utility in explaining and predicting various types of behaviour (e.g. voting behaviour, blood donation, traffic behaviour).

According to Ajzen's model (see Figure 1), three motivational factors underlie a person's behavioural intention; the person's attitude toward the behaviour, the subjective norm toward the behaviour and the person's perceived behaviour control. The first factor refers to the degree to which the person expects positive or negative outcomes of the desired behaviour. The second factor focuses on the perceived social pressure to perform or not to perform the behaviour. The third factor refers to the person's belief as to how easy or difficult performance of the behaviour is likely to be. A direct relation is expected between a person's perceived behaviour control and his or her behaviour. This relation incorporates thresholds or barriers that, despite a high intention, block the execution of the desired behaviour.

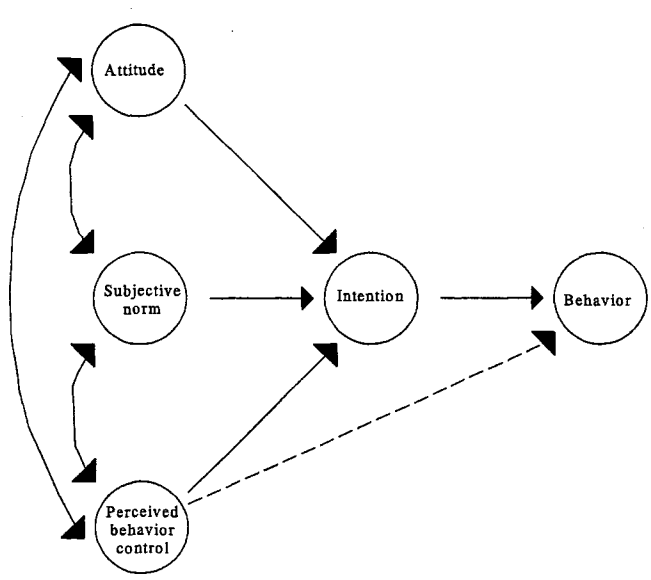

Figure 1: Ajzen's model of planned behaviour (Ajzen & Madden, 1986; Ajzen 1991)

Applying this model to a change scenario, it is hypothesized that three motivational factors will determine a person's behavioural intention, in our case a middle manager's willingness to change:

- his or her attitude to the change process
- the subjective norm to the change process
- his or her perceived control over the unfolding change

An example can serve to clarify the applicability of Ajzen's model of planned behaviour in the context of organizational change. Imagine, for instance, a large computerization project in a sales department. This computerization requires a new software project for the processing of client data, which all salespersons have to attend a course in order to learn. Following Ajzen's model, a salesman will make the following 'mind-steps' in determining his or her willingness to attend a course. For instance, if he believes that following the course (the

behaviour in question) will lead to greater efficiency of the information system, his attitude will be characterized as positive. Subsequently, if he feels that his colleagues will disapprove of him following the course, the subjective norm can be characterized as negative, making him more resistant to follow the course. Finally, if he has no previous knowledge of any software project and he thinks that this will lead to major problems, his perceived behaviour control is low, contributing negatively to his motivation to attend the course.

Following Ajzen's model and the planned change and diffusion theories presented in the first chapter of this thesis, the willingness to change can be defined here as:

'A positive behavioural intention towards the implementation of modifications in an organization's structure, or work and administrative processes, resulting in efforts from the organization member's side to support or enhance the change process.'

Accordingly, resistance to change can be defined as:

'A negative behavioural intention towards the implementation of modifications in an organization's structure, or work and administrative processes, resulting in efforts from the organization member's side to hinder or impede the change process'.

The application of Ajzen's model for the operationalization of willingness to change entails several interesting research questions. For instance, from regression and LISREL analyses on Ajzen's model inferential links could be drawn about the relations between attitude, subjective norm, behavioural control, the willingness to change and change-related behaviour. From a longitudinal perspective, repeated measurements might also shed light on the impact of antecedents of willingness to change on behaviour over time. Other testable research questions concern, for instance, the relation between willingness to change and personal characteristics, or the relation between willingness to change and age, work motivation and satisfaction.

3 The middle manager's role in the change process

Summary

As was noted in the first chapter, since middle managers often have the task of implementing change they play a key role in change processes. Their position in the organizational structure confronts them with the wishes and demands of top managers as well as with the consequences of the change for their employees. This makes them a vulnerable group in organizational change processes. To understand how a middle manager's willingness to change is formed, this chapter will describe the contents of the middle manager's role in the change process. The subjoined paragraphs apply theories and insights from management theory and work and social psychology to describe the middle manager's position, how the middle manager communicates change, and why resistance from the middle manager's side might occur. It is argued that besides the 'strategy' or 'tactics' the manager applies, the manager's motivation, skills and attitudes towards the change essentially determine actions and, ultimately, the implementation success or failure of the change process. Finally, Ajzen's model of planned behaviour will be filled out for the explanation of middle managers' willingness to change.

3.1 Introducing the middle manager's viewpoint

After the decision to implement a change has been made by top management, there follows what Leonard-Barton (1988) has termed the 'innovation response'; the attitudinal and behavioural stance taken by those confronted with the consequences of this decision. For instance, the value of the change may be easy or difficult to understand or the change may be perceived as a threat or an opportunity. This chapter will focus on the attitudinal and behavioural stance taken by the middle manager. The term 'middle manager' is used instead of 'manager' to emphasize that the focal attention of this thesis is not on the decision-makers planning the change but on the managers in lower echelons of the organization who are responsible for its implementation.

Proposals for actions to alter an organization's practices often emanate from the top management and as a result their role in the change process has frequently been described as a crucial element in its success (e.g., Kanter, 1983; Peters & Austin, 1986; Leavitt, 1986; Niehoff, Enz & Grover, 1990). However, lower levels within the hierarchy are responsible for the operationalization of the change in terms of new rules, procedures and thus new modes of behaviour. Although top management may identify the need for change, their strategies for change are mediated by the leadership skills of the middle managers responsible for its implementation (Beatty & Lee, 1992; Metselaar, van Ittersum, and Cozijnsen, 1995).

What changes, then, are there in the middle manager's job as the change process nears implementation? It is not so much that additional managerial roles (Mintzberg, 1989) are needed. What makes the middle managers' job particularly complex is the fact that he or she has to divide valuable time between the existing organization and the emerging, 'new' one. Since the new ideas, questions and opportunities leave little room in the agenda, keeping his or her role as a change manager disentangled from routine activities becomes more difficult. The managerial roles needed to successfully implement change are not much different from those the manager is used to fulfilling; it is the mere fact that they have to be played under changing work conditions that exacerbates the pressures involved.

A brief aside on the middle manager's role in the change process

Adapted from Mintzberg (1989)

During the change process the middle manager has to actively search for new ways to improve the functioning of the unit in accordance with top management directives. Subsequently, as figurehead and leader of the change process in his or her unit, the manager has to direct employees towards successful implementation, spending time with people inside and outside his or her vertical chain of command. Employees who need additional support or coaching emphasize the extra need for leadership that has emerged. Reconciling their individual needs with the goals of the change process in toto becomes a major part of the interpersonal roles the middle manager has to play. With regard to informational roles, the middle manager's task is to monitor the change process and to give timely feedback about the progress made. Along the way, it is important for the manager not to lose sight of the top management's directives and to express their vision in terms of operational commands. The middle manager is also spokesperson at meetings with the management team and negotiator when it comes to distributing additional financial and human resources to support the change process. Finally, the allocation of these resources within the manager's unit often draws upon his trouble-shooting capacities and his credibility as an arbitrator in interpersonal conflicts.

As the change process develops, attention commonly shifts from the abstract missions and visions communicated by top managers to down-to-earth directives given by the middle manager. Because the middle manager stands between the top executives and the operational core of the organization, he is more often than not confronted with the consequences of the change for the individual worker. As middle and top management deal with different echelons in the organization, they have to adapt their strategies accordingly if the change is to be implemented effectively (King & Anderson, 1995).

So far, this idea has received little attention in the literature concerning strategies for successful change. Premises from the top manager's point of view have dominated, resulting in straightforward approaches towards successful implementation. This view is clear in the work of Nutt (1986, p.230) who states

that: 'To be successful, managers must devise tactics that neutralize or at least contain people who delay making essential commitments, protect turf, posture, or carry out vendettas.' Approaches towards implementation have been termed 'tactics', (e.g., Nutt, 1986; Marcus, 1988) or 'strategies' (e.g. Leonard-Barton, 1988) and have emphasized merits of change from the organizational point of view. Consequently, the notion that change does not always favour all groups involved has received scant attention (Vrakking & Cozijnsen, 1992; Hosking & Anderson, 1992).

According to van de Ven (1986), both the middle manager's own ability and motivation exert a significant influence on any ongoing change. This idea parallels the work of King and Anderson (1995) who argue that managerial beliefs and attitudes toward change, such as experiences with prior change scenarios, are major determinants of a change process. Consequently, organizational change can be seen as a more fluid process, dependent on personal and interpersonal contingencies. Shifting from the strategic level of analysis to the level of the individual worker sheds new light on the antecedents of willingness to change. Barriers to successful change can be investigated as such, starting from the middle manager's point of view.

3.2 Where does the middle manager stand?

According to Fidler and Johnson (1984), change processes in organizations are characterized by the fact that a group or person of higher status or authority can decide to implement a change that another in the organization must put into practice. Whether the middle manager belongs to the former or the latter is largely dependent upon the degree to which he or she has participated in the decision-making which preceded the implementation. The work of Miller (1993) offers a compelling framework which further clarifies this idea.

To classify the parties involved in a change process, Miller (1993) distinguishes between 'decision-makers'; those who decide to implement a change, the 'implementors'; those who put the decision-makers' decision into practice; and 'implementees', those affected by the change. The middle manager can play either role or a combination of these roles. For instance, if the manager is only involved in the decision-making preceding the implementation, he or she is merely the initiator of the change. On the other hand, if the manager can exert an influence

on the decision-making process and is also the one to put the implementation into practice, he is both decision maker and implementor. If the change is also likely to affect the manager's own position he or she can also be viewed as an implementee.

It is particularly important here to realize that the middle manager's task is to implement the change in accordance with the decision-makers' directives. This makes participation in the decision-making process an important strategy by which to increase willingness to change from the middle manager's side. Participation is also important given the leadership role the manager has to play in changing his or her own unit. As figurehead, the manager has to serve as an example for the employees in his unit, coaching and motivating them towards successful implementation. Indubitably, this cannot be achieved if the manager has no faith in the ultimate success of the project. In a worst case scenario where the change causes loss of the manager's status or position of power, the middle manager may even represent a major part of the barriers to successful change. Examples here include radical administrative changes to reduce the number of hierarchical levels in the organization, mergers or technical innovations that reduce the operational core and consequently the average span of control of managers.

De Bruijn (1991) has clarified why differences in viewpoints between top and middle management might occur. Whereas top management is mainly concerned with the relation between the organization and its external environment, the middle manager is primarily focused on the optimization of internal processes. Added to this, directives from the top often are aimed at reaching strategic goals in the longer term, whereas operational problems, by contrast, demand immediate response from middle managers on a day-to-day basis. The middle manager has the task of reconciling these objectives with the existing working practices and methods of the employees under his or her jurisdiction. In this respect the degree to which top management can point to the mutual interests of both parties can serve as an important tool to alter the middle manager's attitude toward the change.

Several power bases such as incentives and status (Emans, 1988) are at the middle manager's disposal to sanction or reward employees' behaviour in such change scenarios. Incentives, for instance, can be used in negotiations in exchange for support or as a means to form coalitions (Koopman & Pool, 1992).

However, the use of power politics by top and middle management in support of the change process emphasises the fact that each interest group may well have different expectations of a change scenario. A special case occurs when a middle manager is forced to defend his or her own position, as well as the interests of the department. This situation can lead to 'implementor-implementee dilemmas' (Miller, 1993); irreconcilable choices faced by middle managers that occur when their own interests clash with the department's interests. The degree to which middle managers can successfully deal with problems that emerge from role conflicts may also influence the course of change processes.

To summarize, in order to understand the middle manager's actions in a change process it is important to first determine the nature of his or her role. Role conflicts often arise from the middle manager's multiple roles as decision-maker (defending the organization's general interests), as implementor (leading his department toward a successful transition) and as implementee (concentrating on the consequences of the change for his own position). Faced with dilemmas arising from a combination of two or three roles, the middle manager's first concern is to find a balance in defending the interests of the parties involved.

3.3 How does the middle manager communicate change?

Communication is probably the topic most dealt with in the literature on the implementation of change. As many authors have underlined (e.g. Rogers & Shoemaker, 1971; Zaltman & Duncan, 1974; Fidler & Johnson, 1984; Leonard-Barton, 1988; Beatty & Lee, 1992) the amount of resistance that emerges strongly depends upon how those involved are informed of its consequences. Moreover, as the change process develops, communication becomes a important tool with which to coordinate its implementation. Especially with regard to the emergence of uncertainty, communication can serve as an influential device to lessen or even prevent uncertainty and thus possible resistance. Whether in written or oral form, information is necessary to clarify the goals of the change, the consequences of the change for the organization, to coach and to support employees and to give timely feedback on the progress made.

The degree to which the middle manager can make use of communication to coordinate unfolding change strongly depends upon his or her access to various information channels. Management team meetings, company letters and even

gossip vary strongly in accessibility but can all give current information about the status of a change process. Whereas the top management's function is to set overall objectives and to communicate their vision, the middle manager's job is to fine-tune this information and adapt it to the needs of its recipients, in this case the employees in his or her department. This means that, to evoke the desired 'innovation-response', the middle manager should carefully sift and screen information and pass on only the relevant messages in a manner understandable to the employees intrusted with implementing the ramifications of the change at the day-to-day level.

Leonard-Barton (1988) mentions two related forces that influence a person's attitudinal response to change: the characteristics of the change and the way the change is introduced by the top management. Based on the characteristics of the change, the manager must decide which communication channels to use (Rogers & Shoemaker, 1971); whether additional expertise from outside the organization is needed in order to inform employees (e.g., if the change is very complex); which leadership style is most likely to be successful and which leadership skills are necessary (Beatty & Lee, 1992). It follows that next to the influence of the availability of communication means, the characteristics of the change also determine the amount and type of information the middle manager shares. Characteristics frequently used to classify the nature of organizational changes are: the change's relative advantage in comparison with the preceding situation; its compatibility with existing values and experiences; the degree to which the results of the change are visible to others; the communicability of the change, and its complexity (Rogers, 1983; Zaltman, 1973).

What is important for the middle manager's actions with respect to the communication of change is the fact that individual employees subject to the same change may not have a shared perception of its goals, consequences and outcomes (Anderson & King, 1993). Viewpoints often differ considerably, and this emphasizes the need to let communication strategies vary from department to department or even from person to person. This idea parallels the notion presented by Leonard-Barton and Dechamps (1988) who argue that the attitudinal stance taken by a worker is to some extent also influenced by personal characteristics. The skills needed to cope with the new situation, psychological values, beliefs, needs and actual level of performance all influence a person's point of view, creating diverging images of the change among employees. In their search for information concerning the change, uncertainty reduction plays a

central role. From a middle manager's point of view this process can be seen as highly functional given the fact that uncertainty has frequently shown to inhibit the execution of new modes of behaviour. In addition, information concerning the change is more easily processed when it is coherent and less threatening to the worker's well-being. It follows that perceptions of the opportunities and threats posed by changes and their influence on choices are important elements in the change process.

Selective perception and uncertainty reduction are just two examples of information processing strategies. They are part of a broader range of psychological mechanisms that shape a person's frame of reference. At the individual level of analysis, as well as at the group level, several other mechanisms related to communication and information processing can be identified that can explain the occurrence of behaviour that might impede a change process. Examples are people's tendency to prefer the known (Olthof, 1985); the tendency to avoid risk in uncertain situations; the effects of negative experiences on future intentions (Lippitt, 1986); and the tendency toward conformism and commitment to group norms (Kiesler, 1971). In general, these phenomena lead people to adhere to patterns of behaviour that were successful under the old situation and to prevent new patterns of behaviour from occurring. With respect to their role in a change process, they might decrease willingness to change and thus prevent the routinization of the change into the ongoing work activities of the organization.

3.4 Manager behaviour in changing work settings; a theoretical model

At the end of the previous chapter, Ajzen's model of planned behaviour was put forward as a useful framework for the explanation of the willingness to change. Following Ajzen's model, it was explained how three variables relate to an employees' intention to put effort into a change process: the expected outcomes of the change for the worker's position, group norms with respect to the change, and the employees' control over the unfolding events. It was argued that resistance might arise from any or a combination of these three variables. In this section, the same line of arguments will be followed with respect to the middle manager's role in a change process. The five central elements of Ajzen's model (attitude, intention, subjective norm, perceived behaviour control, and behaviour) will be further elaborated, resulting in a theoretical model of manager behaviour

in changing work settings. In Chapter 4 the subjoined elements will be used to compose the diagnostic inventory on which this thesis is focused.

Attitude

According to Ajzen (1989, p. 242) three types of measurable responses can be used to infer attitudes; cognitive responses, affective responses and conative responses. The cognitive category consists of responses that reflect perceptions of, and information about, the attitude object. Cognitive responses are generally expressions of beliefs that link the attitude object with certain characteristics or attributes. Affective responses have to do with feelings towards the attitude object. They include, for instance, expressions of admiration, disgust, or disdain. Responses of the conative kind are behavioural inclinations or intentions with respect to the attitude object. They express what people say they do, plan to do, or would do under given circumstances. In the case of the middle manager the attitude object is the change or change process. Following Ajzen's model, in order to infer the manager's attitude, information needs to be gathered about his or her beliefs, affective response and intentions with respect to the change. Below, these hypothetical constructs will be operationalized within the theoretical framework sketched in the preceding chapters.

In earlier works of Fishbein and Ajzen (1975), 'belief' is defined as the subjective probability that a given behaviour will produce a certain outcome. The question thus becomes, what outcomes can a change process produce that might influence a middle manager's attitude? To answer this question it is necessary to distinguish between two types of outcomes: work-related outcomes and outcomes that affect the organization in total. For the assessment of work-related outcomes, Hackman and Oldham's job characteristics model can serve a useful function (Hackman & Oldham, 1980). Their model distinguishes between core job characteristics, critical psychological states and work outcomes. For instance, high task significance (a core job characteristic) leads to the perceived meaningfulness of the work (a critical psychological state), which in turn leads to high work effectiveness (an outcome). Following this line of argument, if a change will negatively affect a core job characteristic it is expected to negatively contribute to the manager's attitude towards the change. With respect to the outcomes of the change for the organization, the same line of argument can be followed. If a change is perceived to be beneficial for the organization in total, it will lead to a positive attitude from the middle manager's side.

The affective orientation (the second component of Ajzen's attitude model) which managers hold with respect to change processes can range from feelings of excitement to feelings of intimidation by, for instance, the threatening character of the change for the middle manager's position. Furthermore, a manager can have positive or negative feelings about the consequences of the change for the development of his or her career. In terms of resistance or the willingness to change it is expected that threatening or intimidating changes contribute to a negative attitude, whereas challenging or, for instance, exciting changes evoke a positive attitude.

Intention

The third component of Ajzen's attitude model relates to behavioural intentions toward the attitude object. In the case of the middle manager these behavioural intentions encapsulate expressions of resistance or the willingness to change. Following Huse & Cummings' (1985) stage model cited in the first chapter, these expressions are related to the middle manager's intention to invest time and effort to either support or impede the implementation of the change. If a middle manager approves of the contents of the change and the procedures to implement it, the manager is expected to invest time and effort to support the change. If, on the other hand, the manager disapproves of the change it is expected that he or she will not be willing to invest time and effort, thus hindering the implementation of the change.

Subjective norm

As social-information processing models suggest (cf. Griffin, 1987), any individual's behavioural intention may also be shaped by the intention of others. According to Burkhardt (1994), research and theory on social influence may help to explain this process. Social influence theories suggest that individuals develop attitudes and behaviour in part as the result of the social information available to them. For instance, research by Salancik and Pfeffer (1978) on social influence models stresses how co-employees influence individuals' beliefs and attitudes by providing salient, credible and relevant information about an object or situation. In Ajzen's model of planned behaviour, the process of social influence is captured by the relation between subjective norm and individuals' behavioural intentions. Subjective norm is defined by Ajzen (1991, p. 195) as '..the likelihood that important referent individuals or groups approve or disapprove of performing a

given behaviour.' In the case of the middle manager confronted with change, important referent individuals or groups might be the employees in his or her department, others in his or her organizational position, or the board of directors. It is expected that a subjective norm in favour of the change will positively contribute to managers' willingness to change, whereas the managers' perceptions of individuals or groups disapproving of the change will negatively contribute to a managers' willingness to change.

Perceived behaviour control

Perceived behaviour control refers to people's perception of the ease or difficulty of performing the behaviour concerned (Ajzen, 1991). Related issues concern Rotter's concept of locus of control (Rotter, 1966), and, more recently, Bandura's concept of self-efficacy (Bandura, 1982, 1991). In terms of Rotter's concept of locus of control (Rotter, 1966; Kren, 1992), a manager's perceived behaviour control towards a change process is influenced by external control factors, such as the organizational barriers presented in the previous chapter, and self-control factors such as the experience and skills of the manager. Bandura's concept of self-efficacy is strongly related to self-control factors and is defined by Bandura (1986) as people's beliefs in their ability to execute the courses of action required to attain certain levels of performance. Because self-efficacy and perceptions of locus of control have been consistently found to influence actions and emotional arousal, according to Ajzen (1991) these concepts can be used to predict the probability of a successful behavioural attempt. When using the concept of locus of control to define determinants of the willingness to change, two clusters of behaviour control variables can be distinguished that are expected to influence managers' behavioural intentions with respect to organizational change:

1. self-control factors; operationalized in terms of the knowledge, experience and skills which the middle manager has at his or her disposal to successfully implement the change;

2. external control factors; operationalized in terms of resources (e.g., financial or human resources, time, information) that enable the manager to successfully implement the change.

A third category of control factors that is not included in the above categories is related to the way the change process is managed. For instance, the question of

whether the managers can keep up with the change process, or whether they receive timely information about the change, are not related to self-control factors, nor are they related to external control factors. They are nonetheless likely to affect perceptions of control. For this reason a third category of control factors is added which is related to managers' contentment with, and control over, the rate at which the change process develops. This category will be referred to as 'process control factors'.

Finally, a fourth category of control factors that emerges is the managers' perception of the complexity of the change. The perceived complexity of the change is likely to affect the managers' perception of control because complex changes draw more heavily on the managing skills of managers than do simple changes. It is therefore expected that the more a change is perceived as being complex, the less control a manager will perceive. Consequently, the perceived complexity of the change is expected to be negatively related to a manager's willingness to change.

Behaviour

Shoplifting, cheating, lying and losing weight are examples of types of behaviour that have been explained and predicted using Ajzen's model. What differentiates these behaviours from the behaviour studied in this thesis is that they are under complete volitional control, i.e., the persons can decide at will to perform or not to perform the behaviour in question (Ajzen, 1991). In a work situation this clearly is not always the case. Formal structures, rules and procedures restrict the freedom of choice which organization members have. This might, of course, blur the relation between intention and actual behaviour (see also; Metselaar, Walet, Cozijnsen & Padua, 1996).

With regard to planned change processes, managers' *actual* control over their behaviour strongly depends on the degree to which the change is imposed upon them. Still, the amount of willingness to change can vary considerably from manager to manager, resulting in behaviours that support or hinder ongoing change. Examples of the former are: motivating people, sharing information and ideas, convincing employees of the benefits the change will bring and talking positively about the change during meetings. Examples of the latter behavioural category include: leaving the organization, calling in sick, talking negatively about the change in private and during meetings, following a 'wait and see'

policy', and building coalitions to block or sabotage the change process.

It should be clear that no single manager is responsible for the failure or success of an entire change process. Successful change is always the result of a joint effort by all organization members. Furthermore, many variables which influence ongoing change are outside the manager's control. Cancellation of change processes can, for example, be due to developments in the market or financial problems within the organization. No matter how willing the manager is to support the change, the manager's contribution is often limited to his or her department and the employees for which the manager is responsible. Figure 2 presents a theoretical model of manager behaviour in changing work settings, as deduced from the above sections.

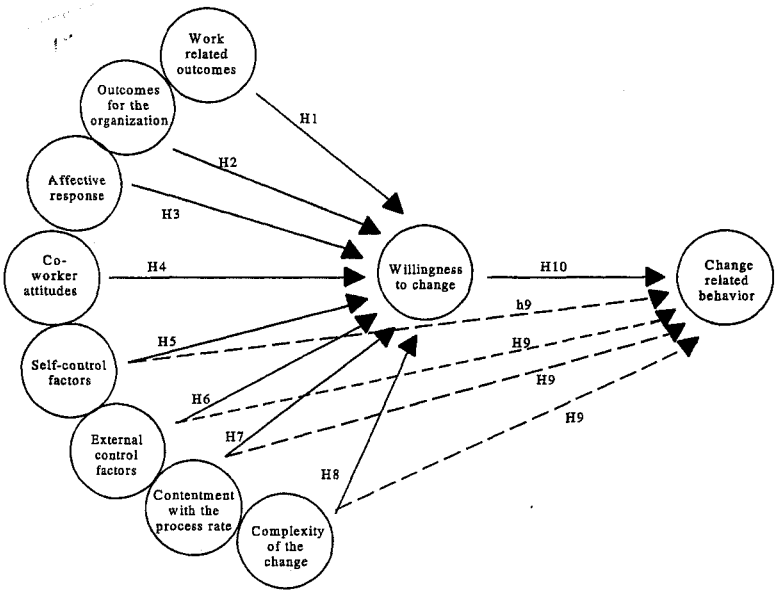

Figure 2. Theoretical model of manager behaviour in changing work settings

The relations between the variables in the above model are inferred from Ajzen's model of planned behaviour. The following hypotheses can be derived from this model:

H1: The degree to which middle managers expect positive outcomes for their work as a result of an organizational change is positively related to their willingness to contribute to the implementation of the change.

H2: The degree to which middle managers expect positive outcomes for their organization as a result of an organizational change is positively related to their willingness to contribute to the implementation of the change.

H3: The more managers hold a positive affective orientation towards an organizational change, the more are they willing to contribute to the implementation of the change.

H4: The more middle managers perceive the subjective norm as in favour of a change process, the greater will be their willingness to contribute to the implementation of the change.

H5: The more experience and knowledge of the control of change processes middle managers have at their disposal, the greater will be their willingness to contribute to the implementation of the change.

H6: The more resources to control a change process (time, money, information) middle managers have at their disposal, the greater will be their willingness to contribute to the implementation of the change.

H7: The more middle managers perceive the process rate as adequate, the greater will be their willingness to contribute to the implementation of the change.

H8: The more middle managers perceive a change as complex, the lower will be their willingness to contribute to the implementation of the change.

H9: The more control over a change process middle managers experience, the more will they actively support the implementation of the change process.

H10: The greater middle managers' willingness to change, the more will they actively support the change process.

Hypothesis 11 is based on the notion that attitude, subjective norms and perceived behaviour control interact to determine a person's intention to execute certain behaviour. Since past research with Ajzen's model (Ajzen, 1989) has shown that these three variables are positively related, hypothesis 11 is formulated as follows:

H11: Positive relations exist between middle managers attitudes towards organizational change, the perceived subjective norm and their perceived behaviour control.

Hypotheses 1,2 and 3 concern the relation between attitude and willingness to change. Hypothesis 4 brings into focus the relation between perceived subjective norm and willingness to change. Hypotheses 5, 6, 7 and 8 concern the relation between perceived behaviour control and willingness to change. Hypothesis 9 concerns the relation between perceived behaviour control and change-related behaviour. Hypothesis 10 brings into focus the relation between willingness to change and change-related behaviour. Finally, hypothesis 11 goes into the relation between the three main variables in Ajzen's model: attitude, subjective norms and perceived behaviour control. In Chapter 6 these hypotheses will be further explored and tested, using data gathered with the DINAMO over the past years.

4 Construction of the DINAMO

Summary

In this chapter it will be shown how the DINAMO was constructed, starting from Ajzen's model of planned behaviour. Firstly, three pilot studies will be briefly discussed; these lead to an a priori version of this inventory. Secondly, the a priori structure and contents of the DINAMO will be presented and sample items of the a priori scales will be given. The second part of this chapter contains factor and reliability analyses which were performed to build the final version of the DINAMO. In sum, the analyses for the most part supported the a priori structure, and reliabilities for all scales were found to be highly satisfactory. Factor analyses supported Ajzen's distinction between the cognitive and affective orientations which people hold toward attitude objects. Furthermore, the factor analysis of the perceived behaviour control items resulted in three separate factors matching Bandura's concept of self-efficacy (Bandura, 1986) and Rotter's concepts of external and internal locus of control (Rotter, 1966).

4.1 Sketch of the DINAMO research project

In 1994 a first pilot study was carried out in order to test the applicability of Ajzen's model of planned behaviour for the assessment of willingness to change. This study took place at the Dutch police and concentrated on the willingness of Dutch police officers to participate in projects, a work method which brings about major changes in the way the officers execute their tasks. The aim of the study was twofold: on the one hand the investigation set out to present a first overview of antecedents of willingness to change, and on the other hand the study ventured to analyze the strengths and limitations of Ajzen's model in the context of organizational change.

For the measurement of respondents' attitudes toward change, a questionnaire was used, based on Hackman and Oldham's 'job characteristics model' (Hackman & Oldham, 1980). Respondents were asked to note the expected influence of the change on a number of job characteristics such as task variety, job responsibility and quality of the work. The subjective norm toward the change was assessed by means of a questionnaire which allowed the respondents to score the attitudes of others in their work environment, such as colleagues and their direct supervisors, toward the change. Respondents' perceived control over the change was measured through the application of a questionnaire listing internal and external control factors such as experience information and resources (time, manpower). Respondents were asked to indicate the availability of these control factors for the implementation of the change. Items relating to the respondents' willingness to change were dispersed through the above three questionnaires. In sum, 304 officers took part in the investigation, of whom 197 had already participated in projects and 107 had had no experience so far with the new approach.

The outcomes of this study (see also Metselaar, Walet, Cozijnsen & Padua, 1996) suggested that Ajzen's model does indeed offer a workable scheme for the assessment of the willingness to change. Satisfactory relations between the variables from Ajzen's model and the willingness to change were found. The study showed that willingness to change varied strongly amongst the participants involved in the change process. However, the relationship between willingness to change and participation in projects (the behaviour at focus) turned out to be weak. Further analyses showed that especially the lack of decision-making freedom strongly influenced the relation between these two measures. Although Ajzen does not explicitly identify this factor, it clearly served as an important

boundary variable in this study. In Chapter 6 the relation between the willingness to change and change-related behaviour will be discussed in greater detail.

In the course of 1994 a second pilot study was performed to further test Ajzen's model of planned behaviour for the assessment of willingness to change. The study took place at two schools from a northern town in the Netherlands which were in the process of merging. Both schools provided economical, technical and cultural education at a high level for students above the age of 17. Merging was seen as a possibility to improve the competitiveness of both schools in the fast-moving field of polytechnic education.

For this second pilot study, a standardized questionnaire was developed which was based on the model presented in section 3.4. This questionnaire focused on the willingness of middle managers from both organizations (n=64) to put effort into the implementation of the merger. The study revealed important differences in the willingness to do so between managers from both organizations. Document studies and supplementary interviews confirmed this result, which provided a first support for the validity of the questionnaire. Degrees of willingness to change were found to vary strongly among the middle managers. Based on content analysis and supplementary factor and reliability analyses poor items were rewritten or removed from the questionnaire and replaced by new items. The resulting questionnaire was used in a third pilot study to further investigate its applicability for the assessment of middle managers' willingness to change.

The third pilot study took place during a merger of nine schools in the field of Dutch polytechnic education. The schools were forced to merge because of a new law, proposed to parliament in 1993 by the Dutch Ministry of Education and Science. The law was primarily based on a new concept of management and affected the management and organization of all polytechnics in the Netherlands. The new concept of management was characterized by a combination of two aspects: autonomy and scale enlargement. As a consequence of the new law, a great number of schools in the field of polytechnic education were forced to merge, forming Regional Education Centres (RECs).

In a region with nine polytechnical schools merging to form a REC, the willingness to change was measured for a sample of middle managers from those nine schools (n=90). The results of this study (van Ittersum, 1995) showed middle managers' willingness to change varying between the schools in our

sample. Furthermore, attitudes, perceived subjective norms and behaviour control were found to be significantly related to managers' willingness to change. Just as did the first and second studies, this pilot study provided strong support for the applicability of Ajzen's model for the assessment of willingness to change. Again, the questionnaire was revised by means of factor and reliability analyses, resulting in an a priori version of a questionnaire for the assessment of the willingness to change among middle managers. This questionnaire was named DINAMO.

In the course of 1995 and 1996 the a priori version of the DINAMO was used in a great number of change processes to assess middle manager's willingness to change. A short description of the cases is included in Appendix A. In total, the DINAMO was submitted to 604 middle managers in various organizations involved in major change processes. During the spring of 1996, final analyses were performed on the a priori version of the DINAMO in order to construct a final version. The results of the current study, as presented in Chapter 6, are based on this final version. In section 4.3 it is shown how the final version of the DINAMO was constructed by means of factor and reliability analyses on the a priori version. First, in section 4.2, the a priori version of the DINAMO is presented.

4.2 A priori structure and contents of the DINAMO

The a priori structure of the DINAMO consisted of ten scales, totalling 63 items. The scales formed ten homogeneous clusters around the five central elements of Ajzen's model, attitude, subjective norm, perceived behaviour control, intention and behaviour. Table 3 is based on the model presented in section 3.4 and gives an overview of the ten scales in the a priori version of the DINAMO.

Table 3. Overview of the ten scales in the a priori version of the DINAMO

	Scales in the a priori version of the DINAMO
Attitude	1. Consequences of the change for the middle manager's work (*ATT-w*)
	2. Manager's affective orientation toward the change (*ATT-a*)
	3. Perceived value of the change for the organization (*ATT-o*)
Subjective norm	4. Colleagues' attitudes toward the change (*SN*)
Behavioural control	5. Self-control; the knowledge and experience that the middle managers have at their disposal to successfully implement the change (*CTR-s*)
	6. External control; the resources (e.g. time, information) that the middle managers have at their disposal to successfully implement the change (*CTR-e*)
	7. Process control; the managers' contentment with, and perceived control over, the rate at which the change process develops (*CTR-p*)
	8. Perceived complexity of the change (*CTR-c*)
Intention	9. The middle managers' willingness to change (*W*)
Behaviour	10. Overt manifestations of willingness or resistance to change (*B*)

Below, an overview will be presented of the items from the a priori version of the DINAMO. For each scale, sample items from the inventory will be given. In addition to the scale's abbreviation, each item will be assigned a number. In the following sections the items will be referred to by means of these two characteristics.

ATT-w: Consequences of the change for the middle manager's work

For the assessment of the anticipated consequences of the change for the work, managers were asked to rate the anticipated influence of the change on various job characteristics. For the construction of the a priori ATT-w scale, the following items were adopted from Hackman and Oldham's job description model (Hackman & Oldham, 1980).

1. The meaningfulness of the manager's work
2. The extent to which the manager feels responsible for the results of his or her work
3. The amount of feedback the manager is given on the results of his or her work
4. The quality of the manager's work
5. The manager's work satisfaction
6. The workload the manager experiences
7. The rewards the manager receives
8. The manager's commitment to the organization
9. The manager's career

Sample item: How do you expect the change to affect the quality of the work you produce?
very negatively 1 2 3 4 5 very positively

ATT-a: Managers' affective orientation towards the change

For the assessment of managers' affective response to the change, managers were asked to indicate their feelings about the change, thinking about their own position. For the construction of the a priori ATT-a scale, the following scale extremes were included:

1. Threat versus opportunity
2. Good versus bad
3. New versus familiar
4. Positive versus negative
5. Exciting versus intimidating

Sample item: I find this change:
a threat 1 2 3 4 5 an opportunity

ATT-o: The value of the change for the organization

The ATT-o scale goes into the value of the change for the organization. Managers were asked to indicate how the organization as a whole perceives the change. For the construction of the a priori ATT-o scale, the following scale extremes were used:

1. Threat versus opportunity
2. Good versus bad
3. New versus familiar
4. Value of the change for the organization is clear versus unclear

Sample item: How does the organization as a whole perceive the change?
good 1 2 3 4 5 bad

SN: Collegial attitudes towards the change

For the assessment of the subjective norm toward the change, managers were asked to indicate how their colleagues feel about the change. For the construction of the a priori SN scale, the following persons and groups were included:

1. Others in the manager's organizational position
2. The employees in the manager's unit
3. The manager's supervisor
4. The manager's partner at home (if applicable)
5. The senior management
6. The board of directors

Sample item: Please indicate how your supervisor feels about the change:
very negative 1 2 3 4 5 very positive

CTR-s: Self-control factors

The CTR-s scale contains items related to the manager's knowledge of and experience with organizational change processes. For the assessment of self-control factors managers were asked to indicate the availability of these factors for the implementation of the change. The following control factors were included in the a priori CTR-s scale:

1 The number of change processes the manager has been actively involved in the past
2. The manager's overview of the consequences of the change for his or her position
3. The manager's overview of the consequences of the change for his or her department
4. The manager's experience with organizational change processes
5. The manager's ability to prevent any resistance among co-employees
6. The manager's ability to motivate co-employees to contribute to the success of the change process
7. The manager's work-related professional knowledge
8. The manager's experiences with the execution of earlier change scenarios

Sample items: I have had bad experiences with organizational change processes.
strongly disagree 1 2 3 4 5 strongly agree

By motivating people, I can contribute to the successful outcomes of the change.
strongly disagree 1 2 3 4 5 strongly agree

CTR-e: External control factors

The CTR-e scale contains items related to external control factors (e.g., information, financial and human resources) which the middle manager has at his or her disposal to successfully implement the change. For the assessment of externally located control factors managers were asked to indicate the availability of these factors for the implementation of the change. The following control factors were included in the a priori CTR-e scale:

1. Concern among co-employees about the consequences of the change for job security
2. Concern among co-employees about the financial consequences of the change
3. Concern among co-employees about the managerial consequences of the change
4. Concern among co-employees about the consequences of the change for their every-day work
5. The experiences the manager's employees has with implementing change
6. The manager's say in change-related decision-making concerning his or her department
7. The amount of time the manager can spend on the implementation of the change
8. The amount of information the manager has received about the consequences of the change for his or her department
9. The amount of information the manager has received about the consequences of the change for his or her own position
10. Other organizational change processes that take up remaining time
11. Information the manager has received about the consequences of the change for his or her staff
12. The manager's opportunity to contribute to change-related decision-making

Sample items:

The people I manage are concerned about the possible consequences of the change for job security
strongly disagree 1 2 3 4 5 strongly agree

Apart from this change, other organizational change processes are going on that take up my remaining time
strongly disagree 1 2 3 4 5 strongly agree

I have enough say in change-related decision-making concerning my department
strongly disagree 1 2 3 4 5 strongly agree

CTR-p: Control over and contentment with the change process

The CTR-p scale contains items related to managers' contentment with and control over the rate at which the change process develops. The following control factors were included in the a priori CTR-p scale:

1. The way the project-team is working
2. The manager's influence over the rate at which the change process develops
3. The ease or difficulty at which the phases in the change process can be followed by the manager
4. The amount of time available to implement the change
5. The rate at which the change is implemented
6. The quality of the information supply around the change
7. The manager's contentment with the original time schedule

Sample items:

I can successfully implement the change process following the set phases gradually
strongly disagree 1 2 3 4 5 strongly agree

The information supply around the change runs behind the actual developments
strongly disagree 1 2 3 4 5 strongly agree

CTR-c: Perceived complexity of the change

The perceived complexity of the change was assessed by means of items relating to various central elements of organizational functioning. Managers were asked to indicate to what degree these elements will alter as a result of the change. The following elements of organizational functioning were included in the a priori version of the CTR-c scale:

1. The market position of the organization
2. The primary goals of the organization
3. The organization's culture
4. The way decisions are made in the organization
5. The substance of the jobs of the employees in the manager's unit
6. The way the organization is managed
7. The way the organization markets itself

Sample item: To what degree do you think the way your organization markets itself will alter as a result of the change?

no change 1 2 3 4 5 great change

W: The middle manager's willingness to change

The middle managers' willingness to change was assessed by means of four items relating to the manager's intention to invest time and effort to support the implementation of the change. The following items were included in the a priori version of the W scale:

1. Intention to convince employees of the benefits the change will bring
2. Intention to put effort into achieving the goals of the change
3. Intention to reduce resistance among employees
4. Intention to make time to implement the change

Sample item: I intend to try to convince employees of the benefits the change will bring.
strongly disagree 1 2 3 4 5 strongly agree

Whereas all the above items are based on self-assessment questions, the last element of Ajzen's model was operationalized by means of a peer-rating scale. Because it is difficult, if not impossible, to get a reliable impression of the managers' own behaviour, managers were asked to indicate how others in their organizational position react to the change. This allows the computation on group level of a reliable measure of overt manifestations of willingness or resistance to change. Furthermore, it completes the operationalization of Ajzen's model for the middle manager's role in a change process.

B: Overt manifestations of willingness or resistance to change

The following change-related behaviours were included in the a priori version of the Behaviour-scale:

1. Colleagues are putting in a lot of energy to ensure the change's successful implementation
2. Colleagues support the change
3. Colleagues feel involved but need more information
4. Colleagues do not talk about the change
5. Colleagues follow a 'wait and see' policy
6. Colleagues talk negatively about the change in private
7. Colleagues talk negatively about the change during meetings
8. Colleagues call in sick

The above items from the behaviour-scale form a continuum that ranges from overt manifestations of willingness to change (colleagues are putting in a lot of energy) to overt manifestations of resistance to change (colleagues call in sick). The items are scored dichotomously, that is, managers are asked to mark all relevant behavioural categories. This produces a curve from which the relative distribution of managers over the above behavioural categories can be concluded. Subsequently, at the group level the relation can be investigated between antecedents of the willingness to change and change-related behaviour.

4.3 Empirical structure and contents of the DINAMO

The analytic strategy for testing the empirical structure of the DINAMO comprised three steps. Firstly, principal components analyses with varimax rotation were performed on the items related to the three central elements of Ajzen's model. Thus, a principal component analysis with varimax rotation was performed on the attitude items, on the subjective norm items and on the perceived behaviour control items. The three clusters were analyzed separately because the a priori coherence between the clusters might blur the results of a principal component analysis over all items. Furthermore, varimax rotation was used instead of oblique rotation because the primary aim of the factor analysis was to distinguish orthogonal factors within the three central elements of Ajzen's model.

An item was included in a factor if its factor loading was greater than .30 (Gorsuch's rule of thumb, Gorsuch, 1983) and if the difference between the item's factor loading and loadings on other factors was greater than .20. Scales with fewer than three items were omitted from further analysis. In the second step, reliability analyses were performed on the scales resulting from the first analytical step and on the willingness scale. Finally, in the third step, the reliabilities of the final scales were improved by removing items with item-scale correlations lower than .20 (Kline's rule of thumb, Kline, 1986). Analyses were performed on the aggregated sample of cases 1 to 9 and case 11 and 12. The Polish cases were excluded from the analyses. The results are presented below (N=402).

Step 1

For the factor analysis of the attitude items, the number of factors to be extracted was set at 3, following the a priori structure of the DINAMO. A factor analysis using a varimax rotation method resulted in 3 factors with eigen values of 7.0, 1.6, and 1.2 respectively, explaining 69 percent of variance. Table 4 presents the factors, factor loadings (f.l.) and items which met the above criteria. The following item did not meet the criteria and was omitted from further analysis: ATT-o (4). This item loaded .51 on factor 3 and .41 on factor 1.

Table 4. Factors and factor loadings for the attitude-items

Factor 1	f.l.	Factor 2	f.l.	Factor 3	f.l.
ATT-w (1)	.62	ATT-a (1)	.69	ATT-o (1)	.78
ATT-w (2)	.68	ATT-a (2)	.77	ATT-o (2)	.54
ATT-w (3)	.64	ATT-a (3)	.54	ATT-o (3)	.82
ATT-w (4)	.68	ATT-a (4)	.81		
ATT-w (5)	.73	ATT-a (5)	.75		
ATT-w (6)	.52				
ATT-w (7)	.62				
ATT-w (8)	.64				
ATT-w (9)	.54				

Table 4 shows high factor loadings on factor 1 for the items relating to a manager's cognitive evaluation of the anticipated influence of the change on various job characteristics. The items relating to an affective evaluation of change are found in factor 2. Factor 3 contains the items relating to the value of the change for the organization. In sum, the above results confirm the a priori structure of the DINAMO with respect to the attitude items. The factor analysis supports the a priori structure of the attitude dimension.

For the factor analysis of the subjective norm items, the number of factors to be extracted was not set beforehand. A factor analysis using a varimax rotation method resulted in 2 factors with eigen values of 2.4 and 1.5 respectively, explaining 64 percent of variance. Table 5 presents the factors, factor loadings and items which met the above criteria. Item SN (3) did not meet the above criteria and was omitted from further analysis. This item loaded .47 on factor 1 and .54 on factor 2 and did not meet the second criterium.

Table 5. Factors and factor loadings for the subjective norm items

Factor 1	f.l.	Factor 2	f.l.
SN (1)	.75	SN (5)	.90
SN (2)	.83	SN (6)	.81
SN (4)	.69		

The factor analysis presented in Table 5 produced two separate factors within the a priori subjective norm dimension. The first factor contains perceptions of co-worker attitudes and the attitude of the partner at home toward the change. The second factor contains perceptions of the attitudes of the senior management and board of directors. Although both scales are fairly small, they were maintained in the further analysis for reasons of content validity.

For the factor analysis of the perceived behaviour control items, the number of factors to be extracted was set at 4, following the a priori structure of the DINAMO. A factor analysis using a varimax rotation method resulted in 4 factors with eigen values of 6.2, 3.7, 2.2, and 1.7 respectively, explaining 58 percent of the variance. Table 6 presents the factors, factor loadings and items which met the above criteria. The following items did not meet the above criteria and were omitted from further analyses: CTR-e (5 to 7), CTR-e (10), CTR-p (2), CTR-p (6) and CTR-p (7). CTR-e (5) loaded .35 on factor 1 and .26 on factor 3 and did not meet the second criterium. CTR-e (6) loaded .39 on factor 1 and .47 on factor 3 and also did not meet the second criterium. CTR-e (7) did not load higher than .30 on any factor and did not therefore meet Gorsuch's criterium (Gorsuch, 1983). CTR-e (10) loaded .18 on item 3 and .37 on item 4 and did not meet the second criterium. CTR-p (2) loaded .37 on factor 1 and .48 on factor 3 and also did not meet the second criterium. CTR- p (6) did not load higher than .30 on any factor and, lastly, nor did item CTR-p (7).

Table 6. Factors and factor loadings for the behaviour control items

Factor 1	f.l.	Factor 2	f.l.	Factor 3	f.l.	Factor 4	f.l.
CTR-s (2)	.53	CTR-c (1)	.58	CTR-s (1)	.37	CTR-p (4)	.76
CTR-s (3)	.53	CTR-c (2)	.76	CTR-s (5)	.54	CTR-p (5)	.78
CTR-s (4)	.46	CTR-c (3)	.79	CTR-s (6)	.66		
CTR-e (1)	.72	CTR-c (4)	.80	CTR-s (7)	.56		
CTR-e (2)	.69	CTR-c (5)	.70	CTR-s (8)	.66		
CTR-e (3)	.67	CTR-c (6)	.75	CTR-p (1)	.47		
CTR-e (4)	.69	CTR-c (7)	.80	CTR-p (3)	.55		
CTR-e (8)	.68						
CTR-e (9)	.60						
CTR-e (11)	.64						
CTR-e (12)	.56						

The results of the factor analysis partially support the a priori structure of the perceived behaviour control dimension. Factor 1 mainly consists of items from the CTR-e scale, supplemented by three items from the CTR-s scale. All items from the CTR-c scale loaded on the second factor. Factor 3 chiefly consists of items from the CTR-s scale, supplemented by two items from the CTR-p scale. The fourth factor consists of two items from the CTR-p scale. Because this factor consists of two items, this factor was omitted from further analysis.

Step 2 and step 3

In the second analytical step, reliability analyses were performed on the scales that resulted from the first step. For the reliability analyses the dataset that was used in step 1 was used again. Items with item-scale correlations lower than .20 were removed. The scale's reliabilities and item-scale correlations (i.s.c.) for each item are presented below. Table 7 presents the results of the reliability analyses on the attitude items.

Table 7. Cronbach's alpha's for the attitude items

Factor 1	i.s.c	Factor 2	i.s.c.	Factor 3	i.s.c.
ATT-w (1)	.67	ATT-a (1)	.68	ATT-o (1)	.60
ATT-w (2)	.56	ATT-a (2)	.69	ATT-o (2)	.52
ATT-w (3)	.63	ATT-a (3)	.50	ATT-o (3)	.43
ATT-w (4)	.68	ATT-a (4)	.80		
ATT-w (5)	.72	ATT-a (5)	.73		
ATT-w (6)	.47				
ATT-w (7)	.50				
ATT-w (8)	.67				
ATT-w (9)	.56				
Reliabilities:	$\alpha = .87$		$\alpha = .86$		$\alpha = .70$

Table 7 shows high reliabilities for the factors extracted from the attitude items. None of the item-scale correlations were lower than .20. The reliability of factor 3 was somewhat lower than the reliabilities of the other two factors; this is probably due to the low number of items in this factor. Because the three factors were similar to the a priori structure of the attitude dimension, factor 1 was named ATT-w (consequences of the change for the manager's work), factor 2 was named ATT-a (manager's affective response to change) and factor 3 was named ATT-o (value of the change for the organization).

Table 8 presents the results of the reliability analyses on the subjective norm items.

Table 8. Cronbach's alpha's for the subjective norm items

Factor 1	i.s.c.	Factor 2	i.s.c.
SN (1)	.43	SN (5)	.59
SN (2)	.55	SN (6)	.59
SN (4)	.43		
Reliabilities:	$\alpha = .66$		$\alpha = .75$

Table 8 shows satisfactory reliabilities for the factors extracted from the subjective norm items. Again, none of the item-scale correlations were lower than .20. Factor 1 relates to perceptions of co-worker attitudes and the attitude of the partner at home toward the change. The second factor relates to perceptions of attitudes toward change of the senior management and board of directors.

Because the perceived social distance to the referent individuals included in the SN scale might have resulted in two separate factors, henceforth the first factor will be named 'proximal subjective norm' (SN-p) and the second factor will be named 'distal subjective norm' (SN-d).

Table 9 presents the results of the reliability analyses on the perceived behaviour control items.

Table 9. Cronbach's alpha's for the behaviour control items

Factor 1	i.s.c.	Factor 2	i.s.c.	Factor 3	i.s.c.
CTR-s (2)	.53	CTR-c (1)	.49	CTR-s (1)	.25
CTR-s (3)	.51	CTR-c (2)	.65	CTR-s (5)	.44
CTR-s (4)	.37	CTR-c (3)	.66	CTR-s (6)	.49
CTR-e (1)	.57	CTR-c (4)	.70	CTR-s (7)	.44
CTR-e (2)	.54	CTR-c (5)	.60	CTR-s (8)	.61
CTR-e (3)	.53	CTR-c (6)	.67	CTR-p (1)	.30
CTR-e (4)	.50	CTR-c (7)	.71	CTR-p (3)	.46
CTR-e (8)	.59				
CTR-e (9)	.54				
CTR-e (11)	.59				
CTR-e (12)	.54				
Reliabilities:	$\alpha = .85$		$\alpha = .87$		$\alpha = .71$

Table 9 shows high reliabilities for the factors extracted from the perceived behaviour control items. Because none of the item-scale correlations were lower than .20, all items were included in the final scales. Although some items of the CTR-s scale are included in factor 1, this factor strongly resembles the CTR-e scale which was based on Rotter's concept of external control. Analyses of the contents of this scale reveals that all items in this factor relate to topics such as information and uncertainty about the consequences of the change. In accordance with the a priori structure of the DINAMO this factor was named CTR-e (external control). The second factor is similar to the complexity scale and is named CTR-c (complexity of the change). Factor number 3 includes items from the a priori CTR-s scale as well as two items from the a priori CTR-p scale. In accordance with the a priori structure of the perceived behaviour control dimension, this factor was named CTR-s (self-control).

The last table of this section presents the results of the reliability analysis of the willingness to change items. Four items were included in the a priori version of this scale. Table 10 shows item-scale correlations and the reliability for this scale.

Table 10. Cronbach's alpha for the willingness to change items

Items	i.s.c.
W (1)	.67
W (2)	.70
W (3)	.72
W (4)	.59
Reliability	$\alpha = .84$

The reliability of the willingness to change scale is high and no items were excluded from the scale. In accordance with the a priori structure of the DINAMO this scale was named W (willingness to change).

Table 11 summarizes the result of the above three analytical steps. For a description of the test items in terms of mean scores, standard deviations and skewness, the reader is referred to Appendix B.

Table 11. Reliabilities and number of items for the empirical scales of the DINAMO

Ajzen's variable	Abbreviation	Description	α	Number of items
Attitude	ATT-w	Consequences of the change for the manager's work	.87	9
	ATT-a	Managers' affective orientation towards the change	.86	5
	ATT-o	Value of the change for the organization	.70	3
Subjective norm	SN-p	Proximal subjective norm	.66	3
	SN-d	Distal subjective norm	.75	2
Perceived	CTR-e	Information and uncertainty about the change	.85	11
behaviour control	CTR-c	Perceived complexity of the change	.87	7
	CTR-s	Knowledge and experience of the manager	.71	7
Intention	W	Willingness to change	.84	4

First, the factor analysis of the attitude items revealed three factors, matching the scales for managers' cognitive and affective orientation toward change and matching the scale which captures the value of the change for the organization. Reliabilities of all three scales were highly satisfactory. Second, the factor

analysis of the subjective norm items revealed two scales with satisfactory reliabilities, given the number of items included. The first scale related to perceptions of co-worker attitudes and the attitude of the partner at home toward the change and was named 'proximal subjective norm' (SN-p). The second scale related to perceptions of attitudes toward change of the management and board of directors and was named 'distal subjective norm' (SN-d). Third, the factor analysis of the perceived behaviour control items resulted in three scales: external control (CTR-e), complexity of the change (CTR-c) and self-control (CTR-s). Several items from the a priori CTR-p scale did not meet the criteria and were omitted from further analyses. Because the resulting CTR-p scale contained only two items it was excluded from the final version of the DINAMO. Finally, reliability analysis of the a priori willingness to change scale resulted in high item-scale correlations and a high reliability for this scale.

5 Validation of the DINAMO

Summary

This chapter deals with the validity of the DINAMO. Three types of validity will be discussed; content validity, construct validity and concurrent validity. With regard to the content validity of the DINAMO it will be made clear that the test items adequately sample the relevant domains. This leads to the conclusion that Ajzen's model of planned behaviour was operationalized properly for the measurement of the willingness to change among middle managers. With regard to the construct validity of the DINAMO it will be shown that managers who scored high on measures for rigidity and fear of failure were less willing to put effort into the goals of change processes and that managers who scored high on Kirton's originality measure (Kirton, 1989) held a more positive affective orientation towards change than managers who scored low on this measure. No relation was found between the willingness to change and job satisfaction. With regard to the relation between willingness to change and organizational commitment it appears that from a linear relations perspective a positive relation exists between managers' organizational commitment and their willingness to put effort into the goals of change processes. Moreover, the analysis of a non-linear relationship turns out to lead to promising results. Finally, with respect to the concurrent validity of the DINAMO it will be defended that the DINAMO should be used with great caution when volitional control is low, that is, if managers involved in change processes cannot decide freely whether to contribute or not.

5.1 Content validity of the DINAMO

Examining content validity requires an estimate of the representativeness of the contents of a test for a certain type (universum) of situations, knowledge or skills (Drenth, 1988, p. 242). In the case of the DINAMO, examining content validity therefore means judging whether the central elements of Ajzen's model are operationalized in such a way that the items adequately represent domains relevant to a middle manager's willingness to contribute to the implementation of change.

Procedure

The procedure for testing the content validity of the DINAMO consisted of three steps. First, judges rated the importance of each item for the measurement of the domain the item was supposed to represent. Second, a stability coefficient for the assessment of inter-rater agreement was computed for each item. Third, for items with stability coefficients exceeding .70, a measure of representativeness was computed on the basis of the average importance of the item for the domain it represented. Because no generally accepted rule was found on which to base the cut-off limit for the stability coefficient, an analogy was made with Cronbach's alpha. For this measure of internal consistency, which is also a measure of stability, a cut-off limit of .70. is applied as a general rule. A comparison with other measures for stability such as Cohen's Kappa and the coefficient of concordance teaches us that the cut-off limit of .70 for the stability coefficient is fairly strict. How this worked out in the results of the content validity study will be discussed below.

In order to assess the representativeness of the items, 16 judges (11 consultants and 5 managers) rated the importance of each item for its specific domain. A sample item is presented below, for the domain 'consequences of the change for the middle manager's work'.

Sample question:

How important do you consider item 5 (anticipated effects of the change on the manager's work satisfaction) to be for the assessment of the consequences of the change for the manager's work?

1 Not important
2 Not important/not unimportant
3 Important

In the second step, for each item a stability coefficient was computed based on the following equation

$$s.c. = 1 - (Var_{observed} - Var_{min})(Var_{max} - Var_{min})^{-1}$$

equation 5.1

where s.c. stands for stability coefficient, $Var_{observed}$ is the observed variance in the ratings of the judges, Var_{min} is the minimum expected amount of variance in the ratings of the judges and Var_{max} is the maximum expected amount of variance in the ratings of the judges. The minimum amount of variance can be expected when there is total agreement amongst the judges. In this case (Var_{min}) equals 0. The maximum amount of variance equals 1 and can be expected when there is total disagreement amongst the judges. This is the case when the 16 judges are equally divided over the opposite categories of the above interval scale (category 1 and category 3). It follows than that Var_{max} can be computed by using the statistics

$$Var_{max} = (\Sigma(x-m)^2 - (\Sigma x-m)^2)(n-1)^{-1}$$

equation 5.2

where x is the raw score, m is the mean score and n is the number of judges. Thus, for the case of 16 judges at opposite sides of the interval scale, Var_{max} is

$$Var_{max} = (16 - 0)(16-1)^{-1} = 1.07$$

Finally, by filling out Var_{max} in equation 5.1, stability coefficients can be computed by using the statistics

$$s.c. = 1 - (Var_{observed} - 0)(1.07 - 0)^{-1}$$

equation 5.3

In Table 12, stability coefficients and measures for representativeness are presented for each item from the final version of the DINAMO. Although both measures are theoretically independent, a first evaluation of Table 12 leads to the conclusion that they seem related in our study. Items with high stability scores all have high representativeness scores as well. One would not expect this, because just as the external validity of a scale is limited by the reliability of a scale, the stability coefficient of an item only determines the upper limit for the representativeness score, and not the lower limit. Items on which the judges agree can in theory still have low representativeness scores. In our study this is not the case.

Table 12. Stability coefficients (s.c.) and representativeness scores (r.s.) for all items from the final version of the DINAMO

Item	s.c.	r.s.	Item	s.c.	r.s.	Item	s.c.	r.s.
ATT-w (1)	0.66	n.c.*	SN (1)	0.76	2.56	CTR-e (3)	0.81	2.75
ATT-w (2)	0.06	n.c.	SN (2)	0.81	2.75	CTR-e (4)	0.77	2.63
ATT-w (3)	0.40	n.c.	SN (4)	0.64	n.c.	CTR-e (8)	0.64	n.c.
ATT-w (4)	0.62	n.c.	SN (5)	0.64	n.c.	CTR-e (9)	0.85	2.81
ATT-w (5)	0.77	2.69	SN (6)	0.39	n.c. (4)	CTR-e (11)	0.89	2.88
ATT-w (6)	0.71	2.25				CTR-e (12)	0.85	2.81 (6)
ATT-w (7)	0.46	n.c.	CTR-s (1)	0.77	2.38			
ATT-w (8)	0.76	2.38	CTR-s (5)	0.79	2.69	CTR-c (1)	0.66	n.c.
ATT-w (9)	0.75	2.50 (1)	CTR-s (6)	0.75	2.56	CTR-c (2)	0.71	2.25
			CTR-s (7)	0.63	n.c.	CTR-c (3)	0.75	2.56
ATT-a (1)	0.94	2.94	CTR-s (8)	0.75	2.56	CTR-c (4)	0.77	2.63
ATT-a (2)	0.35	n.c.	CTR-p (1)	0.35	n.c.	CTR-c (5)	0.77	2.63
ATT-a (3)	0.44	n.c.	CTR-p (3)	0.75	2.5 (5)	CTR-c (6)	0.81	2.25
ATT-a (4)	0.79	2.69				CTR-c (7)	0.72	2.18 (7)
ATT-a (5)	0.71	2.25 (2)	CTR-s (2)	0.77	2.63			
			CTR-s (3)	0.64	n.c.	W (1)	0.85	2.81
ATT-o (1)	0.63	n.c.	CTR-s (4)	0.56	n.c.	W (2)	0.85	2.81
ATT-o (2)	0.44	n.c.	CTR-e (1)	0.81	2.75	W (3)	0.79	2.69
ATT-o (3)	0.53	n.c. (3)	CTR-e (2)	0.64	n.c.	W (4)	0.61	n.c. (8)

*n.c. not computed

Inspection of Table 12 shows that the content validity of cluster 1, representing the attitude scale 'consequences of the change for the manager's work', is not optimal. Judges did not reach agreement for the items ATT-w (1 to 4) and ATT-w (7) and therefore no representativeness scores were calculated for these items. Agreement was reached for the items ATT-w (5 and 6) and ATT-w (8 and 9). The representativeness scores of these items show that, according to the judges, these items adequately represent the domain 'consequences of the change for the manager's work'. With respect to cluster 2, containing items from the second attitude scale 'managers' affective response to change', judges reached agreement for items ATT-a (1) and ATT-a (4 and 5). Following the judgement of the 16 experts, these items adequately represent the domain 'managers' affective response to change'. No agreement was reached for items ATT-a (2 and 3) and no representativeness scores were calculated for these items. Cluster 3, representing the third and last attitude scale, comes to the fore as the weakest cluster with regard to its content validity. For none of the three items was agreement reached in terms of their importance for the domain 'value of the change for the organization'. Cluster 4 also turned out to be weak in terms of content validity. The judges only found the items SN (1 and 2) to adequately represent the domain 'subjective norm towards the change'.

For cluster 5, representing the behaviour control scale 'knowledge and experience of the manager', the content validity was found to be sufficient. Agreement was reached for the items CTR-s (1) and CTR-s (5, 6 and 8) and CTR-p (3). From their representativeness score it can be concluded that these items adequately represent the domain 'knowledge and experience of the manager'. Insufficient agreement was reached for the items CTR-s (7) and CTR-p (1). With respect to cluster 6, representing the second behaviour control scale 'information and uncertainty about the change', the content validity was also found to be sufficient. Agreement was reached for the items CTR-s (2) and CTR-e (1, 3, 4, 9, 11, 12). In addition, the representativeness scores of these items were high, ranging from a minimum of 2.5 to a maximum of 2.88. The results show that, according to the judges, these items adequately represent the domain 'information and uncertainty about the change'. No agreement was reached for the items CTR-s (3 and 4) and CTR-e (2 and 8) and so no representativeness score were calculated.

Cluster 7, representing the third behaviour control domain 'perceived complexity of the change', comes to the fore as the strongest cluster in terms of content validity. For all items, except CTR-c (1), agreement was reached as to their

representativeness for the domain 'perceived complexity of the change'. Representativeness scores varied from a minimum of 2.18 to a maximum of 2.83. For the last cluster (8), representing the intention domain 'willingness to change', content validity was also found to be sufficient. The judges reached agreement for the items W (1 to 3) and assigned high representativeness scores. No agreement was reached for item W (4). Because its stability score did not exceed 0.70 no representativeness score was calculated for this item.

The conclusion as to the content validity of the DINAMO is that despite the fairly strict cut-off limit of .70 judges reached agreement for most of the items. Two domains were sampled improperly according to the judges. These were the domains 'value of the change for the organization' and 'subjective norm towards the change'. With regard to the stable items in the remaining attitude and perceived behaviour control clusters, it can be concluded that they adequately represent domains relevant to a middle manager's willingness to contribute to the implementation of change. In sum, it appears that in terms of content validity, Ajzen's model was operationalized adequately for the measurement of the willingness to change among middle managers.

5.2 Construct validity of the DINAMO

This section primarily focuses on the convergent validity of the DINAMO. The relations between managers' scores on the DINAMO and three personality traits (rigidity, anxiety about failure and originality), and two measures from work psychology (job satisfaction and organizational commitment) will be discussed. The personality traits of rigidity, fear of failure and originality were chosen because these traits have frequently been shown to affect risk-taking or avoidance behaviour in situations characterized by high uncertainty. The measures of job satisfaction and organizational commitment were chosen because their relation with work motivation has frequently been investigated. Since this thesis perceives the willingness to change as a special kind of work motivation (see also section 2.4), these variables are likely to affect managers' intentions and perceptions of control related to organizational change.

Willingness to change and rigidity

For the measurement of rigidity, 5 items were adopted from the rigidity-flexibility dimension of the *Nederlandse Persoonlijkheids Vragenlijst* (Dutch Personality Questionnaire) developed by Luteijn, Starren, and van Dijk (1985). Those items were selected which showed the highest factor loadings on the rigidity-flexibility dimension. Rigidity is defined by Luteijn et al (1985) as the degree to which a person wants events to take place according to prefixed rules and principles. Because rigidity is often seen as an inhibitor of the acceptance of anything new, rigidity was hypothesized to correlate negatively with a manager's willingness to put effort into the goals of a change process.

In cases 1, 2, 5 and 9 (N=143) managers were asked to fill out the DINAMO, supplemented with items from the *Nederlandse Persoonlijkheids Vragenlijst*. The reliability of the rigidity measure was found to be .67. As can be seen from Table 13, rigidity correlates significantly with managers' affective response to change (Att-a), the perceived distal subjective norm (SN-d), information and uncertainty about the change (CTR-e), and willingness to change (W). All correlations are in the expected negative direction. The strongest correlation is found between rigidity and the willingness to change (r=-.26).

Although the correlations are weak, the data provide some evidence for the notion that managers scoring high on the rigidity measure hold a more negative affective orientation to change and are less inclined to perceive top management's attitudes as in favour of change. Subsequently, it appears that managers scoring high on the rigidity measure need more information and feel less secure about ongoing developments and are less willing to put effort into the goals of a change process.

Willingness to change and the fear of failure

For the measurement of fear of failure, 5 items were adopted from the fear-of-failure dimension of the *Dutch Prestatie Motivatie Test* developed by Hermans (1976). Those items were adopted which showed the highest factor loadings on the fear-of-failure dimension. The fear of failure is defined by Hermans (1976; p.5) as fear that leads to dysfunctional behaviour in situations characterized by high uncertainty and novelty. Most change processes fulfil these conditions. In this study, the fear of failure was expected to correlate negatively with a

manager's willingness to put effort into the goals of a change process.

In cases 1, 2, 5 and 9 (N=143) managers were asked to fill out the DINAMO, supplemented with items from the Dutch PMT. The reliability of the fear-of-failure measure was found to be .60. As can be seen from Table 13, fear of failure correlates significantly with expected outcomes of the change for the manager's work (Att-w), managers' affective response to change (Att-a), the perceived proximal subjective norm (SN-p), information and uncertainty about the change (Ctr-e) and managers' willingness to change (W). Again, the correlations are weak but in the expected direction, and again, the strongest negative correlation is found between fear of failure and willingness to change (r=-.27).

The data provide some evidence for the notion that managers scoring high on the fear-of-failure dimension expect more negative outcomes of change for their work and are less inclined to perceive colleagues' attitudes as being in favour of change than colleagues scoring low on this measure. Furthermore, the data support the notion that managers scoring high on the fear-of-failure measure need more information and feel less secure about ongoing changes than do colleagues scoring low on this measure. Finally, it appears that managers scoring high on the fear-of-failure measure are less willing to put effort into a change process.

Willingness to change and originality

Originality is defined by Kirton (1987) as the degree to which a person brings forth innovative ideas. Next to 'style of efficiency' and 'rule/group conformity', originality is one of the three dimensions of the Kirton Adaption Innovation Inventory. Kirton's inventory gives an indication of the degree to which a person prefers an adaptive or innovative problem-solving style. For the measurement of originality, 5 items with the highest factor loadings on the originality dimension were adopted from the KAI. It was hypothesized that originality correlates positively with managers' willingness to put effort into the goals of a change process.

In cases 1, 2, 5 and 9 (N=143) managers were asked to fill out the DINAMO, supplemented by items from the KAI. The reliability of the measure of originality was set at .77. As can be seen from Table 13, originality correlates significantly with managers' affective response to change (Att-a), information and uncertainty about the change (Ctr-e), self-control (Ctr-s) and willingness to change (W). All

correlations are in the expected direction. The strongest correlation is found between originality and information and uncertainty (r=.20).

The data provide some support for the notion that managers scoring high on Kirton's originality measure (Kirton, 1989) hold a more positive affective orientation to change and feel more secure with ongoing change processes. Furthermore, some evidence is found that originality is positively related to self-control measured with the DINAMO. Finally, managers scoring high on originality seem to be more willing to change than managers scoring low on originality.

Table 13. Correlations between scores on the DINAMO and rigidity, fear of failure, and originality

Construct	α	Att-w	Att-a	Att-o	Sn-p	Sn-d	Ctr-e	Ctr-s	Ctr-c	W
Rigidity	.67	n.s	-.15*	n.s	n.s	-.24*	-.19**	n.s	n.s	-.26***
Fear of failure	.60	-.20**	-.20**	n.s	-.22**	n.s	-.20**	n.s	n.s	-.27***
Originality	.77	n.s.	.16**	n.s	n.s	n.s	.20**	.15*	n.s	.18**

* $p < .05$ ** $p < .01$ *** $p < .001$ n.s. = non-significant

Willingness to change and job satisfaction

Evidence linking satisfaction with employee intentions (i.e. turnover intentions, absenteeism intentions, performance intentions) and behaviour is mixed (Locke, 1976; Mowday, Porter & Steers, 1982). The fact that satisfaction has been examined as an antecedent measure explaining worker intentions as well as an outcome measure following performance makes the results even more difficult to explain. For instance, goal theory (Locke & Latham, 1990a) and social-cognitive theory (Locke, 1991) both view goal success as leading to self-satisfaction, whereas in a study by Shore, Newton & Thornton III (1990) job satisfaction is viewed as an antecedent measure preceding the intentions of employees to perform well on the job.

As was stated in section 2.4, in this study willingness to change is considered a special case of work motivation. In accordance with Shore, Newton and Thornton's study (Shore et al. 1990) this view depicts job satisfaction as an

antecedent measure preceding employee intentions rather than as an outcome measure which follows performance. This thread of research was also followed in the study by Metselaar et al. (1996) cited earlier in which job satisfaction was linked to employee intentions to change and improve their work. In this study a negative relation was found between job satisfaction and the performance intention. This finding was in contrast with the results of the study of Shore et al. (1990). They predicted and found a positive relation between job satisfaction and employee intentions to perform well on the job.

The above studies support the notion that evidence linking satisfaction with employee intentions is mixed. Two explanations can be advanced to explain the divergent findings on this relation. Firstly, it can be argued that different behavioural intentions are being focused on in these studies; that is to say, intentions to perform well on the job are different from turnover intentions, and intentions to be absent are different from employees' intentions to change aspects of their work. In this case the differences between the employee intentions cause divergence in findings. However, this explanation is only valid in so far as it concerns divergent findings with respect to different types of intentions. This explanation does not hold for divergent findings within studies on only one type of performance intention. For instance, some literature supports the notion that job attitudes and job performance are positively related (Shore et. al, 1990; Petty, McGee & Cavender, 1984) whereas others suggest that the relation is negative or nonexistent (Metselaar et. al, 1996; Iaffaldano & Muchinsky, 1985; Locke, 1976).

From a linear relations perspective, the above findings are inconsistent because a regression line representing a linear relationship between two variables is either descending or ascending for every value of the independent variable. However, in case of a nonlinear relation between two variables, the slope of the line depends on the position of the independent variable on the X-axis. The line can be either ascending (on one side of the parabola), descending (on the other side of the parabola) or horizontal (at the centre of the parabola). A nonlinear parabolic relation helps explain both significant and insignificant relations as well as negative and positive relations between two variables, in our case job attitudes and performance intentions.

From a linear relations perspective regression analysis of a symmetric parabola would result in non-significant findings. This can be explained by the fact that in a symmetric parabola the positive and negative regression coefficients for the ascending and descending part of the parabola outweigh each other. However, from a non-linear relations perspective regression analyses result in a significant regression weight for the squared value of the independent variable. The dependent variable can be computed by using the formula

$$y = a + cx^2$$

Equation 5.2.1

where y stands for the dependent variable, x stands for the independent variable, a stands for the constant in the equation and c stands for the nonlinear regression coefficient.

The above equation is only valid for the situation in which the relation between two variables is represented by a symmetric parabola. In the case of an asymmetric parabola with a skewed distribution of the independent variable, a linear regression part must be added to the above equation. In this case the dependent variable can be computed by using the formula

$$y = a + bx + cx^2$$

Equation 5.2.2

where y stands for the dependent variable, x stands for the independent variable, a stands for the constant in the equation, b stands for the linear regression coefficient and c stands for the nonlinear regression coefficient.

To test the relation between job satisfaction and willingness to change, respondents in cases 15 and 16 were asked to fill out the SAT-G, a questionnaire developed by Taylor & Bowers (1972) and translated into Dutch by Koopman (1980). The questionnaire measures, on a five-point Likert scale, a worker's satisfaction with respect to the organization, their immediate superior, the work itself, its rewards, the career course, colleagues, and future perspectives. Willingness to change was measured with the W-scale of the DINAMO. Table 14 present the summarized statistics for this sample (N=101) for the dependent variable (y = willingness to change) and independent variables (x = work satisfaction, x^2 = squared value of the work satisfaction measure).

The correlations between the dependent and independent variables are presented in Table 15.

Table 14. Summarized statistics for work satisfaction (x), the squared value of the work satisfaction measure (x^2) and willingness to change (y)

		mean	s.d.	α
1.	x	3.7	.7	.87
2.	x^2	13.9	5.1	n.c
3.	y	4.3	.58	.81

n.c = not computed

Table 14 shows that both the dependent and independent variable have a highly skewed distribution. The mean scores on a five-point scale for these variables were high and standard deviations were small, limiting the amount of common variance. Although this might severely affect the results of the regression analysis that follow, we decided to continue the analyses.

Table 15. Correlations between work satisfaction (x), the squared value of the work satisfaction measure (x^2) and willingness to change (y)

		1	2	3
1.	x	1	-	-
2.	x^2	-	1	-
3.	y	.27	.28	1

* $p < .05$

To test the relation between the dependent variable and the independent variables, x and x^2 were entered in the regression equation explaining y. The results of this analysis are presented in Table 16.

Table 16. Results of the regression analysis of work satisfaction (x) and the squared value of the work satisfaction measure (x^2) on willingness to change (y)

Multiple R	.28				
R square	.08				
Standard Error	.56				
Variables the equation		B	Beta	T	p
x		-.22	-.27	-.31	.75
x^2		.06	.55	.63	.53
Constant		4.24		3.3	.00

As can be concluded from Table 16, none of the independent variables showed a significant relationship with the independent variable willingness to change. This finding is inconsistent with the study by Shore, Newton and Thornton (1994) cited earlier in which a positive relation was found between job satisfaction and employee intentions to perform well on the job. Furthermore, no support was found for the notion that the relation between job satisfaction and the willingness to change can be explained by nonlinear regression analyses. Because the skewed distribution of the variables might indeed have limited the amount of shared variance, the findings will not be further commented upon. More research is needed to examine the links between the willingness to change and job satisfaction.

Willingness to change and organizational commitment

To further explore the construct validity of the willingness to change, the relation was investigated between this variable and organizational commitment. In the definition of organizational change as presented in section 1.4 the emphasis is on implementing change to improve organizational efficiency and effectiveness. According to Meyer and Allen (1991), employees' willingness to contribute to organizational effectiveness will be influenced by the commitment they experience towards their organization. Thus, it was hypothesized that a positive relation exists between the willingness to change and organizational commitment. Following the nonlinear perspective presented above, a test for quadratic relations between the dependent and independent variable was included in the regression analysis.

Focal attention in this study was on the affective component of Meyer and Allen's model of organizational commitment. Following Meyer and Allen's three-component framework, affective commitment refers to the employee's emotional attachment to, identification with, and involvement in the organization (Meyer & Allen, 1991, p. 67). Besides the affective component, they distinguish two other types of commitment; continuance commitment and normative commitment. Continuance commitment refers to an awareness of the costs associated with leaving the organization. Normative commitment reflects a feeling of obligation to continue employment (Meyer & Allen, 1991, p. 67). In this study the focus was on affective commitment because this form, like the willingness to change, is most closely related to personal characteristics, work experience and job-related characteristics (Meyer & Allen, 1991).

To test the relation between affective organizational commitment and the willingness to change, respondents in cases 15 and 16 were asked to fill out a questionnaire developed by Den Hartog (1996). The questionnaire measures, on six-point Likert scales, an employee's affective commitment to the organization. Willingness to change was measured with the W-scale of the DINAMO. Table 17 presents the summarized statistics for this sample (N=90) for the dependent variable (y = willingness to change) and the independent variables (x = affective commitment, x^2 = squared value of the affective commitment measure). The correlations between the dependent and independent variables are presented in Table 18.

Table 17. Summarized statistics for affective commitment (x), the squared value of the affective commitment measure (x^2) and willingness to change (y)

		mean	s.d.	α
1.	x	4.3	.8	.75
2.	x^2	18.8	6.9	n.c
3.	y	4.3	.53	.81

n.c = not computed

Table 18. Correlations between affective commitment (x), the squared value of the affective commitment measure (x^2) and willingness to change (y)

		1	2	3
1.	x	1	-	-
2.	x^2	-	1	-
3.	y	.29*	.32*	1

*p<.01

To test the relation between the dependent variable and the independent variables, x and x^2 were entered in the regression equation explaining y. The results of this analysis are presented in Table 19.

Table 19. Results of the regression analysis of affective commitment (x) and the squared value of the affective commitment measure (x^2) on willingness to change (y)

Multiple R	.40
R square	.16
Standard Error	.49

Variables in the equation	B	Beta	T	p
x	-.1.54	-.2.4	-2.48	.01
x^2	.20	2.65	2.80	.00
Constant	7.0		5.42	.00

It can be concluded from Table 19 that both the linear and nonlinear parts of the regression equation were significantly related to the dependent variable. Figure 3 presents the linear and nonlinear regression lines for the relation between the willingness to change and organizational commitment.

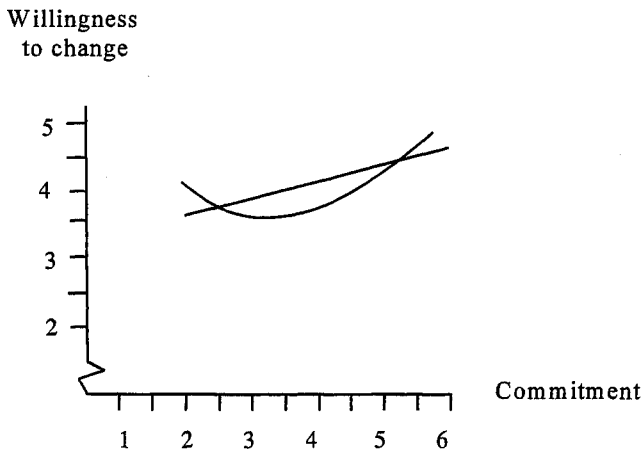

Figure 3. Linear and nonlinear regression lines for the relation between affective organizational commitment and willingness to change

The significant linear regression coefficient supports the hypothesis stated at the beginning of this section, that the willingness to change is positively related to affective organizational commitment. However, the significant nonlinear regression coefficient, represented by the quadratic regression line, provides support for the notion that a nonlinear analysis might deepen insight into this relationship. The quadratic line shows that maximal values for willingness to change are to be expected at high values of affective organizational commitment. For low values of affective organizational commitment it is expected that willingness to change is lower but not as low as for average values of organizational commitment. In terms of managers' willingness to contribute to organizational effectiveness, the results suggest that managers with a positive affective orientation towards the organization are willing to put effort into the goals of change processes. Managers with a negative affective orientation are expected to invest less time and effort than the former group into organizational effectiveness. Finally, managers with a neutral affective orientation toward the organization are expected to invest least time and effort.

Willingness to change is, of course, only one type of performance intention and for this reason the results are difficult to generalize to other kinds of attitude-performance studies. However, the above findings suggest that research on attitude-performance links would indeed benefit from the nonlinear perspective. Findings in this area of research that were previously labelled inconsistent or mixed might be reviewed and integrated to allow for a more meaningful explanation. Finally, from the nonlinearperspective more evidence could be provided to support the notion that less is not always worse and more is not always better.

5.3 Concurrent validity of the DINAMO

Introduction

To examine concurrent validity requires us to judge whether the results of a test correspond with criterium scores that are collected at the same time (Drenth, 1988, p. 241). In a study by Kloek (1996, case 11) the concurrent validity of the DINAMO was investigated. In this study, middle managers' willingness to change (i.e. to reduce their budget) was related to the reductions achieved in their departmental expenditures. The study took place in a hospital setting. At the time of the investigation, the hospital's top management had initiated a major retrenchment operation. The development and implementation of economy measures was in the hands of 61 managers divided over 23 departments.

From the beginning of the change process, little support was found among the hospital managers for the retrenchment operation. The main argument was that the hospital was in sound financial condition and that cutbacks would reduce the quality of the service of the hospital. These discussions led to discord between the 23 departments ($N_d = 23$). About half of the hospital managers were convinced of the value of the retrenchment process, while the other half was unconvinced and did not want to participate. As a result of this dissent, top management decided to follow a twofold strategy. The managers of the latter group of departments (group 1; $N_d = 13$) were forced to contribute to the entrenchment operation. This group was supported by external consultants who helped them formulate and implement proposals. The managers of the former group of departments (group 2; $N_d = 10$) were given time to work independently on proposals to achieve reductions in expenditures.

Method and measures

The DINAMO was distributed amongst the 61 hospital managers through company mail. The questionnaires were returned directly to the investigator. Those who did not respond to the first call to fill out the DINAMO received a second letter which stressed the importance of a high response rate for the success of the investigation. This resulted in a response percentage of 95% (N_m = 58). Participation was voluntary for all managers and the confidentiality of responses was assured. The achieved reduction in expenditures was measured in terms of full time equivalents (FTEs) and was calculated as the relative economization in FTEs compared to the total number of FTEs in the department. This information was provided by the top management. For example, a department with 8 FTEs which achieved an economization of 1 FTE achieved a reduction in expenditure of 12,5%. This criterion measure was calculated for every department and related to an aggregate measure of willingness to change at departmental level. This aggregate measure was based on the average DINAMO-scores for the managers in the 23 departments. Stepwise regression analyses were carried out to explain the criterion measure using the average scores of the managers on the DINAMO scale.

Results

Table 20 presents the average scores and standard deviations for group 1 (N_d = 13) and group 2 (N_d = 10). As can be read from this table, the managers of the departments in group 2 scored higher on all DINAMO scales than did the managers of the departments in group 1. For the scales ATT-w (expected consequences of the change for the work), ATT-a (managers' affective response to change), ATT-o (value of the change for the organization), and W (willingness to change) the differences were significant at $p<.05$. The results show that the managers who worked independently from the hospital top management were more willing to invest time and effort into the change process than were the managers who were forced to contribute to the economizations. The two groups did not differ significantly on the criterion measure.

Table 20. Average scores on the scales of the DINAMO and standard deviations (s.d.) for group 1 and 2

	Group 1		Group 2	
	x	s.d.	x	s.d.
1. ATT-w*	2.8	.6	3.2	.3
2. ATT-a*	2.5	.5	3.5	.7
3. ATT-o*	2.0	.6	2.6	.4
4. SN-p	3.4	.4	3.9	.7
5. SN-d	2.6	.8	3.2	.6
6. CTR-s	2.9	.8	3.3	.6
7. CTR-e	3.1	.7	3.2	.3
8. CTR-c	2.1	.9	2.4	.5
9. W*	2.9	.8	3.6	.6
10. FTE	26%		24%	

* $p < .05$

Stepwise regression of the independent variables (1 to 8) on the dependent variables willingness to change (9) and FTE (10) did not reveal any significant relations for the total group. For this reason, further analyses were performed separately on the data sets from group 1 and 2. Figure 4 presents the results of the stepwise regression analyses for group 1.

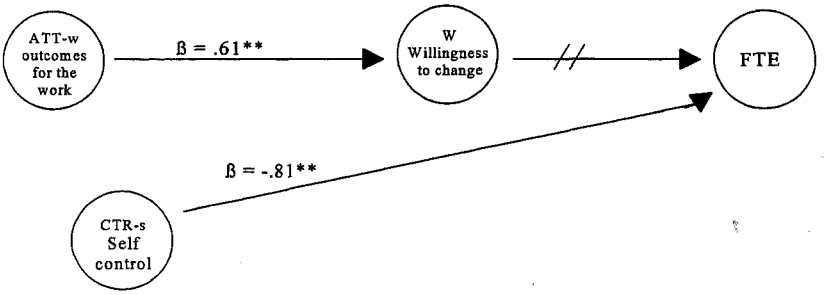

Figure 4. Results of the stepwise regression analyses for group 1

Figure 4 shows that, for group 1, a significant relation existed between ATT-w and W ($\beta = .61$, $p<.01$), explaining 35% of variance in the dependent variable ($r^2= .35$). No relation existed between the managers' willingness to change (W) and the achieved reductions in expenditures at departmental level (FTE). A negative relation was found between the measure of self-control (CTR-s) and the criterion measure FTE ($\beta = -.81$, $p<.001$), explaining 66% of variance in the dependent variable ($r^2=.66$).

Figure 5 presents the results of the stepwise regression analyses for group 2. The figure shows that a significant relation existed between ATT-a (managers' affective response to change) and W ($\beta = .90$, $p<.001$), explaining 81% of variance in the dependent variable ($r^2= .81$). For the regression equation explaining FTE two relations were found to be significant. These were the relations between W and FTE ($\beta = .71$, $p<.001$) and CTR-e (information and certainty) and FTE ($\beta = .42$, $p<.01$), explaining 86% of variance in the dependent measure ($r^2 = .86$).

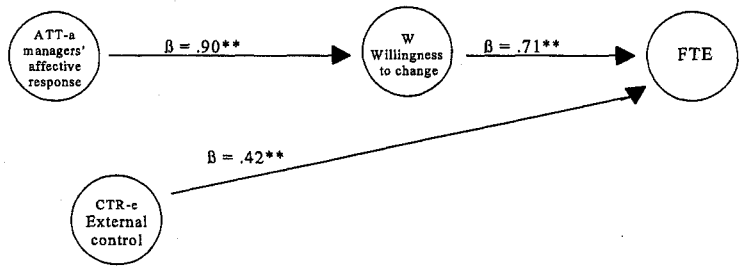

Figure 5. Results of the stepwise regression analyses for group 2.

Discussion

This study aimed to provide some evidence for the concurrent validity of the DINAMO. To test its concurrent validity, managers' scores on the DINAMO were compared to achieved reductions in expenditures at departmental level. The data of the managers who were forced to contribute to the change process shows no significant relation between the willingness to change and achieved reductions. This finding is not surprising, given the fact that the cutbacks in this group of departments (group 1) were primarily the result of outside pressure from top management and external consultants. This notion is supported by the negative relation that was found between the managers' self-control and the realized reductions. The more self-control the managers had, the fewer reductions in expenditures were achieved. For the managers in this group, the expected consequences of the entrenchment process for the work determined their willingness to change to quite some extent.

For the managers who worked on the implementation of proposals independently from top management, their affective response to change was found to be the main determinant of the willingness to change. In addition, whereas in group 1 no significant relation was found between willingness to change and actual reductions in expenditures, this relation was found to be highly significant for group 2. A strong relation was also found between the amount of information and certainty surrounding the change and reductions achieved. In contrast to the results of group 1, no significant relation was found between the managers' self-control and the achieved reductions in expenditures.

In sum, the significant relation in group 2 between managers' willingness to change and actual economies supported the concurrent validity of the DINAMO in situations characterized by high volitional control, that is, if managers involved in change processes can decide freely whether to contribute or not. Logically, the DINAMO does not predict actual behaviour when volitional control is low, that is, if managers involved in change processes cannot decide freely whether to contribute or not. However, in this case the DINAMO can still give a reliable estimate of managers' willingness to change. Only in cases where the situation is characterized by high volitional control can the DINAMO be used to explain change-related behaviour.

6 Manager behaviour in changing work settings; an empirical model

Summary

In this chapter the theoretical model of manager behaviour presented in section 3.4 will be tested. Hypothesizing that managers' willingness to change can be understood as a behavioural intention to support or enhance organizational change, Ajzen's model of planned behaviour (Ajzen & Madden, 1986) was used to test the relations between managers' change-related behaviour, their willingness to change and the three central elements of Ajzen's model: attitude, subjective norm and perceived behaviour control. Structural equation analysis using LISREL resulted in an empirical path model of manager behaviour in changing work settings, explaining 60% of the variance of middle managers' willingness to change and 30% of the variance in their change-related behaviour.

6.1 Introducing the model

In Chapter 1 an overview was presented of research and theory on organizational change. It set out to evaluate how the study at hand can further the understanding of the psychological factors that impede or support ongoing change processes. Organizational change was defined in section 1.3 as 'a planned modification of an organization's structure or work and administrative processes, initiated by the organization's top management, aimed at improving the organization's functioning'. It was explained how this definition arises from several conceptual issues related to the study of innovation and change. A process analysis of change showed that employees, middle managers and top-management play distinct roles in a change process. Whereas top management may identify the need for change, it was shown that the execution of change projects is in the hands of managers lower in the organizational hierarchy. It was argued that the role of this group is particularly interesting because its members are confronted with the wishes and demands of top management as well as the consequences of the change for their employees. It was concluded that the current study would focus on antecedents of middle managers' resistance to planned change processes.

In Chapter 2 the literature on resistance was studied in greater detail. It was argued that in order to understand the dynamics of resistance, theories should be refuted that depict resistance as an irrational, to-be-expected element of change processes, while theories should be invited which shed light on its rational character. Starting from some influential readings on resistance to change it was stated that a shift of focus was needed: away from the antecedents of resistance and towards the antecedents of the willingness to change. It was also argued that employees might benefit from a more constructive approach in which they are not so much seen as barriers to change but rather as resources that support change if certain conditions are fulfilled. The final section of Chapter 2 concluded with a rational empirical approach to the assessment of the willingness to change. In this section, Ajzen's model of planned behaviour was put forward as a useful framework for the construction of a reliable and valid measure of the willingness to change. Following Ajzen's theory of planned behaviour, the willingness to change was defined in section 2.4 as 'a positive behavioural intention toward the implementation of modifications in the organization's structure or work and administrative processes, resulting in efforts from the employee's side to support or enhance the change process.'

In order to understand how a middle manager's willingness to change is formed, in Chapter 3 the middle manager's role in a change process was analyzed. Models and insights from management theory and work and social psychology were adopted to describe the middle manager's position, how the middle manager communicates change, and why resistance from the middle manager's side might occur. It was argued in the first chapter that besides the 'strategy' or 'tactics' the manager applies, the manager's motivation, skills and attitudes toward change essentially determine actions and ultimately, the success or failure of the implementation of change processes. Following Ajzen's model, Chapter 3 showed how three variables relate to middle managers' intention to put effort into change processes: the expected outcomes of the change for the manager's work, the group norms toward the change, and the manager's control over the unfolding events. At the end of Chapter 3 the five central elements of Ajzen's model (attitude, intention, subjective norm, perceived behaviour control, and behaviour) were worked out in greater detail, resulting in a theoretical model for the explanation of a middle manager's willingness to change. In this chapter, this model is tested using data gathered with the DINAMO over the past years.

Whereas many authors (e.g. Coch & French, 1948; Lewin, 1951; Lawrence, 1969; Kotter & Schlesinger, 1976; Zaltman & Duncan, 1977; Olthof, 1985; Goldstein, 1988; West & Anderson, 1992) have dealt with change and the consequences of change for the employee, the model used in this study aims to capture the antecedents of manager behaviour in changing work settings. Such a model could be helpful in explaining and predicting manager behaviour in organizations involved in major change processes. In addition, such a model could serve a useful management guide to supporting managers' willingness to change and change-related behaviour. The model guiding this study is Ajzen's model of planned behaviour (Ajzen & Madden, 1986), a widely accepted model for explaining and predicting social behaviour. Drawing on Ajzen's model, it is posited that managers' willingness to change can be understood as a behavioural intention to support or enhance organizational change.

Figure 6 presents the theoretical model of manager behaviour in changing work settings as presented in section 3.4 of this thesis. Before testing and exploring the model in greater detail, the 11 hypothesesis presented in section 3.4, will be repeated for the sake of clarity.

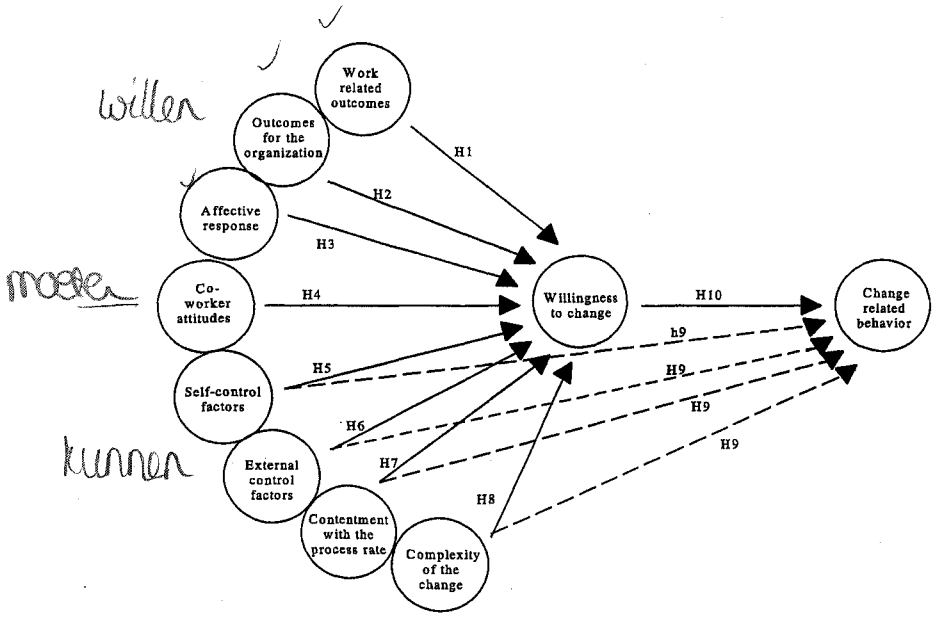

Figure 6. A theoretical model of manager behaviour in changing work settings

The relations between the variables in the above model are inferred from Ajzen's model of planned behaviour. Subsequently, the following hypotheses were derived from the underlying theory:

H1: The degree to which middle managers expect positive outcomes for their work as a result of organizational change is positively related to their willingness to contribute to the implementation of change.

H2: The degree to which middle managers expect positive outcomes for their organization as a result of organizational change is positively related to their willingness to contribute to the implementation of change.

H3: The more managers hold a positive affective orientation towards an organizational change, the more are they willing to contribute to the implementation of the change.

H4: The more managers perceive the subjective norm as in favour of a change process, the greater will be their willingness to contribute to the implementation of the change.

H5: The more experience and knowledge of the control of change processes middle managers have at their disposal, the greater will be their willingness to contribute to the implementation of the change.

H6: The more resources to control a change process (time, money, information) middle managers have at their disposal, the greater will be their willingness to contribute to the implementation of the change.

H7: The more middle managers perceive the process rate as adequate, the greater will be their willingness to contribute to the implementation of the change.

H8: The more middle managers perceive a change as complex, the lower will be their willingness to contribute to the implementation of the change.

H9: The more control over a change process middle managers experience, the more will they actively support the implementation of the change process.

H10: The greater middle managers' willingness to change, the more will they actively support the change process.

H11: Positive relations exist between middle managers attitudes towards organizational change, the perceived subjective norm and their perceived behaviour control.

Hypotheses 1,2 and 3 concern the relation between attitude and the willingness to change. Hypothesis 4 brings into focus the relation between subjective norm and the willingness to change. Hypotheses 5, 6, 7 and 8 concern the relation between perceived behaviour control and the willingness to change. Hypothesis 9 concerns the relation between perceived behaviour control and behaviour. Hypothesis 10 brings into focus the relation between the willingness to change and change-related behaviour. Finally, hypothesis 11 goes into the relation between the three main variables in Ajzen's model: attitude, subjective norm and perceived behaviour control.

6.2 Methods for testing the model

Respondents and procedures

The respondents were middle managers from the organizations described in cases 1 till 9 and 11 and 14 (n=380). During the administration of the DINAMO all organizations were involved in major change processes, including mergers, restructuring processes and efficiency operations. The DINAMO was completed during working hours, or (as in case 3) handed out at management team meetings. After completion of the DINAMO, questionnaires were sent by company mail to the consultant or manager in charge of the change process. In cases 1, 2, 5, and 9 questionnaires were returned directly to the researcher. Based on the responses a report was generated for every organization about middle managers's willingness to change. This report was presented to the respondents either by the consultant or the manager. Because the researchers wanted to guarantee 100% anonymity, no additional information about sex, age or job tenure was gathered. Participation was voluntary for all managers and the confidentiality of responses was assured. Completion of the DINAMO took about 20 minutes.

Measures[2]

Attitude measures

Consequences of the organizational change for the middle manager's work was measured with the *ATT-w* scale from the DINAMO. Responses were made on a five-point Likert scale ranging from 'very negative' to 'very positive'. The reliability of this scale was set at .86. The managers' affective response to change was assessed with the *ATT-a* scale on which the managers were asked to indicate their feelings toward the change. Responses were made on a five-point Likert-type scale. Cronbach's alpha on this scale was .82. The perceived value of the change for the organization was measured with the *ATT-o* scale. The reliability of this part of the questionnaire was set at .66.

Subjective norm measures

Perceived proximal subjective norm was measured with the *SN-p* scale. Responses were made on a five-point Likert type scale ranging from 'very negative' to 'very positive'. Cronbach's alpha for this sample was .62. Distal

[2] All measures were adopted from the final version of the DINAMO as presented in section 4.4

subject norm was measured with the *SN-d* scale. The reliability for this scale was set at .72.

Behaviour control measures
Managers' self-control was measured using the *CTR-s* scale from the DINAMO. Respondents were asked to indicate whether listed self-control factors hindered or supported their contribution to the change process. Responses were made on five-point Likert scales. Cronbach's alpha for this sample was set at .71. Information and uncertainty about the change was measured with the *CTR-e* scale. The reliability of this part of the questionnaire was set at .83. Perceived complexity of the change was measured with the *CTR-c* scale. Managers were asked to indicate to what degree central elements of organizational functioning would alter as a result of the change. Responses were made on a five-point Likert-type scale ranging from 'great change' to 'no change'. The reliability of this part of the questionnaire was set at .87. The managers' contentment with and control over the rate at which the change process develops was not measured. As a result of the factor analyses presented in section 4.4 the *CTR-p* scale was excluded from further analysis.

Willingness to change measure
The middle managers' willingness to change was measured with the *W* scale of the DINAMO. For this sample the reliability of this measure was set at .84.

Behaviour measure
The middle managers' change-related behaviour was measured with the *B* scale of the DINAMO. The *B* scale consist of 8 behaviour categories ranging from 'colleagues actively support the change' to 'colleagues call in sick as a result of the change'. Unlike the above measures, the *B* scale is a peer-rating scale on which middle managers were asked to indicate how their colleagues behave with regard to the change process. If a behaviour category was marked as 'applies' a score of 1 was assigned to the category. Behaviour categories that were marked as 'does not apply' were assigned a score of 0. In addition, the following values were assigned to the behaviour categories b1 to b8:

b1. Colleagues are putting in a lot of energy to ensure the change's successful implementation (4)
b2. Colleagues support the change (3)
b3. Colleagues feel involved but need more information (2)
b4. Colleagues do not talk about the change (1)
b5. Colleagues follow a 'wait and see' policy (-1)
b6. Colleagues talk negatively about the change in private (-2)
b7. Colleagues talk negatively about the change during meetings (-3)
b8. Colleagues call in sick (-4)

Subsequently, a measure of manager behaviour was computed using the statistics:

$$\text{Behaviour} = \frac{(b1*4)+(b2*3)+(b3*2)+(b4*1)-(b5*1)-(b6*2)-(b7*3)-(b8*4)}{}$$

Equation 6.2.1

Assessment of common method variance

The subjective measures used in this study were gathered from the same source in the same questionnaire, which introduced the question of common method variance as a potential explanation for the findings. Harman's one-factor test (Schriesheim, 1979) was used to empirically address this issue. If common method variance were a serious problem in the study, we would expect a single factor to emerge from a factor analysis or one general factor to account for most of the covariance in the independent and dependent measures (Scott & Bruce, 1994, p. 592). We performed a principal components factor analysis of the items from the DINAMO extracting 9 factors, with one factor accounting for only 21% of the total variance. No general factor was apparent in the rotated factor structure. The results of this test offer some indication that common method variance was not a problem in this study.

6.3 Results

Table 21 presents the summary statistics and Pearson correlations among the constructs. The bivariate relationships indicate that W (willingness to change), ATT-w (consequences of the change for the work), ATT-a (managers' affective response to change), ATT-o (value of the change for the organization), SN-p (perceived proximal subjective norm), CTR-s (self-control) and CTR-e

(information and uncertainty) are significantly related to change-related behaviour. No significant relations exist between change-related behaviour and SN-d (perceived distal subjective norm) and CTR-c (perceived complexity of the change) respectively. Positive relations exist between the attitude, subjective norm and perceived behaviour control measures. The study variables most strongly related to manager's willingness to change are ATT-a (r = .66, p<.001), Att-w (r=.58, p<.001) and Ctr-s (r = .60, p<.001).

Table 21. Correlations and Descriptive Statistics,a,b

Variables		Mean	s.d.	1	2	3	4	5	6	7	8	9	10
1	B	.80	4.0	-	.32**	.38**	.36**	.42**	.48**	.09	.30**	.26**	.11
2	W	3.9	.83		-	.58**	.66**	.31**	.43**	.02	.60**	.32**	.40**
3	Att-w	3.5	.60			-	.69**	.45**	.57**	.12	.41**	.35**	.39**
4	Att-a	3.7	.78				-	.47**	.55**	.06	.48**	.35**	.33**
5	Att-o	2.8	.70					-	.54**	.14*	.30**	.23**	.14*
6	Sn-p	3.2	.65						-	.12	.33**	.33**	.29**
7	Sn-d	3.8	.85							-	.10	.08	.16*
8	Ctr-s	3.3	.62								-	.39**	.26**
9	Ctr-e	2.8	.75									-	.09
10	Ctr-c	3.3	.85										-

[a] N=380 [b] * p<.01 **<.001

Strategies for assessing the hypothesized model

The hypothesized model was evaluated by LISREL (Jöreskog & Sörbom, 1986) in two steps. First, LISREL was used to obtain an overall fit measure for the hypothesized model. The exogeneous variables were allowed to covary in the estimation of the hypothesized model; that is, we assumed that relationships existed between attitude, subjective norm and perceived behaviour control. In the second step, the hypothesized model was revised on the basis of modification indices generated by LISREL. Paths were added or removed that contributed to a better fit with the data. In the second step the exogeneous variables were also allowed to covary freely.

Testing the hypothesized model

LISREL analyses following the analytic strategy described in the first step resulted in an adjusted goodness-of-fit index for the hypothesized model of .62, pointing to a poor fit with the data (Chi-square = 75.05, df = 5, p = .00). The hypothesized model accounted for 14% of the variance in change-related behaviour and 58% of the variance in willingness to change. Additional fit indexes also indicated a poor fit: goodness-of-fit index, .97 and root-mean-square residual, 0.19.

LISREL analyses following the analytic strategy described in the second step resulted in a better-fitting model. Based on modification indices generated by LISREL, two significant paths were added to the model. These were the paths from Att-o and Sn-p respectively to behaviour. Table 22 presents the structural parameter estimates for this model. Figure 7 presents the final model with nonsignificant paths removed ($p<.10$). For the equation predicting behaviour, three hypothesized relations were significant. These were the paths from willingness to change (W) to behaviour, from self-control (CTR-s) to behaviour and from perceived complexity of the change (CTR-c) to behaviour. In addition, the paths from perceived value of the change for the organization (ATT-o) and proximal subjective norm (SN-p) to behaviour were significant.These two paths were not hypothesized but included in the model as suggested by the LISREL analysis. For the equation explaining willingness to change, five hypothesized relations were significant. Relations were found between willingness to change and anticipated outcomes of the change for the work (ATT-w), the managers' affective response to the change (ATT-a), perceived distal subjective norm (SN-d), self-control (CTR-s) and perceived complexity of the change (CTR-c). Strikingly, the path from perceived distal subjective norm to willingness to change was negative.

Table 22. Standardized Path Estimates for the empirical model of manager behaviour

Dependent Variables	Paths	Standardized Path estimates	t-value	p
Behaviour				
	W → Behaviour	.09	1.49	<.10
	Att-o → Behaviour	.19	3.66	<.01
	Sn-p → Behaviour	.31	5.44	<.01
	Ctr-s → Behaviour	.08	1.34	<.10
	Ctr-c → Behaviour	-.07	-1.44	<10
Willingness to change				
	Att-w → Willingness to change	.14	2.75	<.01
	Att-a → Willingness to change	.35	6.75	<.01
	Sn-d → Willingness to change	-.07	-2.10	<.01
	Ctr-s → Willingness to change	.35	8.63	<.01
	Ctr-c → Willingness to change	0.15	3.90	<.01

In terms of goodness-of-fit indicators, the final model accounted for 30% of the variance in change-related behaviour and 60% of the variance in middle managers' willingness to change. The assessment of the goodness-of-fit for the final model revealed a quite good fit to the data (Chi-square = 2.38, df = 3, p = .50). The following values of additional fit indexes also indicated a good fit: goodness-of-fit index, 1.00, adjusted goodness-of-fit index, .98, and root-mean-square residual, .018.

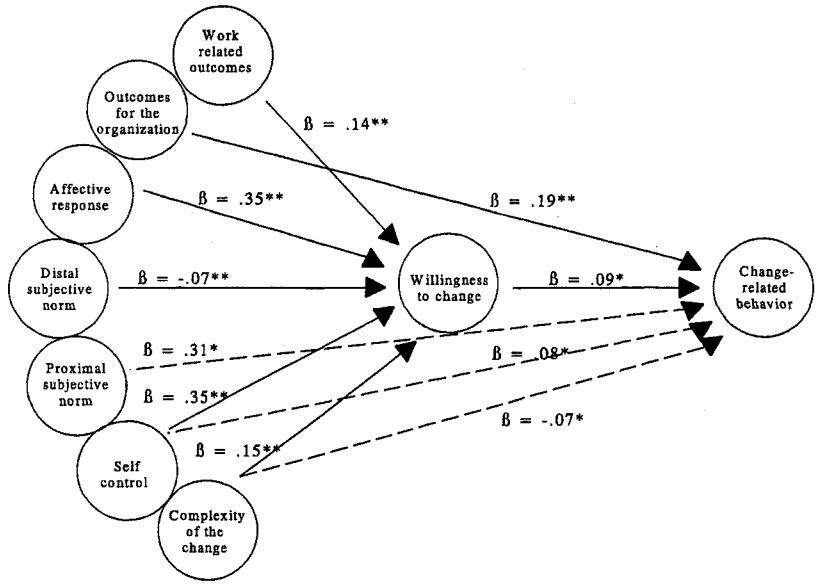

Figure 7. An empirical model of manager behaviour in changing work settings

In summary, the results supported Hypothesis 1 in that Att-w (consequences of the change for the manager's work) was positively related to willingness to change. Hypothesis 2 was not supported, in that no relation was found between ATT-o (perceived value of the change for the organization) and willingness to change. Instead, LISREL suggested a direct path from Att-o to change-related behaviour. The significant positive path between ATT-a (managers' affective response to change) and willingness to change fully supported Hypothesis 3. Hypothesis 4 was not supported, in that no path was present from SN-p (proximal subjective norm) to willingness to change. Instead, LISREL suggested a direct path from SN-p to change-related behaviour. Furthermore, the direction of the path between SN-d (distal subjective norm) and willingness to change was contrary to hypothesis.

With regard to the behaviour control measures, the results fully supported Hypothesis 5 in that CTR-s (self-control) was positively related to willingness to change. Hypothesis 6 on the relation between CTR-e (information and uncertainty about the change) and willingness to change was not supported. Hypothesis 7 could not be tested because the CTR-p measure (contentment with the process rate) was excluded prior to the LISREL analysis. The positive path between CTR-c (perceived complexity of the change) and willingness to change did not support Hypothesis 8. Some evidence was found that supported Hypothesis 9, in that a significant path was present from CTR-s (self-control) to change-related behaviour. The direction of the relation between CTR-c (perceived complexity of the change) and change-related behaviour also supported hypothesis 9. Although this relation turned out to be weak, a negative path resulted from the analysis. No significant path was found between CTR-e (information and uncertainty) and change-related behaviour. Some evidence was found for Hypothesis 10, in that the relation between managers' willingness to change and change-related behaviour turned out to be weak. Finally, support was found for Hypothesis 11 in that positive relations existed between the attitude measures and the subjective norm and behaviour control measures.

6.4 Discussion

In this study we developed and tested a model, based on Ajzen's theory of planned behaviour, in which managerial attitudes towards change, perceived subjective norm and perceived behaviour control were hypothesized to affect their willingness to change and change-related behaviour. We found that managerial attitudes towards change and managers' control over the change process were indeed significantly related to their willingness to contribute to the implementation of that change. The study variables most strongly related to managers' willingness to change were ATT-a (managers' affective response to change) and CTR-s (self-control). The study variables most strongly related to manager behaviour were ATT-o (value of the change for the organization) and SN-p (perceived proximal subjective norm).

LISREL analyses of the hypothesized model resulted in a modified version of Ajzen's model in which ATT-o (perceived value of the change for the organization) and SN-p (perceived proximal subjective norm) directly related to manager behaviour. Furthermore, contrary to hypothesis, a negative relation was

found between SN-d (perceived distal subjective norm) and willingness to change. Finally, the relation between willingness to change and change-related behaviour turned out to be weak. The study resulted in a path model of manager behaviour in changing work settings which explained 30% of change-related behaviour and 60% of middle managers' willingness to change.

The strong relation between ATT-a (managers' affective response to change) and willingness to change ($\beta = .35$, $p < .01$) underlines the impact of feelings toward change on behavioural intentions and change-related behaviour. Strikingly, managers' cognitive response to change, represented by the path from ATT-w (consequences of the change for the manager's work) to willingness to change ($\beta = .14$, $p < .01$), was found to be of less importance. Although a strong correlation was found between the variables ATT-w and ATT-a (see Table 20), affective evaluation of the change process seems to prevail over cognitive evaluation in determining the intentions and actions of managers involved in the change.

The highly significant parameter between CTR-s (self-control) and willingness to change ($\beta = .35$, $p < .01$) provides strong support for the notion of Ajzen (1991) and Bandura (1982, 1991) that beliefs in abilities are good predictors of behavioural intentions. In terms of our model of manager behaviour, the significant parameter confirms the notion that managers who believe in their ability to execute courses of action are more willing to change than are managers who experience less self-control. In contrast, no significant relation was found between CTR-e (information and uncertainty) and willingness to change. This provides some evidence for the idea that managers' willingness to change is more strongly influenced by their beliefs in their experience and skills than by the availability of external control factors such as time and information.

A possible explanation for the direct path from ATT-o (value of the change for the organization) to change-related behaviour ($\beta = .19$, $p < .01$) may lie in the fact that the path between these measures actually represents an attitude-behaviour relation at the group level. The ATT-o measure is based on an evaluation by middle managers of how the change is perceived by colleagues (see section 4.3). The behaviour measure is based on an evaluation of how colleagues of the middle managers behave with respect to the change. It might be argued that the conceptual similarity of the measures caused interdependence and thereby evoked the direct path in the LISREL-model.

The same line of argument might be followed with respect to the direct path from SN-p (proximal subjective norm) to change-related behaviour ($\beta = .31$, $p < .01$). Again, both measures include an evaluation of the attitudes or behaviour of colleagues toward the change. The path between the measures thus represents a relation at the group level and not at the level of the individual manager. This would mean that the path from SN-p to change-related behaviour is not so much a causal path but merely one affected by the conceptual overlap between the measures. However, an alternative explanation might also be put forward. It could be argued that the perception of co-employees in favour of the change process directly evokes supportive change-related behaviour. In this case, supportive behaviour from colleagues is followed by supportive behaviour from others within the social unit, without an intermediary role for the willingness of the individual manager to put effort into the change process. This explanation builds upon the influence of peer pressure and support on behaviour, as described in social influence and information processing models. For instance, Burkhardt (1994) suggests that individuals develop attitudes and behaviour in part as the result of the social information available to them. According to Salancik and Pfeffer (1978) and Griffin (1991) social information is provided by referent individuals (colleagues, peers) who exchange salient and credible information about the object or situation.

The direction of two parameters was contrary to the hypothesis, and deserves comment. Firstly, a negative path was found from SN-d (perceived distal subjective norm) to willingness to change ($\beta = -.07$, $p < .01$). Although the relation is weak, this finding is in contrast with many studies on planned change in which the attitude of top management is seen as a crucial factor for the success of change processes. Many authors have stressed that support from top management is indispensable. However, the results of this study indicate that employees can also perceive support as being pressure to conform to the ideas and wishes of the initiators of the change. This idea parallels the tentative notion of Goldstein (1988) who predicts that a push for change based on authority, force or persuasiveness could easily be followed by resistance from the employees' side and a greater incentive to increase resistance. Whereas the proximal subjective norm was found to positively influence change-related behaviour, the distal subjective norm appears to have the opposite effect.

The second path which showed a sign contrary to the hypothesis was the path from CTR-c (perceived complexity of the change) to willingness to change. A

negative relation was expected between perceived complexity and willingness to change. Surprisingly, the results showed a positive relation. An explanation for this finding can be found in the interpretation of the items in the CTR-c scale. For the assessment of perceived complexity, respondents were asked to indicate the degree to which central elements of the organization would alter as a result of the change. Because this question can also be understood as an estimate of the success of the change, a positive relation could have resulted between willingness to change and our measure of complexity.

Finally, in contrast to many earlier studies based on Ajzen's model, we found behavioural intentions to be only weakly related to behaviour. This finding can be explained by the fact that the current study took place in an organizational setting in which formal rules and procedures limit the decision-making freedom of organization members to support or impede ongoing change. This explanation is also to be found in the works of Cozijnsen (1984, 1989, p. 14) who argues that the more decision-making freedom employees have, the more their actions reflect their own intentions and attitudes towards an innovation or organizational change. Limited decision-making freedom might therefore have blurred the relation between managers' willingness to change and change-related behaviour. In addition, our measure of behaviour was not based on a self-assessment scale. Instead, managers were asked to indicate how others in their organizational position react to the change. Because the response percentages were often lower than 100%, the group of managers completing the DINAMO did not always match the total group of managers on which the behaviour measure was based. This could have caused a mismatch between the willingness to change measure (W) at the individual level and the behaviour measure (B), which was related to the group level. In future research using the DINAMO the behaviour measure should be given extra attention.

A cross-sectional self-report method was used to investigate relations between the constructs. Although this method is one of the principle research methods used in OB studies, it has three major problems (Spector, 1994, p. 390). First, the use of the employee as the only source of data leaves out many alternative explanations for observed correlations. Secondly, cross-sectional designs do not allow for confident causal conclusions. Although in our study no evidence was found for mono-method bias, even the use of structural equation analysis can not overcome the limitations of collecting all data concurrently from the same source. Thirdly, cross-sectional designs may inflate the magnitude of the paths found,

introducing the danger of the overgeneralization and overinterpretation of results.

Despite the weaknesses of the applied research method, the study provided strong support for the applicability of Ajzen's model of planned behaviour for explaining and predicting managers' willingness to change and change-related behaviour. Compared to 16 other studies based on Ajzen's theory, the model of manager behaviour is especially successful in predicting managers' intentions from the attitude, subjective norm and behaviour control measures. Ajzen (1991, p. 189) reports multiple correlations ranging from a low of .43 to a high of .94 with an average correlation of .71. As the results of the LISREL analysis showed, the model of manager behaviour accounted for 60% of the variance in intentions. This equals a multiple correlation of .77 which is above the average value reported by Ajzen (1991, p. 189). With respect to the prediction of intentions from attitudes, Ajzen (1991, p. 190) reports an average correlation of .64. As Table 20 shows, the highest correlation between attitude and intention in the model was found for the relation between managers' affective orientation toward the change (ATT-a) and their willingness to change (W). This correlation was set at .66 and is somewhat higher than the average correlation reported by Ajzen (1991). With regard to the prediction of intentions from perceived behaviour control, (Ajzen, 1991. p. 190) reports an average correlation of .58. The highest correlation between perceived behaviour control and intention in the model of manager behaviour (see Table 20) was found for the relation between self-control (CTR-s) and willingness to change (W). This correlation was set at .60 and is again somewhat higher than the average correlation reported by Ajzen (1991).

With respect to the prediction of behaviour from intentions and perceived behaviour control, the model of manager behaviour did not do as well as the average predictive validity of Ajzen's model. With respect to the prediction of behaviour from intentions, Ajzen (1991, p. 187) reports correlations to range from a low of .18 to a high of .84 with an average of .45. In Table 20 a correlation is reported between intention (W) and behaviour (B) of .32. This correlation is lower than the average correlation reported by Ajzen (1991). With respect to the prediction of behaviour from perceived behaviour control, Ajzen (1991, p. 187) reports correlations ranging from .11 to .76 with an average of .39. As Table 20 shows, the highest correlation between a behaviour control measure and behaviour was found for the relation between self-control (CTR-s) and behaviour (B). This correlation was set at .30 and is lower than the average correlation reported by Ajzen (1991). However, according to Ajzen (1991), of all

behaviours considered, the lowest correlations between intentions and behaviour stem from behaviours which were most problematic in terms of volitional control. As was stated earlier, manager behaviour in a work setting is characterized by low volitional control. Following Ajzen's explanation, this might well have caused a weak relation between intention and behaviour in the model of manager behaviour.

From a practitioner's viewpoint, the present study contributes to an understanding of manager behaviour in changing work settings. It explains how intentions to contribute to organizational change are formed, and underlines the importance of perceptions of control and peer pressure and support. The study showed that reinforcement principles, such as the reward of satisfactory performance, are not sufficient to bring about changes in manager behaviour in changing work settings. Moreover, the strong relation between self-control and willingness to change shows that strategies affecting perceptions of control are equally as important. In terms of Kotter and Schlesinger's model for overcoming resistance to change (Kotter and Schlesinger, 1976), the study shows that communication, participation and facilitation (interventions focusing on control aspects) are as important strategies for increasing willingness to change as are negotiation, manipulation and reward (interventions focusing on attitude aspects). Examples of the former category are: challenging misrepresentations of the change process, involving employees' groups affected by change, and allowing participation in decision-making. Examples of the latter category are: formal and informal negotiations to overcome resistance, the use of position power to manipulate compliance, and rewards for compliance.

As organizations are being confronted with change increasingly frequently, the need for a thorough understanding of manager behaviour in changing work setting is growing. This study has provided some first insights into the antecedents of the willingness to change. More research is needed to link this measure to more familiar psychological constructs in work and organizational psychology, such as commitment, motivation and other types of job performance and performance intentions. Only in this way can propositions about the relations between employee attitudes, intentions and change-related behaviour be tested empirically.

7

Limitations and generalizations

Summary

This chapter will discuss the scientific value and practical use of the DINAMO. With regard to the scientific value of the DINAMO it will be argued that this study has offered more leads for the investigation of change failure or success than former studies which have primarily focused on strategies to overcome resistance to change. Secondly, it will be argued that the application of the DINAMO can add to our present understanding of the usefulness of Ajzen's model of planned behaviour in work settings. Subsequently, it will be shown that the DINAMO offers strong leads for further investigation of manager behaviour. It will be argued that the DINAMO enables researchers in the field of organizational change to understand more of manager behaviour from a work psychologist's point of view. From the score-profile for all cases it will be concluded that the DINAMO does indeed offer a different perspective than that provided by previous research on manager behaviour in changing work settings.

7.1 The scientific value of the DINAMO

The DINAMO measures the willingness to change among middle managers involved in planned change processes. The inventory originated from Ajzen's model of planned behaviour (Ajzen & Madden, 1986; Ajzen, 1991), a social psychological model which had already proved to have utility in explaining and predicting various types of behaviours and behavioural intentions. The application of Ajzen's theory, supplemented by related behaviour models, provided a testable theoretical background. In the chapters following the theoretical underpinning of the DINAMO, Ajzen's model served a useful function in the construction and validation of this instrument. Next to the DINAMO, the study resulted in an empirically tested model of manager behaviour in changing work settings. The model redresses part of the imbalance between tentative notions and empirical findings in the literature on resistance to change and provides insight into the psychological factors that impede or support planned organizational change processes.

In order to provide the DINAMO with theoretical underpinning, theories which emphasized the rational character of employee behaviour in changing work settings were tested. It was argued in Chapter 2 that only in this way could propositions about managers' resistance or willingness to change be tested empirically. The common thread in this study further developed this claim by addressing the willingness to change as a construct which could be helpful in understanding and predicting organizational behaviour. Drawing on various behaviour modification theories such as Vroom's Expectancy Theory (Vroom, 1964) and Porter and Lawler's elaboration of Vroom's model (Porter & Lawler, 1968) it was shown how managers' willingness to change is systematically related to psychological processes such as perception and formation of attitudes and beliefs. Finally, a more recent behaviour model, known as Ajzen's model of planned behaviour (Ajzen & Madden, 1986; Ajzen, 1991) was operationalized for the middle manager's role in a change process. Below, it is discussed how these theoretical frames have contributed to the scientific value of the DINAMO.

Firstly, the DINAMO is built upon a definition of resistance to change which does not regard resistance as an irrational behavioural response. Instead, to capture the concept of 'resistance', insights were adopted from political, psychological and social perspectives on this phenomenon. Furthermore, the advanced definition does not address resistance as a to-be-expected, unavoidable

aspect of organizational change. To underline the fact that this study took a different view on resistance, the concept of 'willingness to change' was used instead. By focusing on the willingness to change instead of on resistance, the focus of this study was shifted from strategies for overcoming resistance to theories and models for understanding employee behaviour in changing work settings. It is the author's opinion that this approach has proven to be more fruitful than previous ones.

Secondly, the DINAMO contributes to our understanding of the usefulness of Ajzen's model of planned behaviour in work settings. As was noted above, Ajzen's model had already proved to have utility in explaining and predicting various types of social behaviour. The study at hand tested Ajzen's model in a relatively new social setting: the workplace. As was stated in Chapter 3, a major difference with other types of social settings is that behaviour at work is not under complete volitional control. It was argued that formal rules and procedures might blur the relation between managers' intentions and their behaviour. From the weak relation between willingness to change and change-related behaviour in our model of manager behaviour, it was concluded that the research setting might indeed have affected the relation between these two variables. As was shown in the first pilot study with the DINAMO (see section 4.1) and the concurrent validity study presented in section 5.3, the limited decision-making freedom of employees or managers might indeed have been partly responsible for this finding. Although Ajzen does not explicitly identify this factor, it certainly deserves attention in any future research which makes use of his model and the DINAMO.

Thirdly, the DINAMO offers strong leads for the further investigation of manager behaviour in changing work settings. In section 2.2 it was explained how primary and secondary causes of resistance hinder the acceptance or implementation of change. Primary causes were defined as 'antecedents of resistance directly related to the contents of the change'. Secondary causes were described as 'barriers to change that indirectly hinder acceptance or implementation'. In our model of manager behaviour, primary causes were represented by the attitude scales 'outcomes for the work', 'managers' affective response to change' and 'value of the change for the organization'. Secondary causes, including psychological, social, cultural and organizational barriers, were represented by the other subjective norm and perceived behaviour control scales. In order to understand the emergence and existence of these barriers, individual difference theories, social

differentiation theories and social relationship theories were used. The significant relations between willingness to change and the personal characteristics of rigidity, fear of failure and originality provided support for the influence of personal characteristics on the willingness to change. The significant relation between willingness to change and perceived subjective norm indicated that support can also be drawn from social relationships theories. Finally, the distinguishable impact of perceived proximal subjective norm and perceived distal subjective norm on the willingness to change stressed the influence of subculture membership as recognized by social differentiation theories.

Fourthly, the DINAMO enables researchers in the field of organizational change to understand more of manager behaviour in changing work settings. The relation between job satisfaction and willingness to change was not found to be significant. This finding was inconsistent with earlier studies on attitude-performance links, but because of the highly skewed distribution of both the dependent and independent variables the results were hard to interpret and were not further explored. To further study the construct validity of willingness to change, the relation between this variable and affective organizational commitment was investigated. The significant linear regression coefficient supported the hypothesis that willingness to change is positively related to affective organizational commitment. In addition, the significant nonlinear regression coefficient provided support for the notion that a nonlinear perspective also offers leads for the investigation of this relation. In terms of managers' willingness to contribute to organizational effectiveness, the results suggested that managers with a positive affective orientation towards the organization are most willing to put effort into the goals of change processes, that managers with a negative affective orientation can be expected to invest less time and effort in organizational effectiveness than the former group, and that managers with a neutral affective orientation toward the organization can be expected to invest least time and effort. It was concluded that the nonlinear perspective provides evidence for the notion that less is not always worse and more is not always better.

Fifthly and lastly, the scientific value of the DINAMO is represented by a shift of focus, away from the straightforward 'tactics' or 'strategies' employed to implement change (Nutt, 1986; Marcus, 1988) and towards understanding change as a process which is dependent on personal and interpersonal contingencies, as King and Anderson (1995) have advocated. This study found strong evidence for

their ideas that managerial beliefs and attitudes toward change are major determinants of change processes. The decision to start from the middle manager's point of view, instead of the frequently investigated role of top management, shed light on the crucial role of this group in planned change processes. Consequently, the notion that change does not always favour all groups involved received attention in this work. This view became particularly apparent in the contents of the DINAMO and our model of manager behaviour. Both capture positive and negative consequences of organizational change and enable researchers to investigate the barriers to change from a social and work psychological point of view.

Because the research at hand derives from previous works on innovation and change, this section is concluded with comments on the nature of this study. Firstly, rather than focusing on the antecedents of innovation and change at the organizational level, this thesis analyzed the antecedents of behavioural change at the level of the individual and the group. Secondly, in contrast to many earlier works on this topic, the research at hand was not dominated by premises from the top management's point of view. The merits as well as the demerits of change for employees and managers were included in the theoretical underpinning of the research. A third characteristic of this study which distinguishes it from previous works on planned change is that instead of focusing on many possible predictors of change failure or success, it concentrated on just one variable. A related distinguishing feature of this study is that this variable was operationalized with the role of one specific group in mind. Fourthly, the process analysis of organizational change presented in section 1.2 restricted the application of the DINAMO to the adoption phase of planned change processes. Finally, instead of focusing on resistance, the focal attention in this thesis was directed toward the antecedents of the willingness to change.

The above efforts to limit the scope of this study naturally call into question the generalizability of the DINAMO and the behaviour model presented in Chapter 6. A definition of planned change was advanced in this thesis which emphasized structural change in organizations. This definition approached organizational change as a goal-directed process to increase organizational effectiveness and was built upon insights from OD and planned change theories. An inspection of the case descriptions (Appendix A) does indeed show that all changes so far reviewed with the DINAMO involved planned modifications in the organizations' structure or work and administrative processes. This raises the question: is it

possible to generalize the use of the DINAMO to other kinds of change processes, for example, changes in organizational culture or total quality management programmes? With regard to change programmes predominated by a shift in cultural values and norms, the DINAMO should be used with great caution. Because the goals of such change processes are often difficult to define, Ajzen's theory of planned, goal-directed behaviour does not immediately seem an appropriate framework. With regard to radical changes, such as business process redesign programmes, the DINAMO should also be used with caution. Because these programmes often include the downsizing of the company, the DINAMO should only be used after the downsizing has taken place and growth has become the main purpose of the change process.

Leads for the generalizability of the model of manager behaviour can also be found in the theoretical underpinning of the DINAMO. The inventory was primarily based on the premise that middle management plays a crucial role in the execution of planned change scenarios. However, with regard to the contents of the final version of the DINAMO it can be concluded that a great number of items also fit the role of employees and top management. Like middle managers, these groups are confronted with the consequences of change processes for their work, they experience pressure to conform to group norms, and they can exert more or less control over ongoing change, which in turn affects their willingness to contribute to its implementation. Adapting the DINAMO to fit the role of employees or top management would lead to the injection of interesting new issues and research questions. The same goes for extending the applicability of the DINAMO beyond the adoption phase. The question of whether different regression weights for the variables in his model result from research on different groups or phases certainly deserves attention in any future research which makes use of this instrument.

7.2 Practical use of the DINAMO

The use of the DINAMO by consultants and managers is supported in two ways. Firstly, norm scores are available which enable users to compare DINAMO-scores for their organization with scores from the 16 cases presented in Appendix A. Starting from these norm scores, the DINAMO does not only give an estimate of the degree of willingness to change but also gives information about the factors underlying low or high willingness to change. Secondly, to support the

use of the DINAMO, a software package has been developed. This software package enables consultants and managers to work independently from the developer with the inventory.

The software is designed to give a quick overview of strengths and weaknesses in the diagnosis of the willingness to change. The software calculates mean scores for scales and items and allows for the comparison of different organizations, departments and managerial levels. The software also compares DINAMO-scores from the cases at hand with norm profiles. Furthermore, the manual that comes with the software package goes into interventions to increase the willingness to change, on the basis of Ajzen's model. The DINAMO is available in Dutch, English, German and Polish versions. The author would like to solicit the help of colleagues in the field of organizational change and innovation to contribute to the validation of other language versions.

The questionnaire enables managers to express their ideas and wishes with regard to the ongoing change process. In terms of Ajzen's model the DINAMO thereby contributes to the managers' perceived control over events. Especially when timely feedback is given on the results of the diagnosis, for instance during management meetings or workshops, the DINAMO can be used to support discussions and adapt the implementation strategy accordingly. The DINAMO gives information on which groups to pay extra attention to and how the consultant can increase the willingness to change in these groups.

The DINAMO can be used in the adoption phase as well as in the implementation phase of change processes to assess willingness to change. When the DINAMO is used in an early stage of change processes it is recommended to repeat the measurement after a period of about six months, for instance when the change process nears implementation. It is especially important to compare these measurements and note differences in the average scores on the determinants of willingness to change. This information can again offer new leads for interventions to increase willingness to change or support change-related behaviour.

The DINAMO has been validated for the assessment of willingness to change among middle managers. It is not recommended to apply the DINAMO to other groups such as employees lower in the organization or top management. In the course of 1997 the DINAMO will be adapted to correspond to the specific roles

these groups play in planned change processes. For the use of the DINAMO, advanced education and experience in the field of organizational change and development is required. For the administration of the DINAMO no specific training is necessary.

7.3 Let's bury the term resistance (II)

In Chapter 2 it was argued that the frequent application by practitioners and researchers of the term 'resistance' could easily misrepresent employees confronted with organizational change. It was argued that the use of the term does nothing to imply the objective judgement of their attitudes and beliefs with regard to change. In section 2.3 a positive model of resistance was counterposed to the frequently applied negative model. This positive model offered leads for understanding resistance as a legitimate response to organizational change and induced a shift of focus in this thesis, away from collective systems change and towards collective behavioural change. To underline the fact that a positive model of resistance was followed, the term 'willingness to change' was used instead.

Evidence for the conclusion that the use of the term 'willingness to change' does indeed offer a different perspective on manager behaviour in changing work settings is provided by the average scores for all cases (N=604) on the DINAMO scales (see Figure 8).

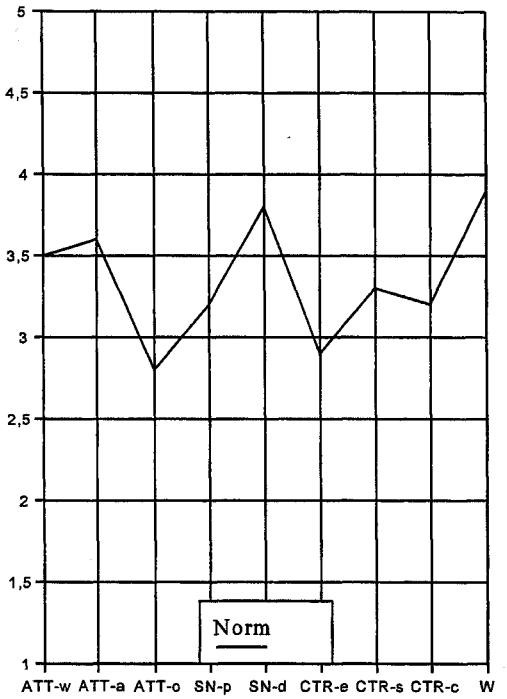

Figure 8. Overview of the average scores for all cases on the scales of the DINAMO

From the average score on the scale 'Outcomes of the change for the manager's work' (ATT-w, mean = 3.5) it can be concluded that the greater part of the managers in our sample expected positive outcomes of the change for their work. LISREL analyses of the model of manager behaviour showed that the impact of this factor on managers' willingness to change is limited. With respect to managers' affective response to change (ATT-a, mean = 3.6) it can be concluded that the changes evoked predominantly positive feelings. This finding is particularly interesting given the fact that in the model of manager behaviour the factor 'managers' affective response to change' was shown to have the greatest impact on managers' willingness to change.

It should be mentioned here that measures were taken in the early stages of change processes and that these processes were characterized by high levels of uncertainty. It appears that when uncertainty about ongoing change is high, the affective orientations which managers hold about change processes predominate over their cognitive orientations in determining their willingness to change.

From the average score on the scale 'Perceived proximal subjective norm' (SN-p, mean = 3.2) it can be concluded that in the change processes reviewed with the DINAMO the climate for change can be characterized as moderately positive. The attitudes of colleagues and employees were perceived as being in favour of the ongoing change processes. The model of manager behaviour showed that this factor had a positive impact on change-related behaviour. With respect to the average score on the scale 'Perceived distal subjective norm' (SN-d, mean = 3.8) the profile shows that in all cases the attitudes of top management and the board of directors were perceived as being strongly in favour of the change processes. However, the model of manager behaviour showed that this finding should be interpreted with great caution. LISREL analyses of this model resulted in a negative relation between 'Perceived distal subjective norm' (SN-d) and 'Willingness to change' (W). To explain this finding it was argued that management support can also be understood by employees as pressure to conform to the ideas and wishes of the initiators of the change, leading to lower levels of willingness to change.

Another interesting feature of the profile is the low score on the factor 'Information and uncertainty about the change' (CTR-e, mean = 2.9). This result indicates that the greater part of the change processes reviewed with the DINAMO suffered from a lack of information about the change, resulting in high levels of uncertainty. This finding can partly be explained by the fact that measurements were taken in early stages of change processes. However, although many consultants and change managers claim to maximize information supply, the results underline that more attention should be paid by practitioners to this aspect of planned change processes.

The managers' self-control (CTR-s, mean = 3.3) with respect to the implementation of the changes in our sample had a high impact on their willingness to change. The profile shows that the average score on this factor was somewhat above the neutral middle. Compared to the average score on the factor 'Information and uncertainty' (CTR-e, mean = 2.9), the profile shows that self-

control was evaluated more positively. Nevertheless, in comparison to the attitude measures, the scores on the control factors CTR-e and CTR-s were low. In terms of interventions to increase willingness to change and change-related behaviour, this study points to the importance of increasing perceptions of control to bring about changes in manager behaviour in changing work settings.

Finally, the profile below shows that the average score on the factor 'Willingness to change' (W, mean = 3.9) was high, pointing to high willingness from the managers' side to put effort into the goals of the change processes reviewed with the DINAMO. The high score on Willingness to change (W) coincides with a low average score on the factor Value of the change for the organization (ATT-o, mean = 2.8). This leads to the conclusion that despite the fact that the value of the changes for the organizations were not always clear, the managers were willing to implement the proposals. In accordance with the positive model of resistance presented in section 2.3 this gives further support to the application of the term 'willingness to change'.

In conclusion, the DINAMO-research project has shown that researchers as well as practitioners in the field of organizational change might benefit from a positive view of resistance. The use of the term 'willingness to change' in substitution for the term 'resistance' has offered many leads for further investigation of this subject. Starting from the model of manager behaviour, future research on willingness to change could contribute to a more thorough understanding of the psychological factors that hinder or support change processes. Practitioners might profit from this approach in that more insight is gained into the antecedents of change failure or success. Employees confronted with change might also profit from this view, in that the pursuit of successful organizational change then focuses on maximizing the willingness to change instead of reducing resistance.

References

Abbey, A. & Dickson, J. (1983). R & D work climate and innovation in semi-conductors. *Academy of Management Journal,* **26**, 362-368.

Aiken, M. & Hage, J. (1971). The organic organization and innovation. *Sociology,* **5**: 63-82.

Ajzen, I. (1991). The Theory of Planned Behaviour. *Organizational Behaviour and Human Decision Processes,* **50**, 179-211.

Ajzen, I. (1989). Attitude structure and behaviour. In: Pratkanis, A.R. Breckler, S.J. & Greenwald, A.G. *attitude structure and function.* London, Lawrence Erlbaum Associates.

Ajzen, I. & Madden, T.J. (1986). Prediction of goal directed behaviour: Attitudes, intentions and perceived behaviour control. *Journal of experimental social psychology,* **22,** 453-474.

Amabile, T. & Gryskiewicz, S. (1989). The creative environment scales: The work environment inventory. *Creativity Research Journal,* **2**; 231-254.

Anderson, N.R. & King, N. (1993). Innovations in organizations. In: C.l. Cooper and I.T. Robertson (Eds.) *International Review of Industrial and Organizational Psychology,* **8**, 1-34.

Antonioni, D. (1994). A new model for organizational change. *Organization Development Journal,* **12,** 17-22.

Argyris, C. (1965). *Organization and innovation.* Dorsey Press.

Armenakis, A.A., Harris, S.G., & Mossholder, K.W. (1993). Creating readiness for organizational change. *Human relations,* **46**, 681-703.

Bandura, A. (1991). Social-cognitive theory of self-regulation. *Organizational Behaviour and Human Decision Processes,* **50**, 248-287.

Bandura. A. (1986). *Social foundations of thought and action; A social cognitive*

theory. Englewood Cliffs, NJ; Prentice Hall.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American psychologist,* **37**, 122-147.

Barton, D. (1988). Implementation characteristics of organizational innovations. *Communication research, 15, 5, 603-631.*

Beatty, C.A. & Lee, G.L. (1992). Leadership among middle managers. *Human relations,* **45**, 957-989.

Beckhard, R. (1969). *Organization Development; Strategies and models.* Reading, MA. Addison-Wesley.

Bigoness, W.J. & Perrault, W.D. (1981). A conceptual paradigm and approach for the study of innovators. *Academy of management Journal,* **24**, 68-82.

Boonstra, J. (1995). *Power Dynamics and Organizational Change.* Paper presented at the EAWOP congress, Gyor, 1995.

Bruijn, J.A., de. (1991). De middle manager in de overheidsorganisatie. *M en O,* **14**, 261-278.

Bryant, D. (1979). The psychology of resistance to change. In McLennan, R. (1989). *Managing organizational change.* Englewood Cliff: Prentice Hall

Burkhardt, M.E. (1994). Social interaction effects following a technological change; a longitudinal investigation. *Academy of Management Journal,* **37**, 869-898.

Burns, T. & Stalker, G.M. (1961). *The management of innovation.* London: Tavistock Publications.

Campbell, J.P. & Pritchard, R.D. (1976). Motivation theory in industrial and organizational psychology. In: Dunette, M.D. (Ed.). *Handbook of industrial and organizational psychology.* Chicago; Rand McNally.

Carnall, C.A. (1990). *Managing Change in Organizations.* Prentice Hall. New

York.

Child, J. (1984). *Organizations: A Guide to Problems and Practice*, 2nd ed. London: Harper & Row.

Coch, L. & French, J.R.P. (1948). Overcoming resistance to change. *Human relations,* **2**, 512-532

Cook, J. & Wall, T.D. (1980). New work attitudes measures of trust, organizational commitment and personal need non-fulfilment. *Journal of Occupational Psychology,* **53**, 39-52.

Corwin, R.G. (1975). Innovation in organizations: the case of schools. *Sociology of education, 4 (winter), 1-37.*

Cozijnsen, A.J. & Vrakking, W.J. (1995). *Ontwerp en invoering; Strategieën voor organisatieverandering.* Samsom, Alphen a/d Rijn.

Cozijnsen A.J. (1989). *Het innovatievermogen van politie-organisaties. Onderzoek naar de mogelijkheden van een non-profit organisatie om complexe vernieuwingen succesvol door te voeren.* Dissertatie. Deventer: Kluwer Bedrijfswetenschappen.

Cozijnsen, A.J. (1984). Papieren vernieuwingen realiteitswaarde geven. In: Cozijnsen, A.J. & Ezerman, G.C. (Eds.), *Bestuurders op weg naar herstel, 'topmanagers over management'.* Deventer; Kluwer.

Cronbach. L.J. (1984). *Essentials of psychological testing.* Harper & Row, Publishers, Inc.

Daft, R.L. (1982). Bureacratic versus non-bureaucratic structure and the process of innovation and change. In S.B. Bacharach (red.). *Research in het sociology of organizations,* **1**, 129-166. Greenwich, CT: JAI Press.

Daft, R.L. & Becker, S.W. (1978). *The innovative organization.* New York, Elsevier.

Damanpour, F. & Evan, W.M. (1984). Organizational innovation and

performance: The problem of organizational lag. *Administrative Science Quarterly,* **29**, 392-409.

Damanpour, F. (1991). Organizational innovation. *Academy of Management Journal,* **34**, 555-590.

Dewar, R.D. & Dutton, J.E. (1986). The adoption of radical and incremental innovations: An empirical analysis. *Management Science,* **32**, 1422-1433.

Downs, G.W. & Mohr, L.B. (1976). Conceptual issues in the study of innovation. *Administrative Science Quarterly,* **21**, 700-714.

Drenth, P.J.D. (1988). *Inleiding in de testtheorie*. Van Loghum Slaterus, Deventer.

Dubrin, A.J. (1974). *Fundamentals of organization behaviour: An applied perspective*. New York: Pergamon Press

Emans, B.J.M. (1988). *Machtgebruik: Onderzoek naar empirisch onderscheidbare soorten van machtgebruik.* Dissertatie, Rijksuniversiteit Groningen.

Ettlie, J.E. (1983). Organization policy and innovation among suppliers to the food processing sector. *Academy of management Journal,* **26**, 27-44.

Fennell, M.L. (1984). Synergy, influence and information in the adoption of administrative innovation. *Academy of management journal,* **27**, 113-129.

Fidler, L.A. & Johnson, D.J., (1984). Communication and innovation implementation. *Academy of management review,* **9**, 704-711.

Fiorelli, J.S. & Margolis, H. (1993). Managing and understanding large systems change; Guidelines for executives and change agents. *Organization Development Journal,* **11**, 1-13.

Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Foster, G.M. (1962). *Traditional cultures and the impact of technological change*. New York: Harper and Brothers.

Goldstein, J. (1988). A far-from-equilibrium systems approach to resistance to change. *Organizational Dynamics,* 16-26.

Gorsuch, R. I. (1983). *Factor analysis.* London; Lawrence Erlbaum Associates.

Gray, J.L. & Stark, F.A. (1984). *Managing Change in Organizational Behaviour; Concepts and Applications*, 3rd ed. New York: Bell and Howell

Griffin, R.W. (1991). Effects of work redesign on employee perceptions, attitudes, and behaviours; a long term investigation. *Academy of Management Journal*, **34**, 425-435.

Hackman, J.R. & Oldham, G.R. (1980). *Work redesign*. Reading, Mass., Addison-Wesley.

Hage, J. & Aiken, M. (1970). *Social change in complex organizations.* Random House.

Hartog, D.N., den (1996). Transformational leadership and organizational commitment. *Abstracts of the XXVI international conference of psychology, Montreal, Canada,* abstract nr. 143.1.

Hermans, H.J.M. (1976). *De prestatie motivatie test.* Swets & Zeitlinger, Amsterdam

Hosking, D.M. & Anderson, N.R. (1992). *Organizational change and innovation: Psychological perspectives and practices in Europe.* London, Routledge.

Hull, F. & Hage, J. (1982). Organizing for innovation; beyond Burns and Stalkers' organic type. *Sociology,* **16**, 564,577.

Huse, E.F. & Cummings, T.G. (1985). *Organization development and change.* St. Paul; West.

Iaffaldano, M.T. & Muchinsky, P.M. (1985). Job satisfaction and performance; a meta-analysis. *Psychological Bulletin,* **97**, 251-273.

Ittersum, E.R.P., van (1996). *De veranderingsbereidheid van de middenmanager,* doctoral thesis, Vrije Universiteit Amsterdam.

Janis, I.L. (1982). *Groupthink*, 2nd ed. Boston: Houghton Mifflin.

Jöreskog, K. & Sörbom, D. (1986). *Lisrel VI; Analysis of linear structural relationships by maximum likelihood, instrumental variables and least squares methods.* Department of Statistics, University of Uppsala, Uppsala, Sweden.

Kalunzy, A.D. (1974). Innovation of health services: A comparative study of hospitals and health departments. *Health and society, 52 (winter), 51-82.*

Kanter, R.M. (1983). *The change masters: Corporate entrepreneurs at work.* London: Unwin.

Kiesler, C.A. (1971). *The psychology of commitment: Experiments linking behaviour to belief.* New York. Academic Press.

Kim, L. (1980). Organizational innovation and structure. *Journal of Business Research,* **8**, 225-245.

Kimberly, J.R. & Evanisko, J.M. (1981). Organizational innovation: The influence of individual, organizational and contextual factors on hospital adoption of technological and administrative innovations. *Academy of Management Journal*, **24**, 689-713.

King, N. & Anderson, N.R. (1995). *Innovation and Change in Organizations.* London, Routledge

King, N. (1992). Modelling the innovation process; An empirical comparison of approaches. *Journal of Occupational and Organizational Psychology,* **65**, 89-100.

King, N. (1990). Innovation at work; the research literature. In: M.A. West & Farr, (ed) *Innovation and Creativity at work.* Chichester: Wiley.

King, N. & Anderson, N.R. (1990). Innovation in working groups. In M.A. West & Farr, (ed) *Innovation and Creativity at work.* Chichester: Wiley.

Kirton, M. (1976). Adapters and innovators: A description and a measure. *Journal of Applied Psychology,* 621-629.

Kirton, M.J. (1980). Adopters and innovators in organizations. *Human relations,* **33**, 213-224.

Kirton, M. (1989). *Adapters and innovators.* Routledge.

Kloek, M. (1996). *Implementeren; draagvlak en daadkracht.* Doctoral thesis, Vrije Universiteit Amsterdam.

Koopman. P.L. & Pool, J. (1992). *Management en besluitvorming in organisaties; een strategisch perspectief.* Assen, van Gorcum.

Koopman, P.L. (1980). *Besluitvorming in organisaties.* Assen; van Gorcum (dissertation Vrije Universiteit Amsterdam).

Kotter, J.P. & Schlesinger, L.A. (1979). Choosing strategies for change. *Harvard Business Review, March-April,* 106-114.

Kren, L. (1992). The moderating effects of locus of control on performance incentives and participation. *Human Relations,* **45**, 991-1012.

Lawrence, P.R. (1969). How to deal with resistance to change. *Harvard Business Review, january-february.*

Leavitt, H.L. (1986) *Corporate pathfinders*, New York: Penguin.

Leonard-Barton, D. (1988). Implementation characteristics of organizational innovations. *Communication research,* **15**, 603-631.

Leonard-Barton, D., Dechamps, I. (1988). Managerial influences in the implementation of a new technology. *Management Science,* **34**, 1252-1265.

Lewin, K. (1947). Group decision and social change. In. Maccoby, E.E.,

Newcomb, T., Hartley, E. (eds.). *Readings in social psychology.* New York. Holt, Rinehart & Winston, 330-344.

Lewin, K. (1951). *Field theory in social science.* New York; Harper and Row

Lippitt, R.J., Watson & Westley, B. (1958). *The dynamics of planned change; a comparative study of principles and techniques.* New York; Harcourt, Brace & World, Inc.

Lippitt, R. (1986). Het gebruik van weerstand als positieve bron voor vernieuwing. In Cozijnsen A.J. & Vrakking W.J. (1986). *Handboek voor strategisch innoveren; een internationale balans.* Deventer, Kluwer.

Locke, E.A. (1991). The motivation sequence, the motivation hub, and the motivation core. *Organizational Behaviour and Human Decision Processes,* **50**, 288-299

Locke, E.A. & Latham, G.P. (1990a). *A theory of goal setting and task performance.* Englewood Cliffs, NJ; Prentice Hall.

Locke, E.A. (1976). The nature and causes of job satisfaction. In: Dunettte, M.D. (Eds.) *Handbook of industrial and organizational psychology.* Chicago: Rand McNally.

Luteijn, F., Starren, J.& van Dijk, H. (1985). *Handleiding bij de NPV (Herziene uitgave).* Lisse, Swets & Zeitlinger.

Luthans, F., Paul, R. & Baker, D. (1981). An experimental analysis of the impact of contingent reinforcement on sales persons' performance behaviour. *Journal of applied Psychology,* **66**, 314-323.

Marcus, A. (1988). Implementing externally induced innovations. *Academy of management journal,* **31**, 235-253.

Merron, K. (1993). Let's bury the term 'resistance'. *Organization Development Journal,* **11**, 77-86.

Metselaar, E.E. (1994). Antecedents of resistance toward organizational change.

Paper presented at the 23rd congress of applied psychology, Madrid.

Metselaar, E.E., Cozijnsen, A.J., Vrakking, W.J. (1995). The assessment of innovation consequences with the DINAMO. *Technology Review,* **8**, 85-90.

Metselaar, E.E., van Ittersum, E.R.P., Cozijnsen, A.J. (1995) The assessment of innovation management potential. *Paper presented at the seventh European Congress on Work and Organizational Psychology Györ, April 1995*

Metselaar, E.E., Walet, H.J., Cozijnsen, A.J., Padua, M. (1996). Sociale determinanten van innovatief gedrag. *Gedrag en Organisatie,* **9**, 38-52.

Meyer, J.P. & Allen, N.J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review,* **1**, 61-89.

Meyer, A.D. & Goes, J.B. (1988). Organizational assimilation of innovations. A multilevel contextual analysis. *Academy of Management Journal,* **31**, 4, 897-923.

Miles, R.E. & Snow, C.C. (1978). *Organization Strategy, Structure and Process.* McGraw-Hill: New York.

Miller, S. (1993). Strategic decisions enacted; The process of implementation. In; Cozijnsen, A.J., Vrakking W.J. *Handbook of innovation management.* Blackwell Publishers.

Mintzberg, H. (1989). *Mintzberg on management.* Englewood Cliffs, New York: Prentice-Hall.

Morgan, G. (1986). *Images of Organization.* Sage Publications, Inc.

Mowday, R.T., Porter, L.W. & Steers, R.M. (1982). *Employee-Organization Linkages; The psychology of commitment, absenteeism and turnover.* Academic Press, New York.

Nicholson, N. (1990). Organizational innovation in context: Culture, interpretation and application. In: M.A. West & J.L. Farr (ed.), *Innovation and Creativity at work: Psychological and Organizational Strategies.* Chichester: Wiley.

Niehoff, B.P., Enz, C.A. & Grover R.A. (1990) The impact of Top management actions on employee attitudes and perceptions. *Group and organization studies,* **15**, 337-352.

Nutt, P.C. (1986). Tactics of implementation. *Academy of management journal,* **29**, 230-261.

Olthof, S.A.M. (1985). Hoe kijken medewerkers tegen veranderingen aan. In: *Advies personeelsbeleid.*

Paolillo, W. & Brown, W. (1978). How organizational factors affect R & D innovation. *Research management,* **21**, 12-15.

Patti, R.J. (1974). Organizational resistance and change: The view from below. *Social Service Review*, **48**, *367-383.*

Peters, T.J. & Austin, N.A. (1986). *A passion for excellence, the leadership difference*. Glasgow: Fontana/Collins.

Petty, M.M., McGee, G.W. & Cavender, J.W. (1984). A meta-analysis of the relationships between individual job satisfaction and individual performance. *Academy of Management Review,* **9**, 712-721.

Pinder, C.C. (1991). Valence-Instrumentality-Expectancy Theory. In: Steers, R.M & Porter, L.W. (Eds.). *Motivation and work behaviour*, Mcgraw-Hill Inc.

Porter, L.W.& Lawler, E.E. (1968). *Managerial attitudes and performance.* Homewood, Illinois; Dorsey Press.

Rogers, E.M. (1983). *Diffusion of innovations*. New York, The Free Press.

Rogers, E.M. & Shoemaker, F. (1971). *Communication of innovations*. New York, Free Press.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs,* **80**, (whole number).

Salaman, G. (1979). *Work Organizations; Resistance and Control*. London;

Longman

Salancik, G.R. & Pfeffer, J.A. (1978). A social information processing approach to job attitudes and task design. *Administrative Science Quarterly,* **23**, 224-253.

Schriesheim, C. (1979). The similarity of individual directed and group directed leader behaviour descriptions. *Academy of Management Journal,* **22**, 345-355.

Scott, S.G & Bruce, R.A. (1994). Determinants of innovative behaviour; A path model of individual innovation in the work place. *Academy of Management Journal,* **37**, 580-607

Shephard, H.A. (1967). Innovation-resisting and innovation-producing organizations. *Journal of Business,* **40**, 4.

Shore, L.F., Newton, L.A. & Thornton III, G.C. (1990). Job and organizational attitudes in relation to employee behavioural intentions. *Journal of Organizational Behaviour,* **11**, 57-67.

Skinner, B.F. (1969). *Contingencies of reinforcement: A theoretical analysis. New York: Appleton- Century-Crofts.*

Skinner, B.F. (1953). *Science and Human Behaviour.* New York, McMillan.

Spector, P.E. (1994). Using self-report questionnaires in OB research; A comment on the use of a controversial method. *Journal of Organizational behaviour,* **15**, 385-392

Taylor, J.C. & Bowers, D.G. (1972). *Survey of Organizations; a machine scored standardized questionnaire instrument.* Ann Harbor, Michigan Institute for Social Research.

Van de Ven, A. (1986). Central problems in the management of innovation. *Management Science,* **32**, 590-607.

Vrakking, W.J. & Cozijnsen, A.J. (1990). *Management technieken bij effectief innoveren.* Kluwer bedrijfswetenschappen.

Vroom, V.H. (1964). *Work and motivation*. New York; Wiley.

Watson, G. (1973). Resistance to change. In: G. Zaltman (ed.), *Processes and Phenomena of Social Change*. New York: Wiley.

Werther, W.B. & Davis K. (1986). *Personnel management and human resources*. Mc. Graw Hill Book Company, New York.

West, M.A. & Anderson, N.R. (1992). Innovation, cultural values and the management of change in British hospitals. *Work and Stress,* **6**, 293-310.

West, M.A. & Farr, J.L. (1990). *Innovation and creativity at work; psychological and organizational strategies.* Chichester; Wiley.

Winter, D.G. (1973). *The power motive*. New York: Free Press

Wilson, D.C. (1992). *A strategy of change; Concepts and controversies in the management of change*. London, Routledge.

Wortelboer, F., Metselaar, E.E. (1996). Weerstand tegen organistieverandering. *Handboek management interne en civiele diensten*. Katern c15-40, p.1-p.24.

Wortelboer, F., Metselaar, E.E. (1996). Het meten van weerstand tegen organisatieverandering. In: *Cozijnsen, A.J., Vrakking, W.J. (red.) Handboek Organisatie Instrumenten*. Samsom publishers.

Zaltman, G. (1973). *Innovations in organizations*. John Wiley and Sons.

Zaltman, G. & Duncan, R. (1977). *Strategies for Planned Change.* New York: Wiley.

Zmud, R.W. (1982). Diffusion of modern software practices: Influence of centralization and formalization. *Management Science,* **28**, 1421-1431.

Appendix A: Case descriptions

Case 1. Police district 'South 1' (first measurement, January 1995)

Police district 'South 1' was the first of four districts in the south of the Netherlands which started with the implementation of a so called 'project-based' crime-fighting method. The new crime-fighting method did not only affect the way police officers executed their tasks, it also affected the police organization in toto. The implementation of the project-based crime-fighting method was part of a larger change process aimed at improving the efficiency and effectiveness of the police force in the Netherlands. The change process was supported by external consultants who used the DINAMO to assess the willingness of the police officers in district 'South 1' to put time and effort into the implementation of the project-based crime-fighting method. Figure 1 shows the resulting DINAMO-scores for the police officers in district 'South 1' (n = 45).

The profile shows that, although the value of the change for the organization was not clear to the officers (ATT-o; mean = 2.5), they were willing to put time and effort into the implementation of the new crime-fighting method (W; mean = 3.7). This can be explained by the finding that the officers expected positive outcomes of the change process for their own work (ATT-w; mean = 3.5). It can also be concluded from the profile that the officers perceived the attitude of top management as being strongly in favour of the change process. This finding is logical, given the fact that it was this group in particular that had been responsible for the initiation of the change process. Finally, from the low score on the scale 'information and uncertainty about the change' (CTR-e; mean = 2.5) it can be concluded that information about the change process was lacking and uncertainty was high.

Figure 1. Dinamo-profile for police district 'South 1'

Case 2. Police district 'South 2' (March 1995)

Police district 'South 2' started 3 months later than 'South 1' with the implementation of the project-based crime-fighting method. Again, the DINAMO was used to assess the willingness of the officers in district 'South 2' to support the change process. Figure 2 shows the resulting DINAMO-scores for the officers in this district (n = 48).

As can be concluded from the profile, the officers in district 'South 2' scored much lower on the DINAMO than had the officers in district 'South 1'. The results show that the officers in district 'South 2' did not expect positive outcomes of the change process, either for their work (ATT-w; mean = 3.1) or for the organization (ATT-o; mean = 2.6). Strikingly, the officers in this district did not perceive the attitude of top management as being in favour of the change process (SN-d; mean = 3.2). Furthermore, just as in district 'South 1', information about the change process was lacking and uncertainty was high (CTR-e; mean = 2.5). Despite a lack of confidence in the change process the officers were not unwilling to put time and effort into the implementation of the project-based crime-fighting method (W; mean =3.6).

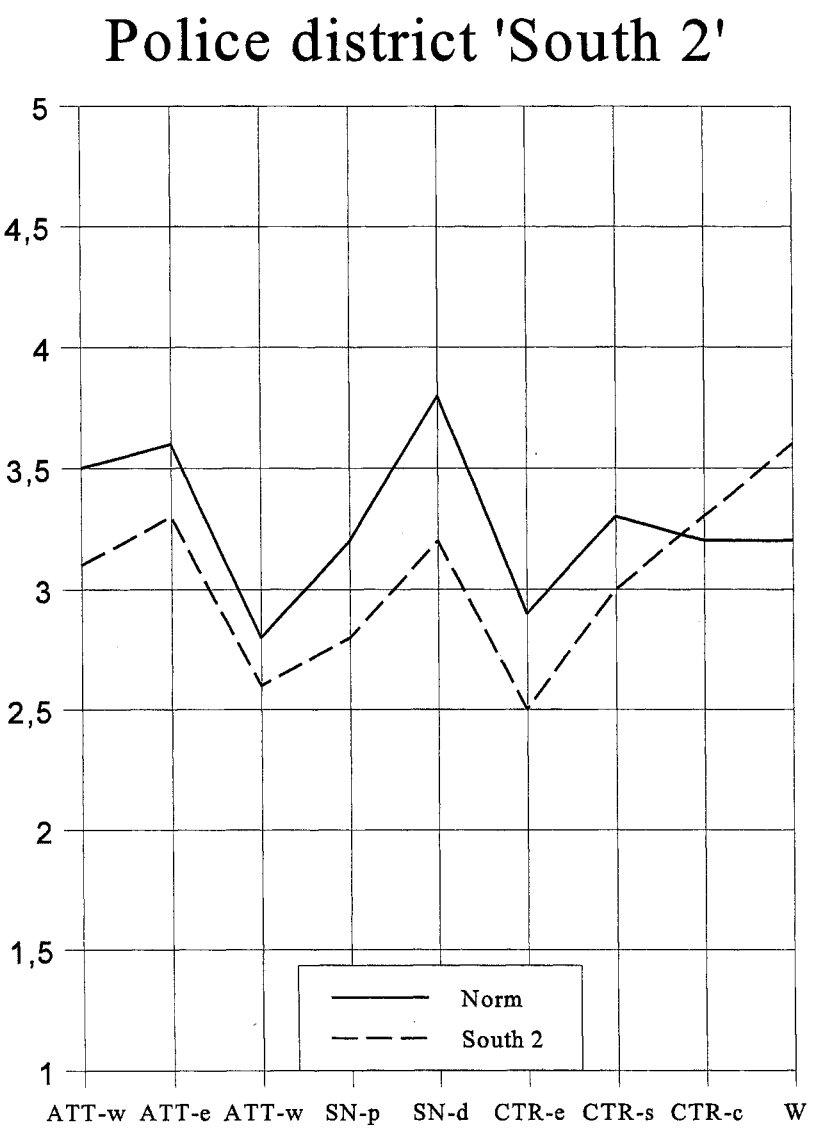

Figure 2. Dinamo-profile for police district 'South 2'

Case 3. The 'North' food company (May 1995)

In the early 1990s the prices on the market in which the food company 'North' operated dropped drastically, as the result of overproduction by the industry. In the anticipation of a possible price war, 'North' decided to actively search for new market niches. In addition, more financial means were directed to research for product improvement and the development of new products. To help workers become aware of the need for thorough improvement of the innovativeness of the company, 'quality circles' were installed. In each quality circle, people from one or more departments worked together on ways to improve the efficiency of the organization. Three months after the initiation of the quality circles the DINAMO was used to assess the willingness of middle management to support the change process 'North' was in. Figure 3 shows the DINAMO-scores for the company managers (n = 40).

The profile shows that the 'North' managers were very willing to put effort into the implementation of the change process (W; mean = 4.5). The profile also shows that middle management expected positive outcomes of the change process for their work (ATT-w; mean = 3.7) and that they perceived top management as being strongly in favour of the change process (SN-d; mean = 4.3). Strikingly, the middle managers did not see the value of the change for the organization in toto (ATT-o; mean = 3.1). A possible explanation of this finding can be found in the low score on the scale 'information and uncertainty' (CTR-e; mean = 3.2). Just as in cases 1 and 2, the change process at 'North' suffered from a lack of information and high uncertainty about the financial and managerial consequences of the change process.

Figure 3. Dinamo-profile for food company 'North'

Case 4. Municipality 'West' (June 1995)

By the end of the 1980s, the municipality 'West' rounded off an unsuccessful retrenchment operation which left the local government in great debt. In 1994 there followed a major restructuring of all seven divisions of which the local government consisted. The aim of the restructuring process was to downsize the organization and to achieve economies amounting to 26 million guilders in the coming four years. Before the actual downsizing took place, the DINAMO was used to assess the degree to which middle managers in the organization were willing to invest time and effort into the economization process. Figure 4 shows the DINAMO scores for the managers of municipality 'West' (n= 50).

The profile shows that the middle managers at 'West' expected positive outcomes of the economization process for their work (ATT-w, mean = 3.4) and that the change process primarily evoked a positive affective response (ATT-a, mean = 3.7). What is striking is that the managers did not see the value of the change for the organization (ATT-o, mean = 2.9). The attitude of top management (the city council) towards the change was perceived as being positive (SN-d, mean = 3.5). Again, just as the former profiles showed, the change process was characterized by a high degree of uncertainty (CTR-e, mean = 2.5). Finally, despite the fact that the managers did not see the value of the change for the organization, the profile shows that the managers were willing to put effort into the economization process (W, mean = 4.2).

Figure 4. Dinamo-profile for municipality 'West'

Case 5. Police district 'South 3' (first measurement, June 1995)

Police district 'South 3' was the third of four districts that started with the implementation of the above mentioned project-based crime-fighting approach. Because most of the pitfalls that could occur during the introduction of the change process had already been identified in districts 'South 1' and 'South 2', the change process had a promising start. As the DINAMO-profile for district 'South 3' shows (see Figure 5), the officers in this district (n = 37) expected mainly positive outcomes of the change process for their work (ATT-w, mean = 3.5). Furthermore, compared with the other districts, the value of the change for district 'South 3' was clearer to these officers (ATT-o, mean = 3.1). In addition, the change process was less characterized by uncertainty and insufficient information (CTR-e, mean = 2.9). As in the other districts, it appeared that the officers perceived the attitude of the district's top management as being strongly in favour of the change process. Finally, the willingness of the officers to put effort into the implementation of the project-based crime-fighting method was high (W, mean = 3.8).

Figure 5. Dinamo-profile for police district 'South 3'

Case 6. Hospital 'South' (July 1995)

At the beginning of 1995 the top management of hospital 'South' decided to restructure the hospital's technical services departments. The plan consisted of a merger of the four main service departments into one general services department that would support and maintain all the hospital's technical facilities. The change process was supported by external consultants who used the DINAMO to assess the willingness of the managers of the technical service departments to put effort into the restructuring process. Figure 6 shows the resulting DINAMO-profile for the managers in this sample (n = 15).

As the profile shows, the managers expected positive outcomes of the change process for their work (ATT-w, mean = 3.6) and the change evoked mainly a positive affective response (ATT-a, mean = 3.8). Just as in the other change processes discussed above, the value of the restructuring process for the organization was not clear to the managers (ATT-o, mean = 2.7). The low score on the scale 'proximal subjective norm' (SN-p) shows that the managers did not perceive the attitudes of their colleagues as being in favour of the change process (mean = 2.8). By contrast, they perceived the attitude of top management as being strongly in favour of the restructuring process (mean = 4.1). The low score on the scale 'information and uncertainty' (CTR-e, mean = 2.9) shows that the change process was characterized by a lack of information about the consequences of the change process. Finally, the willingness of the managers to put effort into the implementation of the merger was high (W, mean = 4.1).

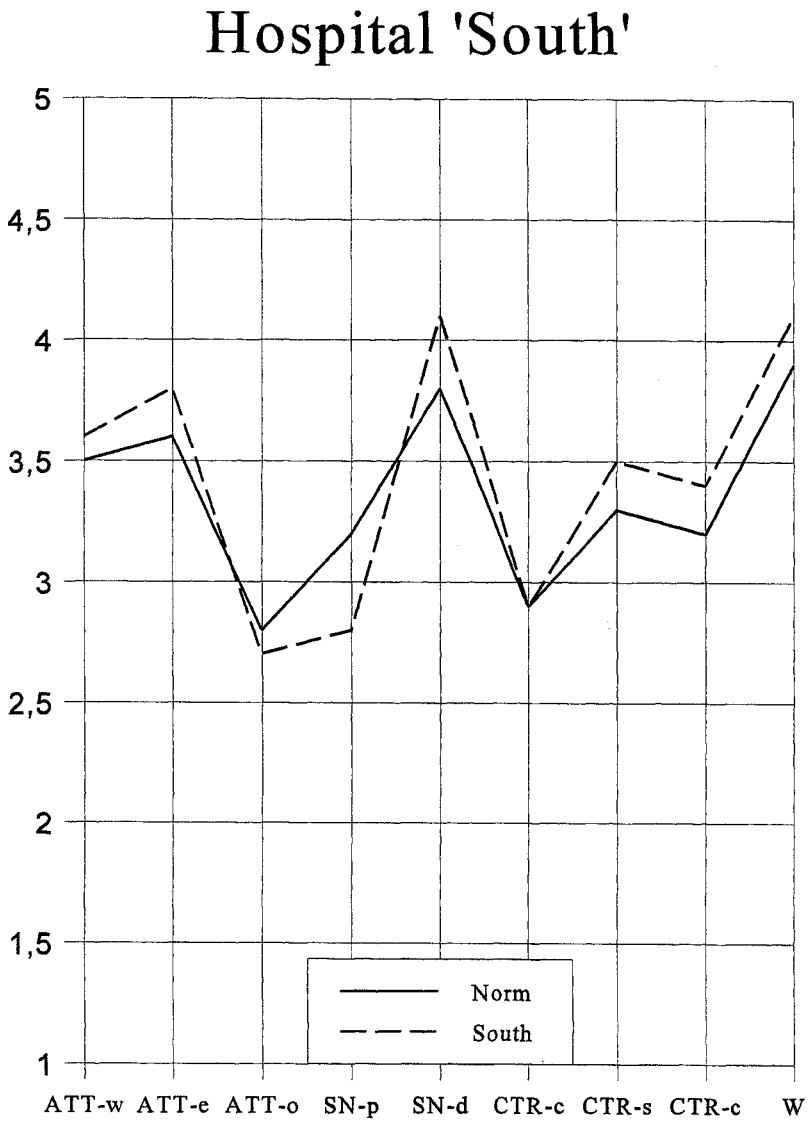

Figure 6. Dinamo-profile for hospital 'South'

Case 7. Management consultancy 'West' (September 1995)

By the year 1995 the management consultancy market was characterized by an ever-increasing number of suppliers. Customers could select consultants from a great number of firms with differing approaches towards organizational change and development. Management consultancy 'West' is one of the main players on this market. To meet the challenge of the 20th century, management consultancy 'West' initiated the 'Vision 2000' project. The aim of the project was to identify the threats and opportunities in the management consultancy market and to adapt the organization accordingly. In order to identify the first strategic goals for Vision 2000, top management asked 100 key persons from the organization to formulate their ideas and wishes with regard to the future organization. These documents were use to draw up the Vision 2000 master plan. This master plan would serve as an important guide for the future development of the organization. After the master plan had been written and disseminated throughout the company, the key persons were asked to fill out the DINAMO. The aim of this measurement was to check whether the ideas and wishes of the key persons were processed in such a way that they would be willing to invest time and effort into the realization of the masterplan.

Figure 7 shows the DINAMO-profile for the key persons of Management Consultancy 'West' (n = 61). As the profile shows, the key persons expected the achievement of the master plan to positively affect their work (ATT-w, mean = 3.8) and that the master plan evoked a very positive affective response (ATT-a, mean = 4.2). Strikingly, the value of the master plan for the organization in toto was not really clear to them (ATT-o, mean = 2.8). The attitudes of colleagues (SN-p, mean = 3.5) and top management (SN-d, mean = 3.7) were both perceived as being in favour of the master plan. The profile also shows that there was little uncertainty about the change process (CTR-e, mean = 3.2). Finally, the willingness of the key persons to put effort into the realization of the master plan can be characterized as high (W, mean = 4.5).

Figure 7. Dinamo-profile for management consultancy 'West'

Case 8. Police district 'South 1' (second measurement, October 1995)

Six months after the first measurement in police district 'South 1' the DINAMO was used again to identify strengths and weaknesses in the development of the change process. As Figure 8 (which shows the first and second measurements) demonstrates, the DINAMO-scores resulting from the second measurement were significantly lower than the DINAMO-scores resulting from the first. The officers (n = 38) expected less positive outcomes of the change process for their work (ATT-w, mean = 2.9) and the change process evoked a less positive affective response (ATT-a, mean = 3.2). In addition, the value of the change for the organization was less clear to the officers than it had been months previously (ATT-o, mean = 2.6). Strikingly, according to the officers, top management support for the change process had also dropped significantly (SN-d, mean = 3.3). Finally, the profile for the second measurement shows that the officers' willingness to change was also significantly lower than it had been 6 months previously (W, mean = 3.2).

Figure 8. Dinamo-profile for police district 'South 1' (second measurement)

Case 9. Police district 'South 4' (November 1995)

Police district 'South 4' was the fourth district to start with the implementation of the project-based crime-fighting method. Just as in the other districts, the DINAMO was used to measure the officers' willingness to put effort into implementation of this new approach. Figure 9 shows the DINAMO-profile for the officers in district 'South 4' (n = 15). The profile shows that the officers expected positive outcomes of the change process for their work (ATT-w, mean = 3.5), that the change evoked a very positive affective response (ATT-a, mean = 4) and that the officers, as in the previous cases, did not see the value of the change for the organization (ATT-o, mean = 2.7). Colleagues' attitudes towards the change were perceived as being positive (SN-p, mean = 3.4) as well as the attitudes of top management (SN-d, mean = 4). The profile also shows that the change process in district 'South 4' was characterized by less uncertainty than it had been in the other districts (CTR-e, mean = 3). The low score on the complexity scale (CTR-c, mean = 2.7) indicates that the officers perceived the change as being rather complex. Finally, the profile shows that the officers' willingness to contribute to the implementation of the project-based crime-fighting method can be characterized as high (W, mean = 4).

Figure 9. Dinamo-profile for police district 'South 4'

Case 10. Polish case 'East 1' (January 1996)

Since the decline of the communist regime, many Eastern European companies have been undergoing a process of privatization and restructuring in order to meet the demands of the free market. Of course, this process draws heavily upon the change management skills of the managers in these companies. Their attitudes towards, and perception of, the privatization processes determine to a great extent their success. In order to collect information on these topics the DINAMO was applied in two Polish companies. The aim of the measurements was to assess the willingness of Polish managers of formerly state-owned companies to put effort into the privatization and restructuring of their company. For this purpose, the DINAMO-questionnaire was translated from the Dutch into Polish by a translator. This translation was reviewed by another translator. This procedure resulted in a Polish pilot version of the DINAMO.

The first measurement took place at 'East 1', a state-owned company producing sanitary supplies. At the time of the measurement the company was on its way to becoming privatized. The management of 'East 1' was in the hands of a board of directors, the mayor of the city of Wroclaw being the chairman of the board. At the time of the measurement, the board had decided to let a Dutch company participate in their company. However, the mayor had decided not to cooperate with this investor and introduced a Spanish firm interested in a joint venture with 'East 1'. Cooperation between the Polish firm and the Spanish investor mainly concerned closing down the old factory and building a new one with a modern production line. In order to collect information about the attitudes of the managers of 'East 1' (n = 21) towards this joint venture the DINAMO was applied. Figure 10 shows the resulting DINAMO-profile for this case.

As the profile shows, the managers of 'East 1' mainly expected positive outcomes of the privatization process for their work (ATT-w, mean = 3.7) and the process evoked a positive affective response (ATT-a, mean = 3.5). From the score on the scale 'value of the change for the organization' (ATT-o, mean = 2.9) it can be concluded that the managers were not at all convinced of the benefits of the privatization process for the organization. Colleagues' attitudes towards the change were perceived as being neutral (SN-p, mean = 3.2) whereas the attitude of top management (SN-d, mean = 3.8) towards the privatization process was perceived as being more positive. The profile also shows that the change process at 'East 1' was characterized by some uncertainty (CTR-e, mean = 3). The score

on the complexity scale (CTR-c, mean = 3.5) indicates that the managers perceived the change process as being moderately complex. Finally, the profile shows that the managers' willingness to contribute to the privatization process can be characterized as moderately high (W, mean = 3.6).

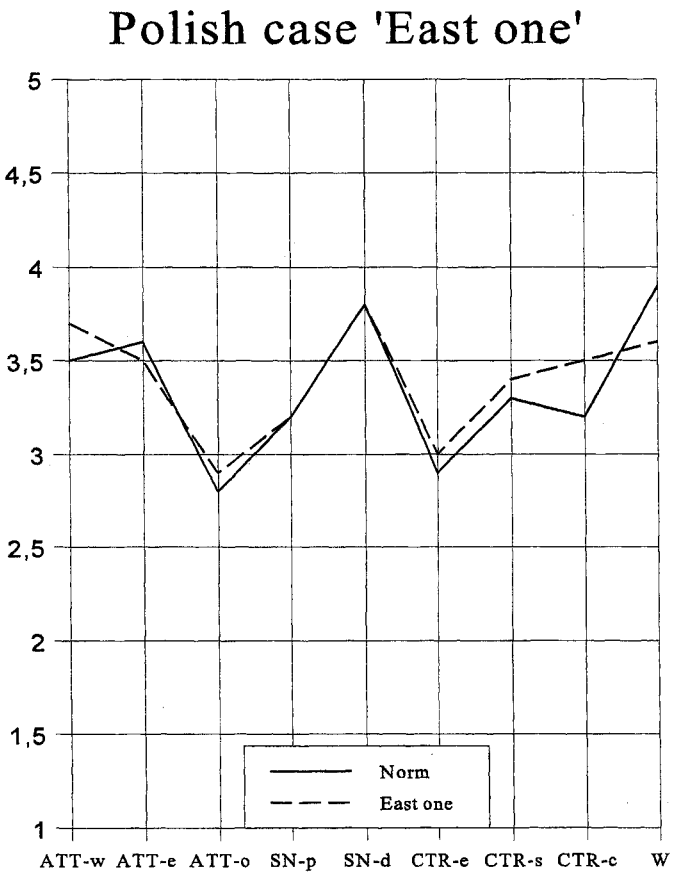

Figure 10. Dinamo-profile for polish case 'East one'

Case 11. Hospital 'West' (February 1996)

This case was previously presented as the concurrent validity study executed by Kloek (1996). For background information about the case the reader is referred to section 5.3. Figure 11 shows the DINAMO-profile for the managers in this case.

As Figure 11 shows, the managers did not expect the change to positively affect their work (ATT-w, mean = 3.0) nor did the change evoke a positive affective response (ATT-a, mean = 3.0). Furthermore, the value of the change for the organization was not at all clear to the managers (ATT-o, mean = 2.4). The attitude of colleagues towards the retrenchment process can be characterized as neutral (SN-p, mean = 2.9) whereas the attitude of top management towards the retrenchment operation was perceived as positive (SN-d, mean = 3.6). There was little uncertainty about the consequences of the retrenchment process (CTR-e, mean = 3.2). From the score on the scale 'contribution of the manager' (CTR-s, mean = 3.2) it can be concluded that the managers had sufficient confidence in their ability to implement the retrenchments. The low score on the scale 'complexity of the change process' (CTR-c, mean = 2.5) indicates that the managers perceived the retrenchment operations as being moderately complex. Finally, from the score on the scale 'willingness to change' (W, mean = 3.4), it can be concluded that the managers were willing to invest some time and effort into implementation of the retrenchments.

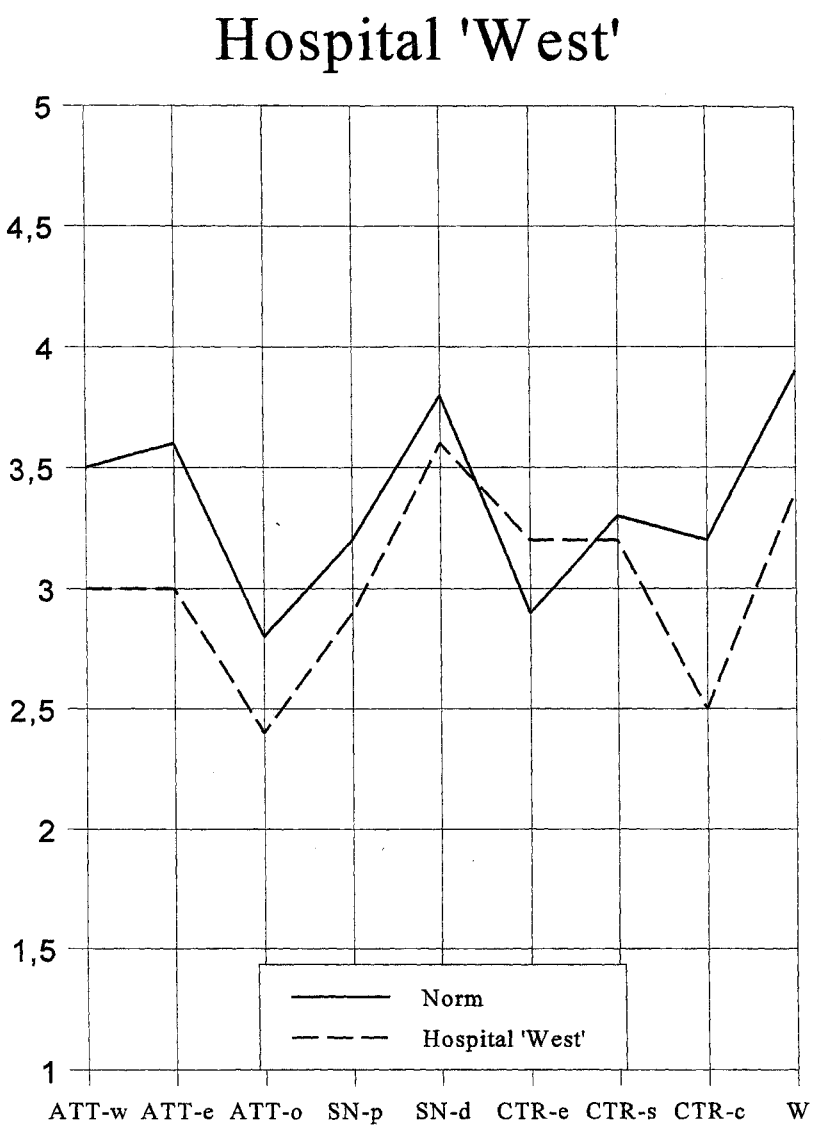

Figure 11. Dinamo-profile for Hospital 'West'

Case 12. Polish case 'East 2' (March 1996)

'East 2' was the second Polish company where the DINAMO was applied. As at 'East 1', this company was in a process of restructuring and privatization. 'East 2' used to be a state-owned company, but for three years it had belonged to the National Investment Fund (NIF). These funds were created by the Ministry of Privatization and consisted of groups of companies who shared a common board of directors. The board of directors is appointed by the Ministry of Privatization. 'East 2' used to produce plasters and bandages for the textile industry and employed 1700 people before the restructuring, which involved closing down the production lines for bandages and the early retirement of more than half of the employees. After the downsizing had taken place, the DINAMO was used to measure the willingness of middle management to further develop 'East 2' as a highly specialized producer of plasters only.

As Figure 12 shows, the managers expected the changes to affect their work positively (ATT-w, mean = 3.8). The changes did not evoke a very positive affective response (ATT-a, mean = 3.2). In addition, the value of the changes was not evident to all managers (ATT-o, mean = 2.9). The attitudes of colleagues toward the changes at 'East 2' were perceived as moderately positive (SN-p, mean = 3.5), whereas the attitude of top management toward the change was perceived as very positive (SN-d, mean = 4). The profile also shows that developments at 'East 2' were characterized by little uncertainty (CTR-e, mean = 3.2) and that the managers perceived themselves to have moderate control over the ongoing changes (CTR-s, mean = 3.6). The change was not perceived as being too complex (CTR-c, mean = 3.5). Finally, the willingness of the managers of 'East 2' to put effort into developing the company towards a highly specialized producer of plasters can be characterized as moderately high (W, mean = 3.6).

Figure 12. Dinamo-profile for Polish case 'East two'

Case 13. Police district 'South 3' (second measurement, April 1996)

Figure 13 presents the DINAMO-profile for the second measurement in police district 'South 3'. The profile shows that, compared to the first measurement, the officers expected less positive outcomes of the change process for their work (ATT-w, mean = 3.3) and that the change evoked a less positive affective response (ATT-a, mean = 3.7). In addition, the value of the change for the organization was less clear to the managers (ATT-o, mean = 2.9). Colleagues' attitudes toward the change process were also perceived as less positive (SN-p, mean = 3). In contrast, the attitudes of top management toward the changes in 'South 3' were perceived as more and strongly positive (SN-d, mean = 4.6). Furthermore, just as the first measurement showed, the low score on CTR-e (information and security) indicates that some uncertainty surrounded the changes at 'South 3'. Finally, the profile shows that the managers at police district 'South 3' were still willing to invest time and effort in the implementation of the change process (W, mean = 3.8)

Figure 13. Dinamo-profile for police district 'South 3'

Case 14. Telecom 'South' (June, 1996)

In the early 1990s a number of change activities were initiated at Telecom 'South'. These activities formed the starting point for a company-wide OD project. The initial aim of the OD project was to improve the quality of services and broaden the company's product range. However, in 1992 a new director was appointed who did not see the value of the OD project for the company and the project was aborted. In 1994 Telecom 'South' realized that they could no longer survive without extensive restructuring and the OD project was restarted by, once again, a new director. The aim of the project was no longer to broaden the product range but to outsource activities and form business units with key products and services. After a long period in which a master plan was prepared, it was presented to the employees at Telecom 'South' at the beginning of 1996. The DINAMO was used in June of that year to assess the willingness of the middle managers at Telecom 'South' to implement the changes envisaged.

As the DINAMO-profile in Figure 14 shows, the managers at Telecom 'South' expected positive outcomes of the change process for their work (ATT-w, mean = 3.8). In addition, the change scenario evoked a positive affective response (ATT-a, mean = 4). The value of the change process for the organization (ATT-o, mean = 3.5) was also clear to the managers. The attitudes of colleagues and top management towards the change scenario were perceived as strongly positive (SN-p, mean = 3.8; SN-d, mean = 4.1). The profile also shows that the change process was characterized by little uncertainty (CTR-e, mean = 3.2) and that the managers perceived themselves to be in control of developments (CTR-s, mean = 3.4). The change was perceived as not complex (CTR-c, mean = 3.4). Finally, the profile shows that the managers at Telecom 'South' were very willing to invest time and effort in order to realize the change scenario.

Figure 14. Dinamo-profile for Telecom 'South'

Appendix B: Summary statistics for all items of the final version of the DINAMO (N=402)

Item	Mean	S.d	S.e	Skew.	Item	Mean	S.d	S.e	Skew
Att-w (1)	3.67	.79	.04	-.73	CTR-e (5)	2.99	1.22	.06	.04
Att-w (2)	3.72	.82	.04	-.20	CTR-e (6)	2.73	1.15	.06	.32
Att-w (3)	3.39	.87	.04	-.60	CTR-e (7)	2.69	1.15	.06	.34
Att-w (4)	3.58	.79	.04	-.54	CTR-e (8)	2.85	1.22	.06	.16
Att-w (5)	3.59	.85	.04	-.60	CTR-e (9)	2.65	1.18	.06	.30
Att-w (6)	2.98	.98	.05	-.06	CTR-e (10)	2.85	1.15	.06	.07
Att-w (7)	3.04	.83	.04	-.24	CTR-e (11)	2.91	1.28	.06	.09
Att-w (8)	3.35	.93	.05	-.43	CTR-s (1)	2.58	1.16	.06	.67
Att-w (9)	3.20	.87	.04	-.39	CTR-s (2)	3.17	1.01	.05	-.44
Att-a (1)	3.88	.88	.04	-.64	CTR-s (3)	3.9	.96	.05	-1.0
Att-a (2)	3.69	1.09	.05	-.55	CTR-s (4)	3.84	.95	.05	-.88
Att-a (3)	3.21	.93	.05	-.12	CTR-s (5)	3.42	1.12	.06	-.63
Att-a (4)	3.73	1.10	.05	-.70	CTR-s (6)	3.17	1.06	.05	-.22
Att-a (5)	3.67	1.04	.05	-.46	CTR-s (7)	2.59	1.01	.05	.06
Att-o (1)	2.78	.92	.05	.21	CTR-c (1)	3.28	1.06	.05	-.61
Att-o (2)	2.92	.93	.05	-.11	CTR-c (2)	3.22	1.17	.06	-.49
Att-o (3)	2.52	.79	.04	.21	CTR-c (3)	3.20	1.18	.06	-.44
SN-p (1)	3.28	.87	.04	-.35	CTR-c (4)	3.04	1.21	.06	-.24
SN-p (2)	3.03	.93	.05	-.25	CTR-c (5)	2.98	1.15	.06	-.19
SN-p (3)	3.21	.83	.06	-.59	CTR-c (6)	3.26	1.24	.06	-.54
SN-d (1)	3.78	.94	.05	-.76	CTR-c (7)	3.35	1.20	.06	-.61
SN-d (2)	3.83	.89	.06	-.90	W (1)	3.89	1.06	.05	-.10
CTR-e (1)	2.93	1.14	.06	.10	W (2)	4.09	.99	.05	-1.18
CTR-e (2)	2.97	1.16	.06	.06	W (3)	3.93	.93	.05	-.63
CTR-e (3)	2.92	1.34	.07	.10	W (4)	3.76	1.05	.05	-.79
CTR-e (4)	2.64	1.31	.06	.35					