THE EVALUATION OF RELATIONSHIP MAPING AS A TOOL FOR UNDERSTANDING THE EXPERIENCE OF CHANGE

Justine Cayley Neke

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ABSTRACT

The research for this dissertation was conducted at the Western Cape site of a national manufacturing organisation in the food and beverages industry. The study set out to attain two primary goals. The first was to examine the effectiveness of relationship mapping (a method for graphically depicting mental models) as a tool for exploring the participants' experience of, and evaluation of 'planned organisational change'. The second goal was to investigate the possible impact of relationship mapping on those using the method. Research results for both of these goals were examined through three 'lenses' or frames of analysis, 'empowerment', 'communication', and 'understanding the change'. These frames of analysis were derived from reviewed literature and interaction with the organisation. Incorporated into the design was an analysis of group processes, as an additional check on the impact of the relationship mapping procedure.

The study assessed the above goals across four, hierarchically-divided organisational levels, with a total of 56 participants. A classical control group design was used, incorporating qualitative and quantitative methods. Control group participants underwent in-depth interviews, semi-structured focus group discussions and a group process scale (assessing group interaction). In addition to these, the experimental groups underwent relationship mapping, use of the group process scale, and a post relationship mapping questionnaire. Thematic and statistical analyses were used for the examination of qualitative and quantitative results, respectively.

Although causality can not be inferred with certainty, results indicate that these experimental groups paid increased attention to inter-relationships, questioning and problem solving, and the production of new information. Participants recognised that relationship mapping impacted on their sense of 'empowerment' by allowing for participation, facilitating thinking, and provoking personal realisations. Relationship mapping was seen as altering participant perception of communication and improving their understanding of the change.

Declaration

I declare that this dissertation is my own, unaided work. It is being submitted for the degree of Master of Social Science in the University of Cape Town, Cape Town. It has not been submitted before for any degree or examination at any other university.

Signed by candidate

7th day of September, 1999.

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I dedicate this thesis to my grandparents, Alice and Chris Rosslee, for all their sharing, wisdom, love and support.

Chapter One
INTRODUCTION

1.1 The context of the research

The research is situated within the broader context of a rapidly changing global environment, where organisations are faced with the need to adapt speedily to ensure viability (Broersma, 1995; Kiesler & Sproull, 1982; Recardo, Molloy, & Pellegrino, 1995/1996; Smith, 1994). As commented by Prahalad, "change is inevitable to maintain continuity. If continuity is of value in society, then change is a prerequisite: if you don't change you die" (1997, p. 63). Gibson asserts that "in the twenty-first century, the winners will be those who can stay ahead of the change curve, constantly redefining their industries, creating new markets, blazing new trails, reinventing the competitive rules, challenging the status quo" (1997, p. 10).

The more immediate research context is one of organisational change, and more specifically, organisational development (henceforth referred to as OD) – a process of organised systematic change (Burke, 1994). OD is seen as a humanistic-democratic approach encompassing "a collection of change techniques or interventions...that seek to improve organizational effectiveness and employee well-being" (Robbins, 1991, p. 649). In evaluating the success of change programmes, use is frequently made of predefined criteria against which such evaluation occurs – elements such as inputs, outcomes, or particular impacts (Rifkin, Muller, & Bichmann, 1988). However, as Stake comments, "the evaluator...should not let a list of objectives, or an early choice of data-gathering instruments, draw attention away from the things that most concern the people involved" (1975, p. 15). Those who engage with the reality of day-to-day organisational issues may hold valuable knowledge and insight into the ways in which organisational problems may be remedied (Kilmann, 1989). Yet, by pre-determining elements to be evaluated and in this way performing the role of an 'expert', the concept of organisational effectiveness and aspects important to its achievement, in the eyes of employees, may not be tapped.

1.2 Aim of the study

This research constitutes an investigation into a planned change or OD programme, in a South African manufacturing organisation. The focus of the study was on eliciting employees' perceptions regarding the efficacy of the change process, using the technique of relationship mapping – with the primary goal of evaluating the usefulness and impact of relationship mapping itself. Relationship mapping is a technique that allows users to map their views, ideas, and perceptions in a visual format. Issues considered to be important to those creating the map may be included in a two or three-dimensional 'picture' – using objects symbolically to represent their unique views. Two representational criteria, size and distance, are incorporated into the technique. Size is used to represent the influence elements exert on the system and parts thereof, while distance represents the closeness, or lack thereof, in relationships between parts of the 'map' (Radford, 1995). The technique is based on the theory of cognitive mapping – seen as a process through which individuals create, in an external graphical form, their mental models, that is, the unique ways in which they comprehend a specific domain (Langfield-Smith, 1992). In this study, the value of relationship mapping is examined in terms of the effectiveness of the technique in exploring the experience of and evaluating planned organisational change from the perspective of those involved in it. In addition, attention is directed towards an examination of the impact of the technique on those using it.

1.3 Overview of the thesis

Discussion of literature relevant to the research is presented in Chapter 2. This literature review is approached with a focus on the theoretical underpinnings of OD as the starting point, followed by consideration of the psychological experience of change. In this second part, literature related to personal processes of reality construction, perception, and understanding (within a changing environment) is reviewed. The field of mental models and cognitive mapping is discussed in detail, with a focus on the use of mental models, methods of elicitation, and an assessment of their usefulness, taking into account that the basis of the relationship mapping technique lies within this conceptual arena.

Following the review of relevant literature, Chapter 3 presents the aims of the research, centring on the key objectives in the study, and the use of particular frames of analysis, as derived from the literature. In addition, a brief overview of issues incorporated into the design of the research, such as the analysis of group processes, is presented.

In Chapter 4, the methodology used in the research study is presented. The research design, subject selection, and research methods are discussed. Procedures used in the conduct of the research are also dealt with. Lastly, the processes and techniques used for analysis of data are introduced.

In Chapter 5, results from the analysis of the group process scale and the post relationship mapping questionnaire, are presented. In Chapter 6 the qualitative results from information elicited through focus group discussions and the relationship mapping procedure are provided.

Chapter 7 provides for the integration and summary of both the quantitative and qualitative results, along with the discussion of these results. Here, results elicited through the quantitative and qualitative techniques are considered in a critical light and analysed within the context of related literature. The implications of the findings for the use of the relationship mapping technique in the context of planned organisational change are also discussed.

The critique of the study occurs in Chapter 8, where the research process itself is discussed in terms of potential limitations and successes. Attention is directed towards an assessment of the overall research value.

Finally, Chapter 9 presents the conclusions of this study. The focus here is on an overall understanding developed through the research process. Following on from the research findings and analysis, recommendations for future research are made.

Chapter Two

LITERATURE REVIEW

The objective of this chapter is to present a review of the relevant literature in terms of the theoretical fields within which the research is positioned. The current study examines the use of relationship mapping as a possible tool for understanding the experience of, and evaluating OD. Literature relating to a number of key fields has been drawn from, in order to generate the necessary theoretical understanding through which to consider and analyse the research.

The first section of this review deals with the field of organisational change and, more specifically, OD. Emphasis is placed on OD, as the organisational context was one within which a company-driven OD initiative had been implemented (aided through the use of a consultant). The key difference seen between the two concepts (organisational change and OD) is that while OD is a form of organisational change, it is more specifically 'planned' organisational change oriented around improved effectiveness and a change in culture – initiated in response to a perceived need. The perception of need is frequently a response to changes in the external environment (Burke, 1994). Burke suggests that the OD practitioner is primarily interested in the actions of *people* in organisations, with interest in other elements such as technological systems being driven from this focus (in terms of the impact on people). Robbins (1991) elaborates further on distinctions – considering OD in particular as focused on participation. According to Resnick and Menefee (1994), a set of values, principles for practice, and process steps are seen as incorporated into the OD field. Within the focus on OD, literature relating to the nature of OD programmes, factors seen as critical to its success, and the processes within OD programmes, is reviewed. As the study considers relationship mapping as a potential method for participatory assessment or diagnosis of an OD programme, the process of assessment within OD initiatives (and methods used for this purpose) is dealt with in greater detail. Recognition is placed on the potential usefulness of tapping into the personal and unique perceptions, ideas and experiences of change that individuals may hold, noting a concern that regular assessment methodologies may not necessarily allow for this.

Following a theoretical examination of the field of OD, the literature review therefore shifts attention to perceptions, the assessment of individual and group 'realities' and the more human element of change. This focus on the human side of change is situated within the understanding that while those practising and studying in the field of OD espouse various conceptual viewpoints, for each individual within a system undergoing change the experience is likely to be a very personal one. The ways in which people perceive the process of planned change may be different from a theoretical examination of the field of OD.

The discussion therefore focuses on the ways in which perception occurs, and the manner in which people reflect these perceptions in internal maps (or mental models) of the world. Literature on both individual and team mental models is presented, alongside a focus on methods used to access and use these models (as a benefit for individuals, teams, and the organisation). Relationship mapping, the technique used in the current study, serves as one possible method through which these mental models may be elicited. While relationship mapping is not widely documented in the literature, its theoretical basis lies in the fields of cognitive mapping and mental models, and it is from these arenas that much of the debate is drawn.

As a final focal point, discussion of the potential benefits and hazards of eliciting and using these internal maps is undertaken. While much of the theory is derived from the fields of cognitive mapping and other mapping methods, it is postulated that many of the weaknesses and strengths of these methods may apply to the technique of relationship mapping.

2.1 Organisational development

2.1.1 Understanding change from an organisational development perspective

"Change has become the one constant in business today" (Trahant & Burke, 1996, p. 37). This statement, reflecting a commonly held belief about the ongoing state of flux within organisations in today's volatile environment, highlights the importance of understanding the process of change and the factors impacting on successful

transformation initiatives. The proliferation of literature around the field of change management reflects the ever-increasing need for organisations to adapt successfully and continuously – or face annihilation in the global market (Cavaleri & Fearon, 1996; Coopey, 1996; de Geus, 1996; Kolb, 1996; Mayo & Lank, 1997; Montgomery & Scalia, 1996; Senge, 1996; Tushman & Nadler, 1996). Within this context of ongoing change, organisations may choose to embark on OD initiatives to ensure continuous effectiveness. As stated previously, OD is only one form of organisational change – and is fairly specific in its nature. Burke argues that:

> for change in an organization to be OD it must (1) respond to an actual and perceived need for change on the part of a client, (2) involve the client in the planning and implementation of the change, and (3) lead to change in the organization's culture. (1994, p. 9)

However, one of the difficulties in considering OD is the fact that authors differ on an all-encompassing theory (Burke, 1994). Huse and Bowditch (1977) argue that OD is "a long-range attempt to improve an organization's ability to both cope with changes in its external environment and improve its internal problem-solving capabilities" (p. 386). In contrast, Resnick and Menefee (1994) view OD as comprised of a set of activities through which to enhance the functioning of individuals, groups, and the organisation as a whole. These authors argue that in attempting to resolve problems at the various levels of the organisation, social and behavioural science technologies and theories are employed. Burke (in another quote, indicating once again the fact that the field is defined in numerous ways) states that "organizational development is a planned process of change in an organization's culture through the utilization of behavioral science technologies, research, and theory" (1994, p. 12). While these definitions may differ, common elements are present, and as with much of the literature in the field, reference is made to the level and nature of change, and the processes through which it occurs.

The above definitions also point towards some of the theoretical foundations of the field of OD. Included amongst these is the involvement of organisational members to drive the change, in this way ensuring full participation and empowerment. The use of teams to enhance development is also incorporated, alongside a focus on systems thinking – viewing organisations as open systems interacting with their environments (French & Bell, 1995;

Hanson & Lubin, 1995). Additional foundations include the reformulation of norms to encourage appropriate behaviour and use of the action research process (allowing for feedback loops to ensure that actions are relevant to the needs of the organisation and constantly ensuring correct action through research). Action research is a basic model seen as underlying most organisational development activities (French & Bell, 1995; Resnick & Menefee, 1994). While the debate may continue over the exact overarching theory of OD, it is clear that OD programmes are engaged in to enhance effectiveness, with a focus on the entire system. At a deeper level, OD programmes can be seen as promoting elements such as behavioural and culture change. In attempting to achieve this, use is made of tools such as organisational models, through which to consider the focus and direction of OD programmes, alongside theory regarding factors seen as important for OD success. These aspects are examined next.

2.1.2 Organisational models, and factors aiding effective organisational development

Each OD programme may focus on unique aspects of an organisation – ranging from the elements of culture, strategy, mission, vision and leadership, to day to day work processes, systems, and individual roles (French & Bell, 1995; Trahant & Burke, 1996). To ensure sufficient understanding of an organisation, and in this way tailor an OD programme to the particular organisational needs, use is frequently made of organisational models that portray elements in the system in a systemic framework. The types of elements within the model may drive the various processes of the OD programme, and in particular, assist the process of need identification and evaluation (Burke, 1994). A few of these models, and the types of issues they include, are described below.

Firstly, one model that incorporates cause and effect elements within an organisational context, is the Burke-Litwin model (Burke, 1994). According to Burke, this model identifies factors considered to be transformational (such as leadership, culture, mission, strategy and individual/organisational performance) and transactional (such as structure, systems and management practices). On the other hand, Kilmann's (1989) model identifies five critical areas: culture, management skills, team building, strategy-structure (aligning strategy with the organisational structure) and reward systems. Porras' (1987) system of

stream analysis – another model considered to be useful for diagnosing and driving organisational change – emphasises four streams within and between which attention is directed. These include technology (equipment, technical expertise, systems and procedures), social factors (such as individual style, informal networks, interaction and culture), organising arrangements (including factors such as organisational strategies, policies and procedures, goals and structures) and the physical setting. Weisbord's six-box model guides focus on the aspects of structure, rewards, beneficial mechanisms, relationships, purposes and leadership (Burke, 1994; French & Bell, 1995). While the models represented above may differ in some respects, similarities are evident (e.g. culture, structure, and leadership). Importantly, these models to some extent predetermine the focal points for OD, the identification of OD needs and the central areas for evaluation. It is of interest to consider the ways in which elements within these models tie in with factors viewed as important for the success of OD initiatives.

In assessing elements important to OD success, insight has been borrowed from the broader field of organisational change. Trahant and Burke (1995) comment on the results of a research study aimed at identifying factors essential for effective organisational change. The study was based on a Coopers and Lybrand survey of 300 companies from different industries, exploring best practice for implementing and sustaining change. Elements elicited included effective senior leadership, consideration given to quality and customer focus, empowerment of employees, continual reinforcement of the change, clear communication and links between people and processes. Daly (1995) notes the importance of communication in organisational change, highlighting the extent to which managers justify why change is occurring and provide adequate communication as a factor influencing how employees receive a transformation effort. Kotter and Schlesinger (1979) found that the level of employee commitment to change is increased when managers educate employees as to the reasons for change, and how the changes will affect them. In support, Daly (1995) argues that when justification is given, it tends to influence the judgement of outcome and procedural fairness involved in the change. Regardless of the degree to which the decision is viewed as favourable or not, it is argued that people expect a justification to be given in order that a clear evaluation of the fairness of the decision strategy can be made. Basler (1994) suggests that

communication and discussion may also aid in allaying fears of and resistance to change.

While it is important to understand the elements contributing to successful OD programmes, by focusing on factors already identified when evaluating or improving a programme, premature closure (preventing the identification of other important elements) may be created. A question in the current research is whether, through use of the relationship mapping process, other elements considered to be important for OD success may be allowed to emerge. To understand OD more fully and the way in which relationship mapping was used in the research, it is useful to explore the processes within OD efforts.

2.1.3 Processes within organisational development programmes

French and Bell (1995) contend that there are three major components in all OD programmes – diagnosis, action and programme management. The first aspect, diagnosis, is seen as focusing on "the continuous collection of data about the total system or its sub-units, and about system processes, culture, and other targets of interest" (p. 113). The component of action, according to these authors, encompasses the planned activities or interventions aimed at improving the system, while programme management consists of all activities and methods employed to ensure the success of the OD programme (such as communication strategies, and monitoring interventions). These processes are frequently represented in a linear OD programme model, such as in the model espoused by Burke (1994) – where the programme is depicted as moving through a range of phases. These include entry, contracting, diagnosis, feedback, planning possible changes, intervention and evaluation. While this model may be seen as representing a linear process, it is acknowledged that certain aspects such as diagnosis and programme management need to be an ongoing part of a change programme. This would hopefully ensure that any gaps between the desired and current state are understood and addressed (French & Bell, 1995; Trahant & Burke, 1996). French and Bell (1995) describe OD as "a continuous process of the cycling of setting goals and objectives, collecting data about the status quo, planning and taking actions based on hypotheses and on the data, and evaluating the effects of action through additional data collection"

(pp. 129–130). This description highlights once again the action research philosophy of many OD programmes, where use is made of diagnosis and feedback cyclically in the process of change – thereby allowing for the continual cycle of diagnosis-feedback-discussion-action (Burke, 1994).

From a more cynical angle, a key question that needs to be raised is whether the philosophy of action research does remain just that – a philosophy – or whether it is in fact put into practice. With the cyclical nature of action research, many may see it as more time consuming than other assessment/practice approaches. French and Bell (1995) argue that underlying the process of action research is a need for action programmes to be based on valid information that has been generated through a collaborative process. On the basis of this concern for valid information, it is critical that the means through which diagnosis and related practices occur be examined.

2.1.4 Assessing transformation: methodologies used

While diagnosis or assessment is understood to be a vital component of any transformation initiative (Burke, 1994; French & Bell, 1995; Hanson & Lubin, 1995; Huse & Bowditch, 1977; Nadler, 1977), the frequency, nature, and use of this assessment may vary greatly between different situations. Marguiles and Wallace (1993) suggest a number of potential benefits emerging from data collection and diagnosis, arguing that, at its heart, diagnosis is a process of communication. When the most appropriate methods for diagnosis are used, a realistic picture of the requirements for effective organisational change may be created. It may reveal shared perceptions, or allow for the sharing of ideas and information. Thirdly, the authors argue that it may provide an opportunity for all to become involved in the change process. For these possible benefits to be maximised, a suitable method of assessment (based on factors such as organisational culture, type of assessment outcome – e.g. 'employee commitment', characteristics of those being assessed, skills, time and other logistical elements) needs to be determined. In addition, it is useful to draw from the theoretical knowledge of the programme evaluation field, applying this to the assessment processes of OD. Shadish, Cook, and Leviton (1991, p. 53) refer to the possible uses of evaluation as "instrumental" (directing changes in programmes for improvement), "conceptual" (affecting the way in which

people think) or "persuasive" (persuading others of a position taken). Where instrumental use is suggested, Rossi and Freeman (1989) argue that it may be either summative (judging the programme's worth based on effects) or formative (considering ways to improve on a programme). The way in which an evaluation will be used may impact on the choice of method.

In assessing the suitability of a methodology, Margulies and Wallace (1973) suggest five continuums along which the method should be rated. These continuums involve the degree to which the method is: direct – indirect; of high problem solving activity – low problem solving activity; structured – unstructured; time consuming – less time consuming; easy to administer – difficult to administer.

Literature dealing with the field of OD approaches diagnosis largely from a methodological perspective (that is, the 'how to'), with an array of techniques for diagnosis or assessment represented in OD-oriented literature. Included among suggested techniques is the use of measures and data collected within the framework of business processes (factors such as financial indicators, organisational records, regulations, personnel files, waste and the achievement of target dates). Other methods deal with observation (observing content and process of daily practice through activities such as sitting in staff meetings and observing interactions), and the more direct approach of individual or group interviews and meetings (ranging from a structured format with pre-determined questions to an informal format). A popular approach is the employment of opinion-gathering measures such as questionnaires, rating scales and other survey methods (Beer, 1976; French & Bell, 1995; Hanson & Lubin, 1996; Margulies & Wallace, 1973).

Certain interventions also allow for data collection. These include methods such as organisational mirroring, where one section reflects their perceptions to another section (Beer, 1976; French & Bell, 1995; Margulies & Wallace, 1973), and diagnostic meetings, where questions regarding performance and development are dealt with by organisational members, followed by a brainstorming of actions (French & Bell, 1995). French and Bell also refer to the technique of visioning, where views of the ideal organisational future are portrayed through verbal descriptions or methods such as collages. In terms of the conceptual or enlightenment approach to evaluation highlighted in the context of

programme evaluation by Shadish et al. (1991), these theorists argue that this has not been developed to a great extent. Some of the suggestions include developing questions to test assumptions from the programme plans, or probing assumptions generally (although little advice is provided as to how to carry this out). They assert that the methodologies currently used are more oriented towards instrumental purposes.

Within OD programmes, additional questions relate to timing – when the assessment should occur and the frequency with which it should be carried out. From a linear perspective of the change process, diagnosis and evaluation methods would be utilised at fixed points – removing the ability to fine-tune the changes that would be provided through constant assessment. Assessment may take place only before and after a change process, or at a particular stage to determine the nature of an area of interest. Hansen and Lubin (1995) suggest that systematic evaluation, although critical (and one of the theoretical foundations of OD), is often avoided, and is instead usually carried out in an informal manner.

One method that does use diagnosis and feedback cyclically in the process is action research. This allows for the continual cycle of diagnosis-feedback-discussion-action (Burke, 1994). One of the perceived benefits of an action research approach is that it allows for the bringing together of data generated through research, learning from the data through a feedback process, and then reformulating action appropriately. Some of the characteristics of action research include an orientation towards problem solving; a focus on involving the organisation in the design of the research and problem solving – generating internal capacity and viewing data gathering and problem solving as continuous processes. Key to this approach is the feedback of results for ongoing learning (Margulies & Wallace, 1973; Mayo & Lank, 1997).

While an action research perspective may allow for continual assessment, based on the principle of participation, the way that individuals within the changing system understand the process may be very different to a pre-determined definition. The experience is a highly personal one, which may not be captured through the regular methodologies utilised in action research, such as interviews, observation,

questionnaires and the use of documents (Burke, 1994). These methods, prescribing to an extent the direction and form of information received, may not deal with the aspects that are important for each individual or tap the person's perception. Evaluation of transformation initiatives usually involves a description of inputs and specific outcomes or overall impact (Rifkin et al., 1988). From a programme evaluation perspective, Shadish et al. (1991) refer to the need to identify variables to be measured when carrying out programme evaluation: "inputs, program implementation and activities, or outcome" (p. 60). Scriven (1980), when defining steps for the evaluation of a programme, includes determining criteria of merit that define what a good programme would do, standards to which the programme should perform on each criteria and measurement against each criteria to see if the desired level is met. Within this approach, where goals are not clear, evaluation may prove difficult. Alternative criteria may include factors seen as contributing to success or failure, areas impacting on decisions and information requirements of identified stakeholders (Shadish et al., 1991). By selecting particular criteria against which to perform an assessment, little attention may be given to the evaluation of the process from the perspective of those involved, or to uncovering unknown effects not included in these criteria. The evaluation becomes convergent, rather than allowing for a divergent range of issues to emerge. Because researchers determine questions prior to the time of diagnosis, issues important to those involved in the changes may not be addressed (Shadish et al.).

In addition, the effectiveness of action research methods may be fundamentally hampered due to a lack of understanding on the part of the participant him/herself of the transformation. It is felt that those who are part of the system undergoing transformation have difficulty in expressing, visualising and therefore fully understanding the transformation process as a whole, or aspects of it. Organisational environments often present a large amount of ambiguous and unprocessed information, which may create a sense of information overload for anyone trying to develop clarity (Anthony, Bennett, Maddox, & Wheatley, 1993). As a result, diagnosis is often based on information received from participants who may not understand, and possibly who do not have the tools to understand, their transformation process. Therefore, a means needs to be found to crystallise this understanding for the participant, and to tap into the participant's personal understanding. Stake (when interviewed around the process of responsive

programme evaluation) comments on the role of evaluator as one who facilitates and empowers participants to uncover their own knowledge and truth, rather than one who brings expertise to the situation:

> It is much more likely that whatever truths, whatever solutions there are, exist in the minds of people who are running the program, those participating in the program, those patrons of the program....he is making his greatest contribution, I think, when he is helping people discover ideas, answers, solutions, within their own minds. (Braskamp & Morrison, 1975, p. 36)

From the above discussion, it can be seen that within the field of research methodology relating to diagnosis and assessment, many often-contrasting views are held – particularly in terms of the role of evaluator as expert or facilitator. In line with the facilitator-oriented view, the technique of relationship mapping used in the current study is seen as one possible means through which the perspectives of participants may be tapped in a holistic manner, empowering them to represent what they view as important. Having explored the range of methodologies used in assessment, the focus of the review shifts to theory around the process of social cognition – wherein greater understanding can be gained of the ways in which participants may develop their own unique views, and the importance of tapping into these.

2.2 The construction of individual realities

It is argued that individuals have a limited ability to manage and process all the information they receive from the environment (Kiesler & Sproull, 1982; Swan, 1995). Within a complex organisational environment, understanding may be hampered by the cognitive abilities of humans, and the possible inability to consider all the factors simultaneously (Stata, 1996). In order to manage this information overload, Kiesler and Sproull note that individuals engage in a process of social perception – involving the selective encoding and incorporation of information into internal cognition. In this way, each individual develops his or her unique construction of reality. Through cognitive operations performed on the material acquired from the environment, the perceiver may over, under, or correctly estimate the significance of each environmental attribute.

According to Kiesler and Sproull (1982), within the field of social perception, a number of principles have been developed to enhance understanding of the way in which the

importance of environmental elements is assessed. These principles highlight the ways in which the process of perception may impinge on the individual's ability to interpret information from the environment correctly and clearly, thereby affecting the development of the individual's internal view of the world. Kiesler and Sproull report that amongst these are the augmentation principle (where events occurring despite strong counter-efforts are perceived as magnified in strength), and the discounting principle (where the presence of one strong cause decreases the perceived significance of others). Prahalad and Bettis (1996, p. 111) propose another influencing factor – the "availability heuristic" – wherein it is argued that decision making is often based on information that is most readily available or comes to mind most rapidly. The time span since information acquisition may play a role here, with the explanation of the environment being limited chiefly to the most recently acquired information. Striking occurrences are stored most clearly in the memory, and are easy to retrieve. Information that is slightly divergent from prior knowledge has also been found to be more readily incorporated into the internal perceptions of the individual, while that on extreme environmental changes is unlikely to be assimilated.

These cognitive operations take place in many situations – one such scenario being during the process of problem sensing, which Kiesler and Sproull (1982) define as "the cognitive processes of noticing and constructing meaning about environmental change" (p. 548). These authors see problem sensing as an essential element in managerial behaviour, particularly in an environment that is changing rapidly. In order to engage in the procedure of problem solving, there needs to be an awareness of the issue to be solved, and a series of processes need to be carried out. Firstly, noticing needs to occur – during which the problem stimuli are isolated from other stimuli. Stimuli are then interpreted and meaning is assigned (where the principles discussed above may operate), following which the relevant and essential interpreted stimuli are incorporated into cognition. Once problem sensing has taken place, Kiesler & Sproull suggest that it is used in the development and implementation of appropriate organisational action.

Eden, Jones, and Sims state that "reality is a *construction* by an individual rather than a *perception* of an objective reality" (1979, p. 7). In line with this view, it can be seen that the perception of intensity of a problem is strongly linked to the perceiver's state – and may have less to do with the content of the environmental information. Each person's view of

'problemness' could therefore be seen as individualistic, derived from the internal construction he or she holds of the environment. Without uncovering these internal views of the world, assumptions may go unchallenged and knowledge may be lost. Within this framework, knowledge can no longer be viewed only as 'objective' information – much valuable insight may only be gained through a subjective process of uncovering individual and team perceptions (Cavaleri & Fearon, 1996). In literature dealing with the arenas of organisational change, cognition and perception in general, these internal views of the world are referred to as mental models, while the terms cognitive maps or mental maps are used to identify external depictions of these internal representations. For organisations to be effective, Senge (1990) argues that it is important that these models are surfaced, tested and improved upon. It is this that the relationship mapping technique is oriented towards – providing a method through which these mental models, or subjective views of the world, can be uncovered. To comprehend the use and assessment of mental models, there needs to be a sound foundational understanding of their nature and influence. The focus of this paper therefore shifts towards exploring mental models in greater detail.

2.3 Mental models: their nature and their use

2.3.1 The mental model concept, and cognitive mapping

The following section deals specifically with developing an understanding of the mental model concept, and how it relates to the field of cognitive mapping. The way in which relationship mapping, the mapping technique used in the current research, relates to these two elements, is also addressed.

2.3.1.1 *Mental models defined*

Senge argues that one of the key reasons why insights, new methods and potentially successful ideas fail to get put into practice is due to the mental models, or "internal images of how the world works...that limit us to familiar ways of thinking and acting" (1990, p. 175). These mental models are pictures of our assumptions that are often deeply established due to their tacit nature (Senge, 1996; Senge, Kleiner, Roberts, Ross, & Smith, 1994). In a similar vein, Klimoski and Mohammed state that mental models are "a general class of cognitive constructs that have been invoked to explain how knowledge and information are represented in the mind" (1994, p. 405). The content and level of detail

within these mental models is therefore individualistic. Highlighting the way in which individuals use these internal representations, Cossette and Audet argue that mental models serve as a "'mirror' of discourse engaged in" (1992, p. 326) by the individual, where the individual may question him or herself on characteristics and properties of the model.

These models are seen as operating in everyday circumstances, although their use is frequently an unconscious process (Gioia & Sims, 1986). They are active, in that they shape how people act through influencing how they perceive the world (Fiol & Huff, 1992; Senge et al., 1994). According to Senge et al., mental models have impact through allowing people to "navigate through the complex environments of our world" (1994, p. 235). One of the difficulties in developing an understanding of mental models held, is their tacit nature, as described by Senge (1996) and Senge et al.(1994). It is in the external representation of these mental models that cognitive mapping techniques play a role.

2.3.1.2 *Cognitive mapping*

The theoretical basis of the tool used in the current study falls within the field of cognitive mapping – the process through which individuals create, in an external form, the mental images or models that represent their way of comprehending the environment. Daniels, de Chernatony, and Johnson (1995), Langfield-Smith (1992), and Swan (1995) refer to cognitive mapping as a technique used to determine the content and structure of the mental models which people hold. It demonstrates in a graphical format how people integrate and simplify information about the environment. In considering traditional geographical maps, it can be seen that these include information about important physical landmarks, the information about the relationship between these landmarks and the routes between them (Fiol & Huff, 1992). In contrast, the environment in cognitive maps may range from a setting in which activities take place, to formations of groups, individuals and organisations. In this way, cognitive mapping provides a link between the individual's perception of the 'real world' and the cognitive map – a graphical depiction of the particular way in which an individual sees a domain (Downs & Stea, 1977; Langfield-Smith, 1992). It yields a representation of information about elements of the environment, time/space frames and location (Downs & Stea, 1977), while locating the individual in relation to his/her environment and in this way displaying reasoning behind actions (Fiol & Huff, 1992).

Sigismund Huff and Fletcher (1990) capture the link between cognitive mapping and mental models in a clear manner:

> For our purposes *cognitive mapping* can be thought of as the science of cartography. The *territory* to be mapped involves organizationally relevant 'mental relationships' held by one or more individuals; and the *cognitive map* itself is 'the representation on paper' that models, often graphically, particular features of the chosen territory. (p. 403)

Importantly, cognitive maps represent subjective information (Eden, 1992), which may be based on irrational or rational thought (Fiol & Huff, 1992). They are intellectual constructions rather than maps of the real world (Cavaleri & Fearon, 1996). While the content of these maps may not closely mirror 'reality', the validity of such models for the holder is real (Brown, 1992; Eden et al., 1979). At the root of theory around cognitive mapping is the realisation that these representations do not necessarily have predictive value. To claim predictive value, they would need to be accurate depictions of reality, taking into consideration every factor that could impact on the system. Rather, as de Geus (1996) states, they are the models or perceptions of reality that exist inside the minds of individuals (and members of teams, when common models are held). Within the understanding that it is these social constructions of the world that people respond to, these personal views of the world may hold as much weight in the assessment of an OD programme as 'scientific' measures such as assessment against programme goals. The actual correspondence with 'reality' may be of less importance due to the very real consequences of subjective perceptions (Lincoln & Guba, 1985).

It has been noted that the term 'cognitive map' tends to be rather deceptive, as it is often interpreted to mean that the elicited information is a representation of thinking or cognition (Eden, 1992). In evaluating whether the model is indeed a representation of cognition, two aspects of the mapping technique are important to consider. Firstly, the cognitive theory which directs the technique of representation needs to be adequate. The other influencing factor is the method through which cognition is elicited. Eden suggests that cognitive mapping may play a role through allowing articulation and reflection, in this way eliciting thoughts. If elicitation of thought depends on articulation, this elicitation will then always be "out of step with cognition before, during, and after the elicitation process" (1992, p. 261). Maps, therefore, are seen as tools for "reflective thinking" (Eden, Ackermann, &

Cropper, 1992, p. 321), rather than models of cognition. Additionally, Cossette and Audet (1992) argue that discourse around a phenomenon may change from one context to the next, and the stability of models therefore needs to be questioned. Particularly if a mental model is developed through engagement with a researcher, it is debatable whether the graphical representation surfacing is solely a reflection of what is in the subject's head. What emerges is rather the result of a variety of factors, including the impact of the research techniques utilised. This highlights the importance of using a non-directive technique in the elicitation of mental models.

2.3.1.3 *Relationship mapping*

In considering the concepts of mental models and cognitive maps, it is useful here to turn to relationship mapping, the technique used in the current study, to allow for understanding of the distinction between these elements. Relationship mapping was developed by Radford (1995), with the specific aim of fostering a means through which to understand the mental models of mediators in situations of conflict resolution facilitation. According to Radford, the technique is based on the theoretical foundations of cognitive mapping, and allows for the representation of relationships and processes in a symbolic map – in this way aiding the communication of perceptions. Particular design criteria adhered to in the development of this mapping technique included the need for a simple technique that would be easily taught and understood, a method that would not be culturally biased and would not be dependent on sophisticated or costly equipment. While the method was specifically devised within the framework of conflict analysis, it is conceivably beneficial for communication in any situation. When compared with the concepts described above, relationship mapping can therefore be viewed as a form of cognitive mapping technique – in that it allows for the depiction of an individual's or group's internal perceptions (or mental models) in the format of an external 'map-like' structure.

The concepts of mental models and cognitive mapping can be seen as distinct elements, with the method of relationship mapping as one type of cognitive mapping technique. While the discussion has thus far dealt with individual mental models, these internal representations are viewed as also operating in the broader context of teams and

organisations (Senge, 1990). It is also within the arena of team mental models that the relationship mapping technique may provide a contribution.

2.3.2 Team mental models

2.3.2.1 *The nature of team mental models*

The concept of mental models is seen as applying within the context of teams, with Smircich (1983) arguing that organisations can be seen as "systems of knowledge" (p. 342) within which individuals share their personal understandings to varied degrees. According to McCaskey (1982), the sharing of values and beliefs is seen as an essential part of an organisation, and a prerequisite for group performance. It is argued that in the early stages of the functioning of a group, a process takes place whereby a publicly held map is formulated and agreed upon. This joint map guides further decisions, such as processes for group functioning and the level of importance attributed to information. The joint map that McCaskey refers to may be seen in some ways to be equated with the mental model concept (although mental models may be formulated through less visible processes). The content of team mental models may be very similar to that within individual mental models. Where individual mental models may include perceptions about specific elements, and relevant issues surrounding these elements (Fiol & Huff, 1992), team mental models may include aspects such as the nature of technology and tools, team difficulties, skills, characteristics related to team functioning, environmental circumstances or ideas around possible future states. Role expectations and group norms may also feature. These group mental models or collectively held perceptions represent therefore a range of ideas, and reflect internalised assumptions, beliefs and attitudes (Klimoski & Mohammed, 1994).

2.3.2.2 *Development of team mental models*

The process through which team mental models are created is one of social cognition, defined by Larson and Christensen as "social processes...that relate to the acquisition, storage, transmission, manipulation, and use of information for the purpose of creating a group-level intellectual product" (1993, p. 6). Klimoski and Mohammed (1994) argue that some level of awareness of the shared mental models is necessary in order for the team to make maximum usage of its resources, and to co-ordinate its activities effectively. The phenomenological argument for this is that the mental models are shared if one or more of

the team members believe that they are shared, and operate on this belief. In comparison, Daniels et al. (1995) contend that for mental models to be 'shared', they are identical, overlapping or distributed (with a lack of overlap), but they need to be models which create common expectations. Amongst members of a team, it is felt that there may be numerous mental models existing at one point in time. According to Vaill (1996), the degree to which organisational members come to hold common mental pictures about the organisation's purposes, in particular, is seen as dependent on the amount of stability in factors such as the environment, the technologies used, the needs of employees, and the organisational structure. When a great amount of change is present in these elements, it may be more difficult for shared views of organisational purpose to emerge. A means through which these mental models may be elicited and sharing promoted is the approach of cognitive mapping. Similarly, it is argued that relationship mapping, the technique used in the current study, is one method through which individuals of a team could be made aware of shared mental models.

Understanding the nature of individual and team mental models assists us in thinking about the ways in which these internal maps of the world could be utilised effectively in a variety of settings. The mental model concept has been used in a range of circumstances and disciplines, and while the focus here is more closely oriented toward the arena of organisational change and development, a number of other fields are described to provide some indication of the diversity of possible application.

2.3.3 The use of the mental model concept

Considering the literature that has been reviewed, wherein it is argued that mental models are internal representations of our perceptions, assumptions, and sense-making processes, it can be concluded that these models operate in all aspects of daily life. In particular, this section deals with the use of mental models within more conscious processes – with a focus on use within the business and learning spheres.

2.3.3.1 *Unconscious versus conscious applications of mental models*

Anthony et al. (1993) assert that managers frequently make use of cognitive frameworks or maps, detailing cause and effect relationships, in order to arrange and make sense of their

information. However, much information held by managers is not entirely understood by them or may be held unconsciously. While many people use 'map-like' structures to make sense of their environment and information around them, these maps are often internal and taken for granted. Anthony et al. therefore argue for the importance of making these mental structures more visible, suggesting that when people are able to visualise a problem or issue, they are able to develop more concrete thoughts, draw on greater memory and conquer many individual presumptions. Additionally, these authors propose that with more visible mental structures, individuals may be able to determine any potential consequences more imaginatively and thoroughly. This process of bringing mental models into the conscious, through visual processes, may apply to relationship mapping due to its two-dimensional or three-dimensional visual nature.

2.3.3.2 *Application of cognitive mapping techniques in general*

Mapping techniques have been used for a variety of purposes, such as decision making, creating representations of the epistemological frameworks used to organise experience, and personal growth and understanding (Cossette & Audet, 1992). The variety and emphases of the various mapping techniques demonstrate the way in which the concept of mental models has been implemented. As an illustration, the technique leading to causal cognitive maps may be used to portray causal relationships, while identity maps have been used to create a framework for the identification of features in the environment, such as processes, people or events. Another form of maps, categorisation maps, are utilised to depict schemas through which individuals sort through situations and events on the basis of their similarities and differences, and the inter-relatedness of various components (Fiol & Huff, 1992). Concept maps are seen as graphical representations, linking a central concept with other intuitively identified elements and constructed through a brainstorming process (Eden et al., 1979).

2.3.3.3 *Use of mental models within the business and organisational learning arena*

Within the business environment, many examples exist of the use of mental models through cognitive mapping techniques. For example, Fiol and Huff (1992) argue that cognitive mapping is used in business to demonstrate the strategic position of the business as insiders or outsiders see it and to uncover potential routes for the improvement of position. Additionally, Hunt states that within the business environment the concept of cognitive

mapping has been applied through the use of process mapping techniques within business process reengineering. Process mapping is seen as providing "tools and a proven methodology for identifying your current 'As-Is' business processes and can be used to provide a 'To-Be' roadmap for reengineering your product and service business-enterprise functions" (1996, p. 1). It is viewed as allowing for a systemic focus on processes, thus preventing limited vision in decision making and actions.

The concept of mental models has also been applied actively within literature dealing with change, and more specifically, within theories around the learning organisation. De Geus (1996, p. 93) argues that for organisations to be successful, "high-level, effective, and continuous institutional learning" and the resulting changes, are considered to be essential. The ability to adapt quickly and learn is viewed as fundamental in today's changing environment (de Geus, 1996; Kolb, 1996; Senge, 1990; Senge, 1996; Stata, 1996). As testimony to this, de Geus cites the fact that one third of the organisations listed in the 1970 Fortune 500 had disappeared by 1983. Considerable attention has been focused on what enables organisations to learn and survive. While learning may be an ongoing process in organisations, it is often the speed with which this learning occurs that determines organisational success or failure (de Geus, 1996). As a result, attention needs to be directed to ways in which organisational learning can be accelerated. Senge defines learning organisations as:

> organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together....The organizations that will truly excel in the future will be the organizations that discover how to tap people's commitment and capacity to learn at *all* levels in an organization. (1990, pp. 3-4)

This definition reflects a belief similar to that stated by Coopey (1996) – that the essential focus of learning within the organisational context is to enhance both collective and individual actions through improved knowledge and comprehension. Of particular interest in relation to the current study are the means through which learning can be aided, and the possibility that the learning benefits of reflection may be realised during a form of assessment such as the relationship mapping procedure.

Team learning is considered to be essential, as "teams, not individuals, are the fundamental learning unit in modern organizations" (Senge, 1990, p. 10). According to de Geus, institutional learning is "the process whereby management teams change their shared mental models of their company, their markets, and their competitors" (1996, pp. 92-93). While this focus is limited in its emphasis of managerial learning, the component of sharing is common to other commentators – with emphasis placed on the strength gained through the collective nature of learning. Stata (1996) views organisational learning as different from individual learning in that it occurs through the sharing of mental models, insights, and ideas (rather than the individual acquisition of knowledge and insight). Learning is seen as blocked if sharing does not occur and all do not learn together. One of the factors viewed as contributing to organisational success and health is the ability to bring people together and jointly develop a mental model that will assist them in the future (Senge, 1990).

2.3.3.3.1 *Learning, and the benefits of abstraction and reflection*

Learning is seen as a process involving the movement between active, concrete experimentation and a more abstract reflective process that allows for analysis (DeChant, 1996; Kolb, 1996; Mayo & Lank, 1997). It is felt that with a greater level of abstraction, the ability of the individual to move from one element of a situation to another, to consider numerous factors simultaneously, and to view the parts of a whole and be able to synthesise them, is improved. With abstraction, the individual's ability to think with the use of symbols, to verbalise perceptions, and to detach him/herself from experiences may increase. In contrast, concrete activities are seen as experiences that, rather than promoting these characteristics, immerse the person directly into immediate experience and do not necessarily allow for reflection. It is through the process of reflection (on experience or thoughts) that learning and the understanding of knowledge occurs (Cavaleri & Fearon, 1996). Seivert, Pattakos, Reed, and Cavaleri comment on their view that learning is "an adventure of self-discovery" (1996, p.352). Implicit in this, according to these authors, is the important surfacing of fears, unconscious pulls, and personal mental models held. Learning within this view involves summonsing from inside, instead of pulling in information and ideas from the external environment, thus moving thoughts and ideas from the unconscious into the conscious. It is this process of abstraction that the relationship mapping technique may allow.

According to Senge (1996), elements seen as key for organisational learning include maintaining a creative tension between the vision and the current reality (this involves an accurate picture of current reality, and the building of shared visions), eliciting and challenging mental models, and an orientation of systems thinking. Within this framework, Senge argues that leaders need to play a role "in helping people achieve more accurate, more insightful, and more *empowering* views of reality" (p. 295), particularly through attention to the mental models held by people, and the impact of a systems outlook. Alongside the focus on mental models is a recognition of the need to suspend assumptions (in the form of mental models) in order to question their value and implications (DeChant, 1996). In order to engage in effective learning it is therefore important to begin the process of unearthing mental models, bringing the contents of these systems to the surface so that assumptions can be tested and greater understanding achieved (Prahalad & Bettis, 1996; Senge, 1990). The importance of this process of testing mental models is highlighted by the Kiesler and Sproull, who comment that "managers operate on mental representations of the world, and those representations are likely to be of historical environments rather than of current ones" (1982, p. 557). This view emphasises the fact that mental models have implications for future action, and therefore need a foundation of sound assumptions

2.3.3.3.2 *The application of mental models in learning aids*

Within this focus on mental models and the link with learning, de Geus (1996) cites the use of computerised methods used to accelerate learning – with the overall focus on the use of games or 'experiments' to test thoughts and challenge the mental models of organisational decision-makers. Here, use is made of a transitional object in which to store models or representations of the real world (such as computer models through which various views of reality can be portrayed). Fundamental to this process is the testing of mental models. However, a concern in terms of de Geus' approach relates to the emphasis on the mental models of senior decision-makers in the organisation – rather than a focus on the metal models held by all within the organisational system. He argues that by questioning the mental models held by those able to act, relevant learning takes place. Other theorists support this standing. Wack comments when dealing with an organisational dilemma that "unless we influenced the mental image,

the picture of reality held by critical decision makers, our scenarios would be like water on stone" (1985, p. 84).

Unfortunately, these views do not allow for the empowerment of all employees of the organisation, nor do they allow for use to be made of the tacit insights or creative ideas these employees may possess (Hamel, 1997). While it may be felt that the formal organisational leaders possess the most strategic and extensive knowledge of the business, those who operate on a day to day basis within the organisation may possess tacit understanding and awareness that if elicited may contribute to the collective learning process. Satzinger, Garfield, and Nagasundaram (1999) comment that many companies rely on their employees to generate possible solutions to organisational concerns in order to ensure ongoing competitiveness. Through acknowledgement of all employees as valuable, and acceptance that all may hold wisdom, individuals themselves may experience a greater degree of empowerment through the freeing of internal thoughts, and the ability to impact on organisational processes (or more simply, through a sense of being in control).

Linked with de Geus' view of testing mental models, Stata (1996) states that one of the most effective tools for enhancing learning in organisations is the use of systems thinking – where focus is placed on the entire system rather than just parts within it. With the use of mechanical and electronic systems, organisational behaviour can be simulated and in this way, enhance processes such as decision making and communication. Through the use of simulation techniques, past experience, knowledge and ideas are applied in a simulated environment. As a result, the consequences of assumptions and actions can be determined, and ideas can be tested out, without any negative impact on the 'real' world. Thinking and mental models can be challenged in a learning environment, where feedback helps to empower and develop more useful assumptions (DeChant, 1996; Meisel & Fearon, 1996). Systems such as these allow for the management of contextual complexity, and importantly may aid learning through mistakes and experimentation – with the benefit of this learning occurring in an environment removed from the real-world context (Montgomery & Scalia, 1996). Learning is therefore indirect rather than direct (Bennett, Wheatley, Maddox, & Anthony, 1994). Stata (1996) argues that systems dynamics has been used as a tool to share mental models – in this way creating a language through which understanding can be developed, and a means

through which to convey knowledge and experience. Through this process of sharing and conveying ideas, learning can occur as part of the reflective process.

While the above constitute fairly sophisticated approaches to the application of mental models within the domain of organisational learning, it could be argued that any cognitive mapping method that allows for the elicitation and testing of assumptions may promote learning. Subsequently, relationship mapping may produce the same benefits if used to reflect on and test mental models.

2.3.4 Methods for elicitation of mental models

While mental models and their role in driving behaviour has been recognised, it is the elicitation of these internal world-views that creates debate. Nonaka (1996) suggests that critical to uncovering and being able to test and understand the tacit knowledge or insights held by individuals is the process of articulation. Tacit knowledge is described by Stake as:

> all that is remembered somehow, minus that which is remembered in the form of words, symbols, or other rhetorical forms....Tacit knowledge includes a multiple of unexpressible associations which give rise to new meanings, new ideas, and new applications of the old. (1978, p. 6)

One reason why the articulation process is frequently experienced as difficult is the fact that tacit knowledge is so personal, and is often so deeply held that full awareness and articulation becomes difficult. As a result, merely asking for the mental model from which a person operates is not necessarily a successful approach (Nonaka, 1996). Instead, more creative methods (for example, through original methods of analysis and questionnaire use) need to be developed in order to elicit these models (Argyris & Schön, 1974).

2.3.4.1 *Types of methods utilised*

A range of methods has been used to assess mental models, particularly the mental models of organisational members.

2.3.4.1.1 *Kelly's Repertory Grid*

One of the techniques in use is Kelly's Repertory Grid, based on Kelly's Construct Theory. The methodology focuses on the formation of theoretical understandings of the ways in which concepts are related, through the elicitation of elements and constructs (Daniels et al., 1995; Swan, 1995). Hodgkinson and Johnson (1994) comment on the use of the technique in studies dealing with the mental models managers hold of their competitors (along with other techniques such as listing the competitors, and performing multivariate analyses of the results from questionnaires). They raise a concern that the utilisation of an aggregate or industry-level strategy is problematic in that it fails to contemplate individual differences. The suggestion is made that a difference should be found in the character and individual features of the mental map of one participant as compared with another, as individuals draw on a wide range of frames of reference to make sense of their world. In order to gain some insight into strategic management, consideration of these individual differences needs to be given. Daniels et al. argue that while Kelly's Repertory grid has been found to be reliable, a downfall is that it is time consuming to administer.

2.3.4.1.2 *Cognitive mapping*

The form of cognitive mapping, as described by Eden et al. (1979), incorporates the use of a consultant who, through interactions with the client and the application of specific criteria and coding procedures, produces a map. Incorporated in this map are cause and effect pathways or links (Anthony et al., 1993). It has been acknowledged that one of the key limitations of this methodology is the inability of the technique to cope with degrees of importance attached to various elements depicted (Eden et al., 1979). When considering the technique, the use of an expert to generate the mapped views could be seen as one of the downfalls (a characteristic present in many mapping procedures).

2.3.4.1.3 *The taxonomic interview procedure*

An alternative method utilised to determine mental models is that of the taxonomic interview procedure. In this methodology, the individual is given the starting category, and

successive (more abstract) levels beneath these are identified (Porac & Thomas, 1990). According to Hodgkinson and Johnson (1994), the subsequent formulation of a hierarchy in the method has proved to be easy to process, yet it is argued that the model fails to account for individual differences and proves to be inadequate for revealing the true complexities of management processes. In attempting to improve the technique, one solution is to exclude a common starting category, allowing the individuals to select this themselves. This non-directive approach is similar to the conceptual reasoning underpinning relationship mapping, in that there is no provision made for common components to be utilised in the map. Hodgkinson and Johnson suggest that the variations within taxonomic models, in terms of the number of levels and the starting categories, depend on the role of managers and the degree of their expertise. It has been found that those with richer taxonomies are those who require greater insight for their jobs, and who have greater responsibility. Individuals with different job responsibilities, experience, goals and interests, draw on different frameworks of reference as sense-making sources.

2.3.4.1.4 *Symbolism, figurative language, and visual techniques*

From a different perspective, Nonaka (1996) states that in many Japanese organisations use is being made of symbolism and figurative language as tools through which managers are able to articulate their insights. The use of these as tools is seen as effective through two processes: the intuitive selection of the metaphor based on tacit insight and the more logical process of comparing similarities and differences between the metaphor and it's 'meaning' to generate further understanding or learning. Following this process of analogy, many of these organisations have used as the next step the development of a more formalised model, one where contradictions are resolved and insights implemented. It is interesting to note that the metaphor is recognised as a tool for the elicitation of tacit knowledge. The creative processes initiated by this type of tool may also play a role in relationship mapping. In support, Freebairn-Smith (1996) suggests the use of tools such as picture-based metaphors (for example, where team members draw a metaphorical picture of their company and utilise this to explain their views) for the process of sharing and communication. Anthony et al. propose the use of a visualisation technique called the "imagery scenario script" (1993, p. 50), where future scenarios are presented verbally to allow for a process of brainstorming and mental visualisation. This method has been found to

promote discussion, although the reliance on verbal expression in the technique may be a downfall.

2.3.4.1.5 *The teachable point of view*

In assisting in the process of change management at Ford, Tichy has used what he refers to as a "teachable point of view", described as:

> a written explanation of what a person knows and believes about what it takes to succeed in his or her own business as well as in business generally...It identifies why a person approaches work as he or she does; it opens up his or her assumptions, beliefs, and expectations. (1999, p. 82)

The method involves each level (in a downwards flow) expressing their own beliefs, assumptions and ideas in the most appropriate format, debating them with those from the same level, agreeing a common model and passing this information down. According to Wetlaufer (1999), one of the benefits of the technique is that it enables those within the organisation to lead their own change effort, rather than being disempowered by the departure of external experts. Concerns around the above methodology relate to the top-down focus (possibly limiting creative ideas in the lower levels, due to conformity with opinions expressed hierarchically), and the fact that the methodology may not allow for the elicitation of tacit ideas (in contrast to a method using tools such as metaphors). However, the opportunity for all to express their views and ideas through the process may provide positive momentum in itself.

2.3.4.1.6 *Participatory Rural Appraisal*

The cognitive mapping concept has been incorporated into methodologies in a diverse array of fields. Participatory Rural Appraisal (PRA) was designed to meet the needs of development-focused research (needs such as low cost, quick methods effective for rural populations). The methodology focuses on the importance of respondents' perceptions, utilising a variety of techniques for triangulation, such as interviews, role-playing, and sketch maps or participatory mapping (Pratt & Loizois, 1992; Singh, 1993). Singh argues that PRA was developed to aid greater emphasis on participation, allowing participants to carry out their own analysis and planning. "The underlying principle is the enabling of rural people to share, enhance, and analyse, their knowledge...in order to plan and act" (Singh, 1993, p. 4). As an indication of the

importance of this stance, Menike, a Sri Lankan 'peasant leader', states, "Those who plan their 'empowerment' interventions clearly do not understand our reality, our priorities, our wishes, our thought processes, our constraints and our needs" (cited in Singh, 1993, p. 7).

Interestingly, Chambers reports on the method of participatory mapping or diagramming as incorporating the use of any useful objects (e.g. stones, sticks, seeds) to share ideas visually. As compared with many other research techniques, literacy is not a prerequisite. He comments that the method is beneficial in that all can:

> see, point to, discuss, manipulate and alter physical objects or representations. Triangulation takes place with people crosschecking and correcting each other....The information is visible, semi-permanent, and public, and is checked, verified, amended, added to, and owned, by the participants. (1994, p. 1257)

PRA is seen as reversing many of the frames of research. External researchers take on the role of facilitators rather than experts, the focus is more on visual rather than verbal, group level rather than individual level assessment is key, and there is a movement from extracting information to empowering (through participants carrying out their own analysis). This is seen as contrasting with much traditional research, where data is obtained from the field, and then analysed and written up away from the field (Chambers, 1994). Considering the elements raised above in terms of PRA, relationship mapping is seen as fitting within a similar conceptual framework.

2.3.4.1.7 *Process maps*

Another variation of mapping technique, process maps, has been used within the field of business process reengineering to enhance decisions and actions. Senge (1997) sees reengineering as being fundamentally about redesigning process and building shared understanding. It is here that process maps may contribute. Hunt (1996) argues that these maps consist of "graphic hierarchical diagrams, supporting text, and a glossary of common terms and process definitions, all cross-referenced to one another....A process map considers activities, information, and interface constraints simultaneously" (p. 15). According to Hunt, the technique involves the use of map authors who, following a data collection process (reading relevant material, speaking to experts in the relevant field,

reflecting on data gathered within the bigger picture), generate the maps, and then check their accuracy with the relevant process experts.

It can be seen that such a uniform, systematic approach to analysis, where a clear fixed language is used, may be beneficial. Hunt (1996) argues that the methodology may promote process analysis and improvement, communication between all contributing to process improvement, the development of joint understanding between team members and buy-in. However, there is the danger that too much closure may be created – maps may become too concrete and difficult to change because they are placed on paper. In contrast with relationship mapping, the above method specifies the importance of inputs and outputs (predetermining elements to be included). In considering the technique as proposed by Hunt, other concerns relate to the way in which representation methods are fixed (although this is also positive in providing direction), the method complexity, and training necessary to learn the regulated methodological 'language'. Bashein, Markus, and Riley (1994) suggest that collaborative, empowered workers are essential for the success of business process reengineering. The sophisticated nature of process mapping tools utilised may, however, prevent this involvement. Strassman offers "Business-Process Improvement" (1994, p. 36) as an alternative, where the focus is placed on employee involvement and sharing (through methods such as process maps). This still does not resolve the dilemma around the complexity of the methodology and the impact on accessibility.

2.3.4.1.8 *Computerised mapping tools*

For a more technological approach to mapping, a wide range of computerised mapping tools has been developed, with great variance in the level of possible detail and analysis. De Geus (1996) argues benefits of computerised systems in three key areas. Firstly, they allow for a mapping of all the factors that impact on the system, more than any individual could manipulate in their mind when trying to determine the impact of various changes. Secondly, by considering all the factors in the system, numerous cause and effect relationships can be uncovered, rather than only the immediately obvious ones. Thirdly, he argues that through the process of model manipulation, people can differentiate between essential and unnecessary information. Satzinger et al. (1999), in commenting on the impact of Group Support Systems, see the use of computer technology which allows all participants to input their ideas simultaneously, as aiding idea generation. Creativity is

understood to be enhanced through the elimination of social interaction, the resultant anonymity, and the subsequent removal of the need to adhere with socially acceptable behaviour.

However, within this focus on the use of computer models, some concerns need to be raised. While these systems may benefit the elicitation and sharing of mental models, those who are not comfortable with the tools or technology may become alienated. It also needs to be questioned whether, by using sophisticated systems, accessibility is limited, in that the physical development of the model is placed in the hands of a computer expert following a process of interaction with participants. Information in this process also undergoes a further level of interpretation. According to Senge (1997), the management and understanding of elaborate human systems is seen as one of the key difficulties facing organisations, alongside the need for a tool to enhance this understanding. Computerised methods may not allow for this focus, due to the possible inability of computer systems to fully represent the human and emotive elements of a system. In addition, Senge cautions that technology may add complexity beyond manageable levels, although it may also contribute to understanding.

2.3.4.1.9 *Left hand/right hand column technique; Dialogue*

Other non-computerised methods used within the concept of the learning organisation, include the left hand/right hand column technique, and dialogue. For the surfacing of mental models held by individuals, use of left hand/right hand column technique is proposed, where comments made are contrasted with underlying feelings and thoughts (Argyris, 1996; Senge, 1996). Dialogue – where collaboration takes place within a number of focal activities – is also recognised as a process through which mental models operate, and team-based understanding or shared meaning may be generated. These focal activities include the following: the identification and suspension of mental models, engagement with all parties as equals, encouraging openness to new ideas, and the maintenance of active listening (Freebairn-Smith, 1996; Pattakos, 1996).

2.3.4.1.10 *Methods for assessing shared mental models*

Within a team focus, Klimoski and Mohammed (1994) argue that there is a need for progress in the development of techniques for assessing shared mental models – with

current methods including techniques such as multidimensional scaling, free hand concept maps, assemblage, composite and average maps. These authors posit that one of the most difficult problems is that of determining the overlap which exists between the mental models of team members. In line with this concern around joint maps, Prahalad and Bettis (1996) suggest that an area for future research may be in the development of ways in which joint maps, that are partly contradictory in nature, can be put into effective use.

De Geus (1996) offers a more process-oriented perspective in terms of the means through which team members may come to share a mental model. Methods discussed include either drawing out individual perceptions or models of the scenario through interviews (and then generating a common model), or directly targeting the generation of a joint model. In both cases the model is developed with the aid of tools, such as computers or consultants. Through the process of exploring and playing with various common mental models, de Geus argues that a shared language, to express the gained knowledge or understanding, is created within the team. Cronbach et al. (1980) suggest smaller studies rather than a single large one, to avoid an evaluation outcome that is tailored to the needs of a few members of a section. Another suggested method is that of historical analysis, where previous experiences and actions may provide clues as to the operating joint mental models (Prahalad & Bettis, 1996).

Many of the methods mentioned above (barring those such as Participatory Rural Appraisal) include the involvement of an expert to draw out and synthesise information in a process separate from participants. These methods fit in with what has been termed 'preordinate evaluation', where the "evaluator takes some action that provokes a response from someone,...and aggregates, analyzes, and interprets it" (Braskamp & Morrison, 1975, p. 34). The expert therefore has ultimate control over the outcome of the evaluation or assessment. In contrast, relationship mapping allows participants to generate and synthesise their thoughts into maps by themselves. When compared with many of the complex methods utilised (such as process maps in business reengineering), the relationship mapping technique may be intellectually sound, but simple enough for an array of participants to manage.

2.3.4.2 *Impact of type of method used*

With regard to the nature of the mental map that arises out of a formal investigation, it is argued that the content emerges as a result of the state of the group and the methods of the investigator (Eden, 1992). According to Cossette and Audet (1992), cognitive maps emerge through the researcher's construction of a graphical representation of discourse engaged in with the subject. Within this view, the researcher's role is as builder or integrator of the map, with the potential hazard of the researcher's personal views of the world impacting on the representation created. The simplicity of the model is seen as dependent on the complexity of the area dealt with, the experience of the group, and the personalities of the team members. Hodgkinson and Johnson (1994) suggest that the contact with the sub-environment also influences the development of categories included in the map, with those incorporated understood to be necessary for survival or mastery needs. The nature of models is therefore context dependent. In addition, the danger of various cognitive mapping techniques distorting information and excluding certain types of information as a result of the methodology and layout used needs to be acknowledged (Eden et al., 1979).

Relationship mapping is a methodology that may be used to determine the nature and content of either individually-held mental models, or collectively-held mental models. Through literature dealing mostly with the field of cognitive mapping, a number of possible benefits and drawbacks of the relationship mapping technique have been identified.

2.4 Potential benefits and hazards of relationship mapping

The potential benefits and drawbacks of the relationship mapping technique are outlined below, within three key focal points. While these are labelled from the positive perspective, it is recognised that the method may incorporate drawbacks within each of these frames. These frames include the generation of understanding, communication enhancement, and the promotion of empowerment and problem solving – and have been divided in this way through the review and integration of the literature.

2.4.1 Generating understanding

2.4.1.1 *Organising and eliciting information*

Klimoski and Mohammed (1994) state that individual processes, such as cognitive mapping, help to screen out excessive information, thus decreasing the chances of information overload and unbearable levels of indecision. These processes are fundamental as they aid the way in which one ascribes meaning, and develops understanding – that is, the way in which individuals make sense of their world. Cognitive mapping may allow for the simplification of experience into meaningful information, thereby providing a means for individuals to cope with volume (Anthony et al., 1993; Downs & Stea, 1977).

It is also understood that cognitive mapping leads to the focusing of attention, and frequently triggers memory, therefore allowing for the structuring of issues in the individual's internal map (Fiol & Huff, 1992). According to Cossette and Audet (1992), cognitive mapping frequently highlights information that would be difficult to elicit by other means. Additionally, the articulation process itself may have a significant impact on future and present cognition (Cossette & Audet, 1992; Eden, 1992; Eden et al., 1992). Eden et al. argue that the process of interviewing, with the intention of formulating a cognitive map, assists in developing the individual's thinking around the topic. The procedure of thinking with the aid of mapping may provide for a cathartic experience – allowing for the elicitation of information (Cossette & Audet, 1992; Eden, 1992). The experience may also prompt a change in thinking (Eden, 1992). As with other forms of cognitive mapping, the relationship mapping procedure may have a positive influence on cognition through providing room for this articulation process to occur.

However, in exploring the value of cognitive mapping techniques in organising information, Eden et al. (1979) caution whether all concepts can be captured clearly in maps, and whether through the classification of certain 'woolly' concepts, some of the meaning may be trivialised. In considering this view of Eden et al., it is noted that this concern only applies in the context of a third party interpreting the map. These authors also suggest that, without understanding the context within which the map was constructed, some of the elements may be misinterpreted. Other concerns relate to the formation of fixed models that may prevent the elicitation of new thought. According to Hill and Levenhagen (1995),

when formal mental models are developed, learning tends to become first order in nature (with the focus placed on maintaining equilibrium, rather than questioning fundamental values, beliefs, and norms). In this way, understanding may be decreased. Fiol and Huff (1992) raise an additional concern: that when too much focus exists as a result of cognitive mapping, a form of 'tunnel vision' may be created, leading to a narrow viewing of the world. Alternatively, when too little focus exists after the utilisation of cognitive mapping, an incomplete, almost splattered, view is formed. When considering the relationship mapping technique in particular, the literature describes how the technique was developed with a focus on simplicity, and easy access to all users regardless of education level or literacy abilities (Radford, 1995). However, it is of concern that the information elicited may be too simplistic (in contrast to more sophisticated computerised methods of mapping) to provide a full level of understanding.

2.4.1.2 *Developing a joint, holistic understanding*

According to Lilienfeld (1978), the generation of multiple cognitive maps provides an opportunity to view the perceptions of numerous individuals in a systemic and holistic manner. In a similar vein, the use of relationship mapping in this current study may enable a fuller holistic representation and viewing of the participants' perceptions regarding the OD process. This could be of benefit to all involved in the changes. In the current study, the facilitators of the change may increase their understanding of processes and dynamics, unexpressed or unstructured without the technique. They may also develop greater clarity of their role, how others view them, and their position in relation to the change. In addition, through the clarification of assumptions afforded by the maps, participants may gain a fuller understanding of the process themselves, as well as an understanding of why others respond as they do. Senge (1990) remarks that one of the biggest difficulties people have in terms of seeing a holistic picture of a situation, is the tendency to want to piece elements together. One of the potential benefits of relationship mapping is that it encourages the users to consider all relevant factors and their relationships to each other when approaching the assessment, thereby reinforcing the systemic nature of change. The process may therefore aid in the development of a sense of interconnectedness and an understanding of the interaction between parts – a need identified by Senge (1997) as essential for learning.

In addition, the development of shared mental models may appeal for a number of other reasons. Hurst, Rush, and White argue that organisational realities are made up of the interaction between "the objective, tangible ('out there') and the subjective, cognitive ('in here') elements" (1996, p. 384). The benefits of having, as part of a team, members who are able to perceive the world in different ways (or from different angles), but still participate in a process of building a common perception of reality, therefore becomes clear. They help to create a fuller picture. Montgomery and Scalia (1996) posit that, within a rapidly changing environment, organisations would benefit from information and ideas that emerge from as wide a range of sources and perspectives as possible (both horizontal and lateral sources). Where shared mental models do exist, Klimoski and Mohammed (1994) argue that the implementation of decisions occurs more quickly, and there tends to be greater use made of all mental resources, as well as greater facilitation of the processes of problem definition, evaluation and option generation. Bettenhausen (1991) argues that if there is the perception of shared understanding, teams may be more motivated, and there may be greater cohesion and trust between team members. If members hold the same definition of a situation, well co-ordinated group interaction may result. On a more general level, shared visions, aspirations, and mental models are recognised as aiding organisational success (Prahalad, 1997; Senge, 1997; Vaill, 1996).

It is argued that during the generation of a team mental model, it is critical that the process is viewed as one of sharing, rather than as a win-lose situation where some views are given more credit than others. Where a zero sum or win-lose mentality does exist, the true benefits of sharing may never be realised (Mayo & Lank, 1997). These team mental models are considered to be greater than the sum of their individual parts as they form collective beliefs (Klimoski & Mohammed, 1994; Langfield-Smith, 1992; Montgomery & Scalia, 1996). However, through a process of 'group think', they may in fact be less than the sum of their individual parts. The desire for unanimity may outweigh any drive to explore or assess various options for action (Langfield-Smith). Cognitive mapping (and therefore relationship mapping) may prove to be a liability when used to develop team/group mental models, as much of the variability and detail of individual models may be lost in the process (Fiol & Huff, 1992; Klimoski & Mohammed, 1994).

Additionally, if the joint mental model is incorrect, the group may find it difficult to abandon such a model due to the fact that it has been arrived at through consensus. With a mental model derived through consensus, individuals tend to disregard discrepant information, and individual creative problem solving may be inhibited (Klimoski & Mohammed, 1994). Alternatively, where there is too little agreement over mental models the opposite of 'group think' may occur – the fragmentation of thought (Fiol & Huff, 1992). It is argued by Fiol and Huff that when the complexity of cognition of team members, and the diversity among team members, is too great, attempts at cognitive mapping may be unsuccessful. This diversity may become dysfunctional, leading to a lack of integration. There are a number of other potentially negative consequences that may arise as a result of relationship mapping. It has been noted that if teams, individuals or groups attempt to develop a rigid model of thinking when using a cognitive mapping technique, they may lose a degree of flexibility necessary to negotiate a constantly changing environment. Organisational adaptability may therefore be decreased through the freezing of perception and a difficulty in adapting when the situation changes (Hill & Levenhagen, 1995, Hunt, 1996; Mayo & Lank, 1997).

2.4.2 Enhancing communication

2.4.2.1 *A personal form of communication*

Communication of the experience of change may be enhanced through the use of the relationship mapping technique, as its non-directive approach is in contrast with many methodologies utilised in the evaluation of transformation, such as interviews, observation and questionnaires. Relationship mapping allows for participants to include in the map what they feel is important (Radford, 1995). According to Downs and Stea (1977), cognitive mapping techniques take individual perceptions into account, therefore providing richness in information. Individual views of the world may differ according to factors such as age, nationality, social group experience and religion. With the method of cognitive mapping, individuals can choose which elements are important enough to include, and which should be excluded. While cognitive mapping may be personal enough to allow for variations, it can also be used as an aid in communicating individual perceptions. When considering the relationship mapping technique specifically, Radford argues that a possible benefit is the ability of the individual to represent his/her perceptions through the relationship map independent of language or communication abilities. The methodology

may be applied successfully in varying contexts, as it is understood not to be organisation-specific.

In judging the value of methods for expressing and communicating thought, Eden et al. (1979) argue that they need to meet a number of criteria. For effectiveness, the techniques would need to "capture complexity;...capture peculiarity and idiosyncrasy;...capture generalisabilities;...capture particularities; and...be represented comprehensibly" (p. 53). It is difficult to imagine a technique that is entirely positive in terms of communication.

2.4.2.2 *A tool for organisational communication*

The relationship mapping technique may be used to serve a further purpose in terms of communication, by contributing to the communication of an organisation's driving principles during an OD process. It has been recognised that for organisations to establish a strong direction, a vision or mission needs to be communicated in a powerful and clear manner. One means of doing this is through the use of metaphors, seen as a method allowing for a creative and flexible form of communication (Hill & Levenhagen, 1995). Hill and Levenhagen argue that metaphors may assist communication through aligning organisational action towards a single purpose, attuning people for the reception and sending of information, and serving as a standard means of communication. It is more likely that a commonly understood objective will develop through the verbal clarification of the organisational mission. Additionally, when metaphors are used to articulate a shared mission, these authors suggest that a common understanding can be developed by "retrospective sensemaking" (1995, p. 1071). In the situation of organisational transformation, this retrospective sensemaking through the use of metaphorical mental maps may aid in understanding past experiences. While many cognitive mapping techniques may not make use of metaphors, elements considered to be important by individuals using the relationship mapping technique are often represented through symbols and metaphors.

2.4.2.3 *Team communication, and communication within teams*

There are a number of aspects within team communication that impact on its effectiveness. Harrington (1988) argues that one element aiding effective communication and preventing confusion is that of keeping the message simple. According to Cushway and Lodge

(1993), some of the factors impacting on sound communication include language/words used, distortion of the message over time, lack of focus on the communication, poor communication skills in terms of articulation or writing, antagonism between the communicators, and the emotional state of either party. Other factors seen as impacting on communication efficacy include listening skills, the physical environment (e.g. noise), too much information in the system, past experience of the other party, and status of the person sending the message. One of the benefits of the relationship mapping methodology proposed for the current study, is it's potential capacity for simplifying, for managing an overload of information and for presenting information in a easily communicable form.

Langfield-Smith (1992) argues that groups need to be cohesive in order for shared models to be developed. In describing cohesive groups, Klimoski and Mohammed (1994) argue that these groups tend to take part more readily and easily in conversation, leading to the development of group belief structures or shared mental models. In considering the communication patterns of effective teams, it is argued that these tend to demonstrate that shared mental models of obstacles have been developed. The technique used in the current study may serve as a potential vehicle within which this communication could occur. In addition, the issues raised by Langfield-Smith and Klimoski and Mohammed highlight an interesting question. While these authors suggest that group interaction may be influential in the formation of a shared mental model, the opposite causality is also considered, with the development of a shared mental model impacting on group interactions (Bettenhausen, 1991; Klimoski & Mohammed, 1994).

2.4.3 Promoting empowerment

2.4.3.1 *A form of sensemaking*

All deliberate action is seen as having a cognitive basis that reflects the individual's models of the world (Argyris & Schön, 1978; Eden, 1992). For this reason, cognitive mapping is useful and important as, with the realisation that our understandings inform much of our behaviour, the developed maps may shed light on behavioural motives. From the same perspective, relationship maps, generated during the assessment of an OD exercise, may improve overall understanding of certain behaviours, and show reasons for resistance or

movement within the process of change. Eden et al. (1992) state that cause maps, a popular version of cognitive mapping, have been used frequently to explore the cognitive patterns of organisational members. Divergent views and assumptions, surfaced through the maps, may explain unpredicted behaviour (Cox & Zannaras, 1973; Radford, 1995) or may aid prediction of future behaviour (Downs & Stea, 1977). This reasoning could equally apply to relationship maps indicating possible future behaviour.

2.4.3.2 *Decision making and problem solving: an enabler*

According to Bennett et al. (1994), when people are required to make a decision in an abstract situation, they frequently make use of a limited collection of values and rules, derived from previous situations, to reach the outcome. A large quantity of knowledge therefore goes unused. It has also been found that individuals often struggle to understand concepts in adequately concrete terms, with creative solutions often resulting from the development of an internalised image of the problem. According to Anthony et al. (1993), it is more likely that worthwhile contributions can be made when people hold a valid and rich understanding of the context in which they are situated. For this reason, these authors argue that it is important, within a change situation, to investigate existing mental models. In this way, assumptions hampering the transformation process may be exposed, and a fuller comprehension of the process may be developed, as seen by those involved. It is also suggested that through understanding and greater involvement, more meaningful contributions may be made, and commitment to the transformation may also be increased (Burke, 1994; Klimoski & Mohammed, 1994). In addition, categorising information through cognitive mapping is seen as efficient and fast – it requires less mental energy from the individual. In the process of learning from experience and envisioning an ideal state of affairs, problem solving and capacity for learning may be enhanced (Mayo & Lank, 1997). Mental models may allow for rapid decision-making, the determination of factors taken into consideration, and the nature of the action taken (Prahalad & Bettis, 1996).

Downs and Stea (1977) propose that an individual's intended behaviour is based on his/her perception of a situation. People often predict future occurrences and choose a course of action based on the mental models they hold of a situation. The success of plans and procedures can therefore be seen as partly dependent on the accuracy of an individual's mental model. Fiol and Huff (1992) argue that it is important that individuals can locate

their current position, the position to which they aspire, and the route from one to the other. Cognitive maps have the potential to reveal a gap in an individual's understanding of a situation, allowing for 'issue closure'. According to these authors, another property of the cognitive map is that it may allow for the highlighting of important factors, and through a process of illuminating gaps in thinking, may supply any missing details. More specifically, cognitive maps (and relationship mapping) may serve as a facility for creative problem solving. Cognitive maps may also aid in exposing discrepancies in managerial perception of alternative strategies. If these discrepancies are revealed, an allowance is made for useful debate around additional strategic options (Fiol & Huff, 1992). Negotiation, problem solving and decision-making may be aided by the use of cognitive mapping techniques (Eden 1992).

2.4.3.3 *Assisting cognition/ eliciting thought*

Through the property of mapping, which allows for reflective thinking, the individual may be emancipated from previous ways of thought. This freeing-up of the individual may impact on the organisation to which the individual belongs, leading to an enhancement in organisational action. Cognitive maps may therefore be used not only as tools for decision-making, but also for a representation of "epistemological structure...around which individuals organize" their experiences (Cossette & Audet, 1992, p. 326). The above benefits may also apply to the use of the relationship mapping technique during the assessment of an OD programme.

One of the aspects currently emphasised in the business environment is that of strategic thinking. Fiol and Huff (1992) argue that it is important for organisations to possess decision-making tools that can assist them to adapt as the decision-making context changes. Relationship mapping may aid this process, although its simplicity may be a downfall. Research on cognitive mapping has found that the technique provides new ways of improving managerial judgement. Through graphic representation, ideas can be simplified and structured, and the transmission of complex ideas can be facilitated. Additionally, by creating an external map, separate from the creators, ideas are dissociated from the speakers and debate becomes more accessible. By exposing the discrepancies between each manager's perception through graphical representation, debate with regard to various strategies, as well as the differences between subgroups is revealed (Fiol & Huff). Linked

to this, Anthony et al. contend that forms of imagery may allow for a "more complete and thorough use of participant knowledge" (1993, p. 44) – a comment that applies equally well to the technique of relationship mapping. One of the benefits of creating map-like drawings is that "people draw ideas, sketches, processes, and directions instead of writing them down – pictures are often faster to create and easier to understand than words for the same information" (Hunt, 1996, p. 145).

While cognitive mapping may have an empowering effect, it may also disempower the individual in certain circumstances. Fiol and Huff (1992) reason that on the one hand, cognitive mapping allows for the development of memory, enhancing the individual's ability to remember certain aspects or cause and effect relationships of their environment. However, when memory is increased to a great degree, the individual may begin to react in a mechanistic manner, responding to the memory of a previous event. If the memory developed through mental modelling is too minimal (or simplistic), the person may behave in an inadequate manner. These authors view closure as an additional aspect resulting from cognitive mapping: it allows for the sound analysis of a particular area. Yet, if an individual has developed too great a sense of closure, then he or she may be unable to re-analyse the area in question, and a level of inflexibility in thinking may be developed. Alternatively, where insufficient closure has occurred, the individual may indulge themselves in too much analysis, leading to a continual "analysis paralysis" (Fiol & Huff, 1992, p. 276).

2.4.3.4 *Facilitating personal understanding*

From a far more personal perspective, Downs and Stea (1977) posit that self-identity is bound up with an individual's knowledge of the environment. Through the map, the individual's understanding of their position in relation to the organisational transformation could potentially be improved, and used to solve problems and gain a greater sense of control and empowerment. Anthony et al. (1993) propose that the use of visualisation and imagery allows individuals to envision an ideal state of affairs, while assisting in providing a framework for predicting, describing and explaining future states. Relationship mapping may, through its nature, allow for this visualisation and graphic expression of ideas. In addition, Cossette & Audet (1992) state that representation, especially in the format of a schema, serves as an orienteering, guiding and monitoring instrument that aids in the

individual's actions and assists in reflection. It allows individuals to understand their experiences and make inferences (Klimoski & Mohammed, 1994). Cognitive mapping assists in "comprehending the mappers' understanding of particular, and selective, elements of the thought" of a group, individual, organisation or group (Eden, 1992, p. 262) – thereby allowing for personal understanding, and a sharing of this with others.

2.5 Summary of literature

In summary, this literature review has covered debates relevant to the research within the fields of OD, perception, mental models, and the cognitive mapping techniques used to elicit these. It can be seen that the debate between the criteria-driven approach to OD assessment, and assessment defined in a participatory manner, still continues. In addition, the 'expert' notion of assessment is seen as enacted within many of the cognitive mapping techniques described in the literature. It has been argued that the relationship mapping technique used in the study potentially approaches the elicitation of mental models from a more participatory perspective. The potential benefits and drawbacks of relationship mapping have been debated through reference to the field of cognitive mapping, structured within three frames of analysis: empowerment, communication, and understanding. This provides the framework for the current research, which focuses more specifically on the use of the relationship mapping technique, with particular emphasis on these three areas.

Chapter Three

GOALS AND OBJECTIVES OF THE RESEARCH

The aim of the current research is to consider the utility and value of relationship mapping in enhancing the understanding and evaluation of the process of organisational transformation from the perspective of those involved. Use is made of frames of analysis, or 'lenses' through which to understand the results of the study. These frames of analysis have been derived from the literature and further developed through interaction with the organisation, and are significant in their own right. Alongside the use of the analytical frames, an experimental design is employed to consider relationship mapping and its impact on the frames of analysis from a predictive angle. This design is explored in further detail in Chapter 4 (Methodology). While the subjective nature of the research implies that results cannot be entirely conclusive, it is argued that it is possible to assess the influence of relationship mapping on a broader level.

The frames of analysis are utilised with two key research goals in mind. The first goal is to examine the effectiveness of relationship mapping as a tool for understanding the experience and evaluation of OD, from the participants' perspective. This goal is approached through an assessment of the type of information relationship mapping elicits (considered within these frames). The second goal is to investigate the potentially positive impact of relationship mapping on those using it (in terms of these frames), in the context of participatory OD evaluation. Within this understanding, the key frames of analysis are:

- The participants' sense of being empowered and in control (both in terms of being in control of the changes, and in terms of the perception of control as a result of the changes)
- The participants' understanding of the transformation, and
- The participants' experience in terms of communication during and relating to the change process

The research is also designed to explore differences of value granted to the relationship mapping technique, by groups ranging across the job grades of the organisation. These job grades have, for the purpose of this research, been labelled 'levels'. Within this focus, there

is an expectation that some differences related to organisational level (or job grades) may emerge.

In addition, the processes of interaction within each group are assessed, as a further check on the relationship mapping technique. Consideration was given to assessing group interaction as a potential moderating factor on the usefulness of relationship mapping, through the possible impact on the mapping process itself. This approach is in line with the views of authors such as Klimoski and Mohammed (1994), and Langfield-Smith (1992), who argue for a link between group processes and the formation of a joint mental model. However, as discussed in the literature review, the opposite causality is also debated, in terms of the impact of mapping processes on group interaction (e.g. Bettenhausen, 1991; Klimoski & Mohammed, 1994). It is this causality which is assessed for in this study. Attention is given to the impact of group processes on relationship mapping, although this is not the key focus.

Chapter Four
METHODOLOGY

4.1 Methodological context of the study

The study was carried out at a large, national, South African manufacturing organisation within the food and beverages sector. The company employs a total of 3680 individuals distributed in 23 depots (three of which deal with manufacturing, while the others are distribution sites). The focus of this study was on one particular manufacturing site employing a total of 1034 individuals. Prior to the initiation of this research, the organisation had been undergoing a formal transformation process for approximately two years. While the change process had been spearheaded by a consultant organisation, by the time the research process began, the organisation was managing the changes itself. The research constituted the first formal investigation into the processes and progress of the transformation, as viewed by employees.

4.2 Subjects

The unit of analysis utilised in the research was that of the group – considered to be a key leverage point for improving organisational effectiveness and carrying out development (French & Bell, 1995). Likert (1961) argues that individuals are members of interlocking groups through which work is executed. While the research made use of the group as the unit of analysis, groups participating in the research were brought together for the research process alone – rather than falling within the team notion of groups as described by Likert, or French and Bell. This approach was chosen to assess the different experiences of relationship mapping, and the distinct types of information emerging through relationship mapping, across the organisational levels. As with much research in the field, the decision to use groups defined by organisational level was only partly under the control of the researcher. While the decision was directed by a review of the literature, such as Hodgkinson and Johnson's (1994) suggestion that taxonomies increase in complexity with knowledge needed for the position held, it was also partly guided by the organisation's interest in the perception of change by the different levels. In this organisation, individuals worked in teams that consisted of more than one grading level. Therefore, with the need to consider and compare views from different levels, randomisation was utilised as the method for subject selection into the groups, rather

than already-existing work teams. Implications of this decision to use the job grades as the grouping criteria relate to the fact that much of the team-oriented theory may not apply. In addition, while relationship mapping may be considered in terms of its perceived impact on the group, generalisation across to teams may not be possible. These limitations need to be recognised, although a randomisation approach holds benefits such as the possibility for improved generalisation of the study results.

The sampling population from which participants were selected included all staff members at the site who had been with the organisation for two or more years. 970 staff met this qualification. It was seen as important that all participants would be able to trace their perceptions from the beginning of the transformation intervention to the time of the study. The inclusion of qualifying individuals from the entire site allowed for a more representative sampling of views. A stratified random selection of sixty-four individuals was done, along the lines of the four job groupings (or job grades) utilised by the company – management (M); senior supervisors, technical jobs and artisans (C); supervisors, clerical and secretarial staff (B), and bargaining unit (U). Once sixteen people had been allocated to each grade level, they were further randomly divided into experimental and control groups – eight people in each control and eight people in each experimental group. In addition, one person (eight in total) was randomly selected from each of the control and experimental groups to participate in an in-depth, one-on-one, interview with the aim of further developing the focus group discussion questions.

The profile of participants is represented in Table 1, broken down into gender, language, and population group. There was some degree of diversity. While the sample may have been representative of the organisation at the time (and in particular, the research site), within the changed South African environment these conclusions can no longer be drawn.

Table 1: Participant profile

		English	Afrikaans	Xhosa	Row Total
Coloured	Female	0	0	0	0
	Male	0	1	7	8
Black	Female	0	5	0	5
	Male	1	10	0	10
White	Female	3	5	0	8
	Male	6	18	0	24
Column Total		10	39	7	56

Where participants were unable to take part in the study due to reasons such as travel, retirement and illness, they were replaced with the next randomly chosen individual in that level. The sum total of people who participated in the study was 56. In the series of group discussions prior to the intervention, 42 people in total took part. In the second phase of the research process, a total of 38 individuals from the experimental and control groups contributed their views.

4.3 Research design

4.3.1 Classical control group design (untreated control group design with pre-test and post-test)

The research design can be described as a classical control group design. It incorporated a pre-test and post-test for both the experimental and the untreated control groups. The focus was on assessing the utility and impact of the relationship mapping intervention when used as a means to understand the experience of change. In addition, the design also allowed for the analysis of group interaction within each group at all individual stages of the research, serving as an additional check on the relationship mapping process.

The research incorporated an in-depth investigation into an organisation in transformation. While certain elements may be specific to the organisation under investigation, the benefits of a rigorous research methodology is that it may allow for generalisation of the results to other settings.

4.3.2 Preparing for the research process

The initial phase of the research focused on obtaining a mandate from those who were involved in the system undergoing transformation. Factors such as time frames, suitable methodology and working relationship issues (roles) were discussed and clarified with the organisational staff involved in managing the transformation process (individuals mainly from the Training Division and Human Resources Department).

An action research orientation was taken during the design of the research and, in particular, during the development of research questions. Biddle and Biddle define action research as:

> an on-going study of the social process and its results to date, which is carried on as part of the process. The accumulating findings are used to guide and correct the decisions of the continuing process. Participants contribute to research in a manner that their increasing ability will allow. (1965, p. 128)

Voth (1979) refers to the need for a "commitment to problem solving and decision making *with* people instead of *for* them" (p. 73). The guiding questions for the in-depth interviews and focus group discussions were therefore the outcome of discussions with staff from both the Human Resource Department and the Training Division, as well as research into factors affecting and relevant to transformation. In addition, the initial in-depth interviews were used as a tool to further fine-tune the questions for the subsequent focus group discussions.

This participatory methodology was felt to be most suitable, particularly as it was agreed that the change agents within the organisation would feed the results of analysis back into the system. It was decided that feedback of the relationship maps created by each group would also take place at the end of the entire process through a method jointly determined with those company staff responsible for managing the transformation process. The type of feedback that occurred is discussed further under the critique of the research (Chapter 8).

4.3.3 The design

The research design incorporated a combination of methods in order to ascertain participants' perspectives – providing for a form of triangulation (Miles & Huberman, 1984). Denzin comments on how, "by combining multiple observers, theories, methods

and data sources, sociologists can hope to overcome the intrinsic bias that comes from single-method, single-observer, single-theory studies" (1970, p. 313). The key form of triangulation utilised in this research is what Smith has referred to as "methodological triangulation" (1975, p. 290) – where a range of data collection techniques is used within one study. The research was oriented towards ascertaining the personal and therefore subjective perspectives of participants involved in the study. Linked to the debate of whether data rendered through qualitative techniques can be viewed as 'correct', Brown and Sime comment that "an account...must be taken as an informed statement by the person whose experiences are under investigation" (1981, p. 160). With this focus on personal perspectives, methodological techniques selected for the purposes of data collection were largely qualitative (in-depth, semi-structured interviews; focus group discussions). These were balanced with quantitative techniques such as the use a questionnaire with Likert-type items, and the employment of a group process instrument.

Wherever necessary, discussions took place in English, Afrikaans, and Xhosa, with the assistance of translators. Facilitators (staff from the organisation's Training Division) assisted in the explanation stages of the relationship mapping sessions, in order to allow the researcher to take on the position of observer. The design is represented in Table 2, incorporating elements within the research process, the types of interventions, and time periods between interventions.

Table 2: Research design

		In-depth interviews	Interval of one week	Focus group discussions	Interval of two months	Relationship mapping and Focus group/Focus group only
Random selection	Group A (Experimental Group)	One person, randomly selected from each level		Four separate focus groups (one from each level); Group process scale		Four sessions of relationship mapping and focus group (one group per level); Group process scale; Questionnaire, using Likert scale format
	Group B (Control Group)	One person, randomly selected from each level		Four separate focus groups (one from each level); Group process scale		Four separate focus groups, (one group per level); Group process scale

Due to the random selection and division of groups, it was seen as unnecessary to pre-test the different groups. The random assignment of subjects to the experimental or

control group in the design allows for the management of participant effects such as maturation and the subjects' personal characteristics, while also providing a control for changes within the organisation or the external environment (Cook & Campbell, 1976; Mouton & Marais, 1990).

Initial interviews were held with one individual from each of the control and experimental groups (eight in total) using a semi-structured format with open-ended questions. The purpose of these one-on-one interviews was to gain an understanding of the perceptions around the change initiatives – on a personal and in-depth level – and to build sensitivity to and awareness of any additional issues that needed to be explored in the focus group discussions. The design incorporated a break of a week between these initial interviews and the focus group discussions, to allow for the incorporation of any further questions or issues. Eight focus group discussions were held – the guiding questions utilised for both experimental and control groups in each of the levels were the same. Issues dealt with in the focus groups revolved around the transformation process and the individual's personal experience thereof.

Two months after the first focus group discussions, eight more focus group discussions took place. Four groups (one from each of the grading levels – M, C, B, and U) were randomly assigned to take part in a relationship mapping session before the group discussion. In this session they created a graphical, three-dimensional 'picture' of their understanding of the change process of the last two years. These participants provided additional feedback through the use of a questionnaire, rated on a Likert scale format, which was included for comparison with the focus group discussion – adding to the methodological triangulation of the study. The focus group addressed the areas of transformation, and the utility of the relationship mapping technique. The other four groups were randomly assigned to go through a focus group discussion as they had before – a further check to determine whether any factors had changed in the two-month gap. The focus group discussions therefore centred on the transformation, addressing the same aspects that had been dealt with before in the first session.

In addition, a group processes scale was used at each group session to assess the nature of group interaction, serving as an additional check on the relationship

mapping process. This focus was derived through the literature review, in terms of the possible influence of mapping techniques on group interaction (e.g. Bettenhausen, 1991; Klimoski & Mohammed, 1994). The opposite causality, in terms of the impact of group processes on mapping, was also considered, yet this was not the key investigation of the design.

The specific procedures used during each of the stages of the research are discussed under Section 4.4 (Procedures).

4.3.4 Assessment of the key frames of analysis

At this point, it is important to discuss how each of the frames of analysis (restated here for ease of reference) was addressed within the design. The experience of change from the participants' perspective, and the impact of the relationship mapping technique when used as a means of assessing the experience of change, were both considered in the light of three frames of analysis. These frames of analysis, derived through the literature review and further refined through interaction with the organisation, are as follows:

- The participants' sense of being empowered and in control (both in terms of being in control of the changes, and in terms of the perception of control as a result of the changes)
- The participants' understanding of the transformation, and
- The participants' experience in terms of communication during and relating to the change process

Analysis of group processes was also incorporated into the research, as a further check on the relationship mapping technique – where 'group processes' was seen as particularly relating to group interaction.

The table below illustrates the means through which each of these issues, and the overall research question, was dealt with. Multi-method assessment of the technique of relationship mapping was undertaken.

Table 3: Assessment techniques incorporated into research design

Method → / Issues ↓	Focus group discussions	Questionnaire & Likert scale (Relationship mapping groups)	Group process scale	Interview with key organisational facilitator
Sense of control and empowerment	✓	✓	✓	✓
Communication re: transformation	✓	✓	✓	✓
Understanding of transformation	✓	✓		✓
Group processes	✓	✓	✓	
General: usefulness of the technique	✓	✓		✓

As can be seen from the assessment methods mentioned above, the key employee involved from the organisation's side in the management of the research project and the dissemination of the results was interviewed in order to assess the impact of the relationship mapping technique. The results from this interview were incorporated into both the critique of the methodology, and the qualitative information gathered around the usefulness of the technique.

4.4 Procedures

4.4.1 The researcher's role, and participant briefing

The initial briefing sent to participants by the organisation (prior to the first phase of the focus groups) was in the form of a letter, detailing the purposes of the discussions and requesting that staff participate in the process (please see Appendix A). During the actual group discussions, the researcher was clearly defined as a neutral person – and was introduced to participants as an individual independent of the organisation. It was explained to participants that the researcher's role was to explore how people perceived the change process, and that recorded comments would not be linked to particular individuals – in the interest of confidentiality and the open expression of ideas.

4.4.2 Use of videotape and dicta-phone

The research design and procedures incorporated the use of videotape to record the explanations of the relationship maps created, and dicta-phone to record the interviews – for greater accuracy in the documentation of participants' views. Consideration was also paid to the possibility that videotaped explanations of the maps could be utilised in feedback to the organisation. However, it became clear when engaging with participants that there was a strong sensitivity around recording while people spoke. One participant stated that he did not feel comfortable talking while recording occurred – he felt that his voice could be identified, and feared the repercussions. Another remarked: "You will not hear anything if this is recorded". For this reason, comments made during interviews were recorded verbatim, focus group discussions were documented on flip chart to allow for transparency of process, and the relationship maps were photographed. Immediately following interviews and discussions, notes were revisited to ensure that no information was missing. Video-recordings of the explanations of the focus groups were made, with the assurances to the participants that these recordings would be viewed by the researcher alone, in order to aid analysis and assist in transcribing of the explanations. This was acceptable to the participants.

4.4.3 In-depth interviews: pre relationship mapping

The in-depth interviews were semi-structured, utilising open-ended questions generated from a number of sources. These included the frames of analysis and overall aim of the study, research into the key elements involved in and affecting transformation efforts, and issues emerging through discussions with members of the organisation. The purpose of the semi-structured approach was to encourage participants to speak freely about a potentially sensitive topic in order to gain a greater understanding of the personal experiences of the change process and to develop a rich database (Casley & Kumar, 1992; Nadler, 1977). Where participants provided information or thoughts that required further exploration, responses were probed. Interviews ranged between thirty minutes and an hour, and were guided by the list of open-ended questions (presented in Appendix B). Participants were interviewed in the workplace – interviews taking place in a section of the Training Division. The interview location was private and quiet – following the need to consider the fear certain participants expressed around voicing their points of view. In line with the action research orientation, the information from

these interviews was used to consider further development of the open-ended questions to be used in the pre and post relationship mapping focus group discussions.

4.4.4 Focus group discussions: pre relationship mapping

Following the initial in-depth interviews, the guiding questions for the focus group discussions were assessed in terms of the need to incorporate any additional questions, or alter current questions or language utilised. Based on the responses of participants to the questions, and the type of information elicited, it was determined that no changes were needed. Eight focus group discussions were held: one discussion for each experimental and control group. The discussions took approximately two hours each, and were guided by the open-ended questions. The format was semi-structured, allowing for a free flow of conversation around the key questions, and incorporated probing where necessary. For both control and experimental groups, the discussion guide was the same, focusing on the transformation process and the personal experience thereof (presented in Appendix B).

4.4.5 Focus group discussions: post relationship mapping

Two months after the initial focus group discussions, follow-ups were held. This was seen as an adequate minimum time period between the two processes in order for participants to engage meaningfully, with the control group serving as a check on any internal changes occurring within the time gap. For the control group, the question guide utilised here was the same as that used previously, with a concentration on the view they held of the transformation process (Appendix B). For the experimental groups, the focus group discussions took place after the relationship mapping, and centred on factors such as group processes during the mapping, the ease of communication around the transformation, changes in participants' sense of control, the usefulness of the relationship mapping technique, and the transformation in general. (Please refer to the question guide, presented in Appendix C.) All focus groups discussions took place in a quiet venue in the workplace, where discussions could proceed uninterrupted and participants could express their views openly.

4.4.6 Group process scale

The study made use of two instruments in order to assess the group processes, which were combined in a group process form (please see Appendix D for complete instrument). The form was translated from English into Afrikaans and Xhosa, to provide participants with their language of choice, if other than English. The first instrument used (see Appendix D: Part A) was the Work Group Functioning scale, which forms part of the Michigan Organisational Assessment Questionnaire. It consists of 14 items that combine into five sub-scales: "Group Homogeneity", "Group Goal Clarity", "Group Cohesiveness", "Open Group Process", and "Internal Fragmentation" (Cook, Hepworth, Wall, & Warr, 1981, p. 259). According to Cook et al., the alpha coefficients for internal reliability, determined with a sample of more than 400 people, are: Group Homogeneity: 0.62; Group Goal Clarity: 0.61; Group Cohesiveness: 0.64; Open Group Process: 0.72; and Internal Fragmentation: 0.79. The instrument makes use of a 7-point Likert-type scale, with one reverse-scored item. The entire instrument was used in the study, with all sub-scales having content validity for the type of groups and group processes utilised within the research. With the limited use of the scale in other studies, construct validity could not be determined.

The second instrument (see Appendix D: Part B), designed by Aram, Morgan, and Esbeck, incorporates three factors to assess team collaboration. These include "problem solving through support and integration", "open, authentic communication", and "knowledge-based risk taking" (1971, p. 290). The instrument was deemed relevant to the current research, as, while it is oriented specifically around teams, the sub-scales hold face validity for group interaction in general. Within the context of the research, focal points such as open communication were deemed as particularly relevant. The correlations between each factor and the total team collaboration score, assessed on 110 individuals during the instrument development, were 0.86, 0.88, and 0.89 respectively, while the reliability coefficients reported are 0.87, 0.80, 0.80, respectively, and 0.91 for the total score. When assessing the utility of the instrument for the research, it was only the first two factors that were viewed as relevant and valid for the purposes of the study, and therefore these two were incorporated into the design. Both factors are made up of 6 items each. For the second factor, "Open,

authentic communication", one of the items (# 21) was altered to provide greater content validity for the current research. The original item of

"The way in which our team tries to regulate and tie together its activities is by:

a) a continuous sharing with each other of results on what we are doing

b) the project manager keeping informed and adjusting where needed"

was altered with part b) reading:

b) "leaving it to one person in the group"

to ensure the applicability of the item to the research situation. It therefore is necessary to acknowledge that the scale has been altered to ensure greater validity for the research conditions.

The mean score of the items within each factor in Part B was assessed, and used in the analysis of the group processes. The use of the means was motivated by the fact that the item loading represented in the study carried out by Aram et al. (1971) is much the same for each factor, implying that the items are correlated with the sum and thus indicate a degree of internal consistency. (Please view Appendix D for item loading.) While the complete instrument was not utilised, the factors incorporated were complete. The original instrument made use of a system whereby participants would divide 5 points between the two elements (a and b). It was therefore a situation of a forced choice. Instead of this directive rating system, participants in the research were asked to rate along a scale of 1 to 5, where 1 = "agree strongly with a", 2 = "agree with a", 3 = neutral, 4 = "agree with b", and 5 = "agree strongly with b". This modified version of the scale may have created a nuance in how participants rated their responses. It is therefore acknowledged that, as the scale used is a modified version of the original instrument, the interpretation of the results as explored in the literature does not necessarily carry through exactly into this study. For this reason the two scales are independently analysed and argued in the results. Despite the alterations discussed above, the results of Part B were analysed for any additional information they may provide to enrich the understanding of the first instrument and group processes as a whole.

4.4.7 Relationship mapping procedure

The relationship mapping procedure can be carried out in either two-dimensional or three-dimensional format. The process, according to Radford (1995), incorporates two representational tools: size and distance. In the three-dimensional format of relationship mapping, the size of a three-dimensional object (e.g. a chair, a table) may be used to represent the extent of impact that the factor being represented has on a system. The distance between objects is used to represent the closeness, or lack thereof, in a relationship between factors in a system. When a two-dimensional approach is used, the above is depicted through drawings. In this format, then, the degree of influence that a particular component of a system has is depicted by the size of the shape. As with the three-dimensional technique, the distance between the drawn objects represents the relationship between the factors. Other factors such as processes or systems may be represented through the use of tools like rope (in the three-dimensional technique) or dotted/solid lines (in the two dimensional approach).

During the conceptualisation of the research, the possibility of utilising both forms was considered – with the potential of allowing for a more personal representation. The decision was made, however, to incorporate only the three-dimensional form of relationship mapping into the design, due to a number of factors. Firstly, it was recognised that the use of just one way of representing the changes would allow for a degree of similarity – facilitating communication of understanding (Downs & Stea, 1977). With the use of the two-dimensional technique, individuals within the group who hold the pen would wield the power. Additionally, it was required that the technique used be suitable for all levels of the organisation, from union members to top management. To counter problems such as illiteracy, and the limitations which writing presents in terms of the representation of thoughts, it was felt that the three-dimensional approach would be more appropriate.

While the researcher was present at all relationship mapping sessions to ensure the instructions were carried out in terms of a standardised procedure and to run the focus group discussions following the mapping, training staff from the organisation facilitated the process of mapping. The motivation for this was to make the process as realistic as possible for the respondents, and to allow the researcher to occupy a more distanced,

'objective' position. Facilitators were involved in a training session to ensure that the method followed was standardised, and were then provided with the a standard document, based on Radford (1995), which was used to brief relationship mapping participants (please see Appendix E).

A time period of approximately ten minutes was taken to explain to each experimental group how to use the relationship mapping technique. Participants were asked to represent their understanding of the change over the previous two years, using the relationship mapping technique (within a one-hour time limit). Following the relationship mapping process, participants were asked to explain their map, and then change it to represent their views of the ways in which the transformation could be made more effective. Once again, justification was requested. Elements of the map (which could range from issues around technology to those around people, groups and processes) were not specified, allowing the data to emerge with a greater degree of richness through the emphasis on individual perceptions (Downs & Stea, 1977). (For a more detailed description of the procedure, as explained to participants, please refer to Appendix E.)

4.4.8 Use of questionnaire, with Likert-type items, post relationship mapping

Following the creation of a relationship map by each of the experimental groups, and the subsequent focus group discussion, each participant documented their personal responses through a questionnaire with a fixed response, Likert-type rating (please see Appendix F). The purpose of this measure was to allow for individual perceptions to be documented in private, serving as a methodological triangulation to the focus group discussion and assisting in the emergence of any issues that may not have been voiced in the group discussion. In addition to the Likert-type items, space was provided for participants to express more personal comments if desired. The language utilised in the questionnaire was the result of discussions with members of the organisation involved with the transformation process. This was in order to ensure relevance to the participants and appropriateness to the culture of the organisation. Issues dealt with through this measure related to: the impact of the relationship mapping technique on communication around change and the individual's sense of control, group processes that occurred during the relationship mapping and other elements of the technique.

4.5 Data analysis

4.5.1 Analysis of focus group discussions and relationship map explanations

For the purposes of analysis of the data obtained during this research project, the option of content analysis was considered. Content analysis, as defined by Holsti, is "a multipurpose research method developed specifically for investigating any problem in which the content of communication serves as the basis of inference" (1969, p. 2). While various definitions of content analysis abound, there are a number of key characteristics that are seen as central to the methodology. As stated by Berelson, content analysis or coding refers to "*objective, systematic, and quantitative description*" (1971, p. 18). Kaplan and Goldsen state that content analysis "aims at a classification of content in more precise, numerical terms than is provided by impressionistic 'more or less' judgements of 'either-or'" (1968, p. 83).

However, the decision was taken to not utilise this form of analysis for a number of reasons. Firstly, due to the fear participants held around voicing their perspectives and being reprimanded for their views, discussions during the group sessions were not recorded with dicta-phone or videotape. Instead, comments were documented verbatim, or on flip charts in the case of the group discussions. The technique of content analysis, with its focus on quantitative summation of comments and codes, was seen as inappropriate for the data. In addition, it is argued that within qualitative methods, "meanings rather than frequencies assume paramount significance" (Van Maanen, Manning, & Miller, p. 5). While this argument may be viewed by some as a continuation of the 'paradigm war' over the qualitative-quantitative debate, it holds importance in the light of the present study's focus on the understanding of the personal perspectives of members within the organisation.

Consequently, the researcher selected the technique of thematic analysis as the principal tool for the analysis and interpretation of the data obtained through interviews, focus group discussions, and relationship map explanations. According to Aronson (1994), this technique focuses on the identification of patterns and themes. Pidgeon and Henwood (1996) argue that, in order to assist data analysis, information needs to be made accessible through the ordering into a fixed record that allows for the process of analysis to commence. Kvale (1983) makes the suggestion for the use of a form of

"hypothesis-matrix" (p. 180), which allows for the display of data in a manner that facilitates assessment against each of the hypotheses (or in the case of this research study, the frames of analysis). The type of data display technique utilised was similar to this – a variant of what Miles and Huberman refer to as the "conceptually clustered matrix" (1984, p. 110) – wherein elements linked with the same concept are brought together. The altered format, as used in the study, is represented below.

Figure 1: The conceptually clustered matrix – a variation

Issue / Participant	Issue #1	Issue #2	Issue #3	Issue #4
$M_{exp.}$				
$M_{cntrl.}$				
$B_{exp.}$				
$B_{cntrl.}$				

The form of matrix used allowed the researcher to display data collected in such a way that it delineated between the responses of various participants, across the different research questions. A cross-role comparison could then take place (role referring to both the level within the organisation which the group belongs to, and the assignment to either experimental or control condition). Miles and Huberman (1984) argue that the format allows the analyst to consider further ways in which the data can be assessed and linked. Within this approach, the questions asked during the research process were linked together in a manner reflecting the different analytical frames (for example, 'understanding the change'; 'communication about change'; and 'sense of empowerment'). Where questions did not relate to one of the analytical frames only, responses generated were categorised according to decision rules (please see Appendix G). These decision rules, specifying why certain data was included in the various frames of analysis and other data excluded, were documented and tested during the process of entering data into the matrices (Miles & Huberman, 1984). The decision rules therefore served as categorisation tools.

The research process incorporated a check on the reliability of the generated decision rules, through an assessment of inter-rater reliability. This involved a random selection of participant comments – ten comments per frame of analysis (as categorised by the

researcher, through use of the decision rules developed) – which where then randomly mixed and presented to three unbiased external individuals for categorisation. As an aid, these external raters were given the decision rules as a guide for categorisation. Results were analysed with the use of the kappa statistic, described by Koch (1983) as a chance-corrected measure of agreement (where agreement is indicated by assignment of items to the same category). This statistic ranges from 0 to 1, with 0 corresponding to chance agreement and 1 indicating absolute agreement. Analysis indicated sound inter-rater reliability, with the kappa statistic for all three ratings ranging between 0.70 and 0.76. Concern around the possible subjectivity of categorisation was therefore diminished through this indication of strong inter-rater reliability.

In entering data, Miles and Huberman (1984) suggest that the source of data or quotes used be tagged for easy access if necessary. This was carried out in the present study. Allowance was made for data to be entered in various forms, with Miles and Huberman suggesting the use of "direct quotes, extracts from written-up field notes; summaries, paraphrases, or abstracts; researcher explanations; ratings or summarized judgements; combinations of the above" (1984, p. 212). According to these authors, ratings and labels are useful, as these allow for comparison across the various cells of the matrix, while the quotations assist in fleshing out the information, and clarifying any labels or categorisation assigned.

During the process of comparison, the researcher searched for issues repeating themselves with regularity – patterns explaining what was occurring. While determining possible patterns, the literature cautions that the researcher needs "to be able to (a) see *real* added evidence of the same pattern; (b) remain open to disconfirming evidence when it appears" (Miles & Huberman, 1984, p. 216). It is important to compare back to the database and see if the broad pattern holds or makes sense elsewhere. An additional aspect that may assist in the development of patterns is the use of metaphors for the description of phenomenon, or labelling of aspects of the field notes – through the ability of labels and metaphors to pull together different aspects of information. Applying labels to quotations or responses from participants facilitates the development and emergence of themes, and the promotion of a more manageable form of data. However, Miles and Huberman comment on the danger of becoming "locked too quickly into naming a pattern and assuming you understand it, then thrusting the name onto data that

fit it only poorly" (1984, p. 68). Labels need to be continuously assessed and redeveloped if necessary, to prevent premature analytic closure. Once labels have been developed, these need to be compared back to the data, in order to draw out additional relevant data (Aronson, 1994).

Any conclusions regarding possible links within data during the process of comparison need to be documented, and compared back against the written field notes. Patterns that emerge need to be organised into sub-themes and themes (Miles & Huberman, 1984). According to Aronson (1994), themes may be viewed as the units of understanding which emerge from patterns, and may range in nature (e.g. issues of conversation, metaphors, popular sayings, regular activities). The present study utilised these suggestions for pattern development, with sub-themes (within each of the existing frames of analysis) therefore emerging from the data through the process of thematic analysis.

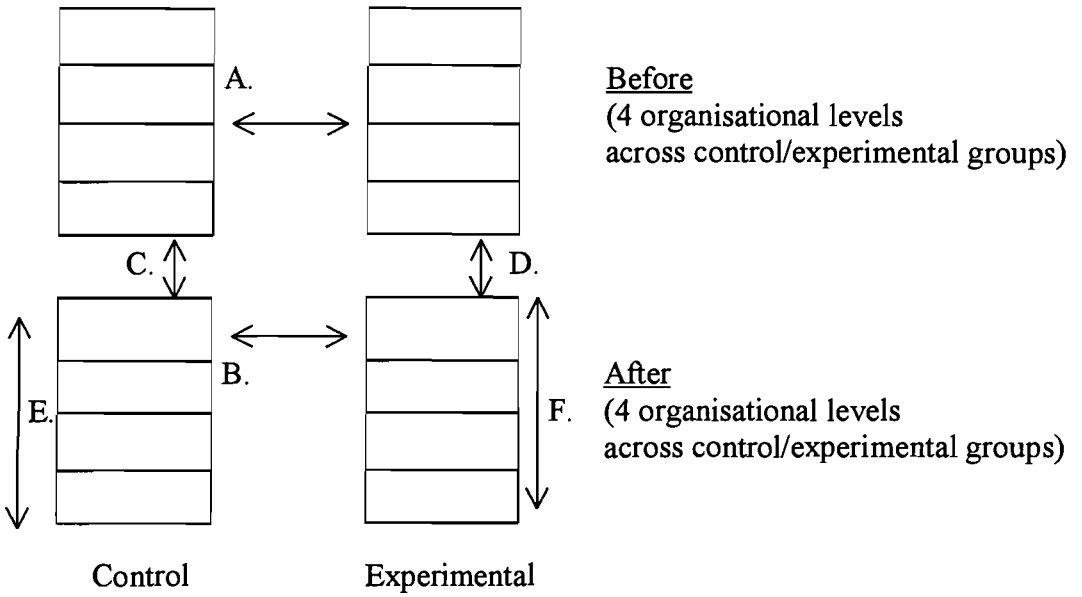
During the write-up of the themes that have emerged from the matrices, it is important to include quotations or illustrations from the field notes that are illustrative of the regular, representative views, rather than the abnormal. Where these representative examples do not exist, the themes that have emerged need to be revisited (Miles and Huberman, 1984). It is also helpful to consider both the expected and the unexpected when analysing patterns. This focus is useful in that it reminds the researcher to consider all elements of the data set, rather than to look for expected conclusions and become biased during the analysis process (Cole, 1994). A useful technique for the integration of information and labels or categories is the use of diagrams to allow for exploration of ideas (Pidgeon & Henwood, 1996). These approaches, as suggested in the literature, were incorporated into the research analysis.

4.5.2 Analysis of group process ratings

Statistical treatment of the group process instrument was carried out, using both analysis of variance and independent t-tests to assess for significance between the various groups of participants. For the analysis of the impact of relationship mapping on the group processes within the various groups, independent t-tests were used. In an ideal situation, where the views of each individual could be tracked over time, the t-test

most appropriate would have been the dependent t-test. The situation called for the use of independent t-test, as the anonymity of subjects resulted in a need to compare the before and after results of one group as if they were two independent groups of responders. The figure below illustrates the analysis of variance, and t-tests carried out in the analysis of the data.

Figure 2: Explanation of independent t-tests and analysis of variance applied



The analysis indicated by (A) was carried out in order to assess for any significant differences between the control and experimental groups in the time period before the intervention – a check on the randomisation process. The second t-test carried out (B) focused on assessing any differences in group processes between the control and experimental groups following the intervention. The following test (C) assessed for any significant difference in the before and after intervention-period response of the control groups. For this assessment, it needs to be remembered that some of the people who took part in the 'before' session may have been different from those who participated in the 'after' process. The independent t-test marked (D) assessed the corresponding difference in the experimental groups, and therefore the caveat with regards those who participated applies here too. The assessments (C) and (D) are important as they allow the researcher to check whether any significant difference exists in the changes between the before and after responses within the control groups, and within the experimental groups. The comparison of (C) and (D) allows for a

possible inference that significant changes might be due to the intervention. It also serves as a check on the impact of extraneous variables (in which case similar differences in response at the 'before' and 'after' time would exist for the experimental and control groups).

For the comparison of responses between groups from the different levels, analysis of variance was used. The analyses of variance marked (E) and (F) assess for any significant difference within the control groups' and within the experimental groups' responses respectively. Test (F) is of importance to the study, as it allows for the assessment of differences between the groups from different levels of the organisation in terms of group processes – adding to the understanding of results. For all the above tests, the group process factors assessed were the 5 sub-scale factors of Part A, and the 2 sub-scale factors of Part B. Individual items were only assessed where the results were of interest.

4.5.3 Analysis of post relationship mapping questionnaires, with Likert-scale

In the analysis of participants' responses to the post relationship mapping questionnaires, analysis of variance was used to assess for any significant differences occurring between the groups from different levels of the organisation. In addition, the means of the various groups for each of the elements dealt with in the questionnaire were calculated, and used to further assess the responses. These results were presented in a means summary table, and further post-hoc comparisons (using Tukey's HSD test for unequal sample sizes) were carried out to determine where the level of significance lay.

Chapter Five
RESULTS: QUANTITATIVE DATA

5.1 Interpretation of results: key issues

When exploring the analysis of the group processes instruments and the Likert-type ratings carried out following the relationship mapping, it is necessary to take into consideration the type of research design and the nature of the subject under investigation (transformation). The best scenario in terms of research design and data collection would be a situation where the views of individuals within groups are tracked over time, thus allowing for the monitoring of individual changes. However, due to the fear many participants expressed about voicing their feelings around the transformation, confidentiality and anonymity were demanded and assured. This resulted in participants completing their input anonymously and thus, no reliable method could be constructed to identify and compare the before intervention and after intervention response of each individual. The best scenario was, in real terms, not an option, as the alternative to anonymity was non-participation. The impact of this constraint is that, due to the inability to track each participant's response over time, the analysis is less precise or critical and a degree of more refined information is 'lost'. The focus of the analysis is on the changes of the aggregated group rather than the aggregate changes of individuals.

The second issue to consider is the missing data – the result of subject mortality and some incomplete data submission. The research design proposed the random selection of 16 individuals from each level of the organisation, with a further division of these groups into experimental and control. While the number of participants selected during the research was in line with the design, the number of participants who attended each stage of the research varied. Only 50 percent (28) of participants were the same in both stages of the research (before and after the intervention). This limitation on the comparability of the groups highlights the reality of conducting research in a human situation where people may have no interest in ensuring that a design is followed precisely.

Two individuals left the group sessions early due to previous commitments, resulting in some of the missing data. In total, 5 individuals did not complete the group process documents. The result is that they have been eliminated from the analysis for those absent factors, as many of the factors are made up of only two items and missing data would therefore impact on this study. The numbers of individuals who took part at each point of the study within the various groups (categorised in terms of job grade and experimental or control condition), are represented in the summary table below.

Table 4:

Frequency table: Participant numbers – divided across level, condition, and time

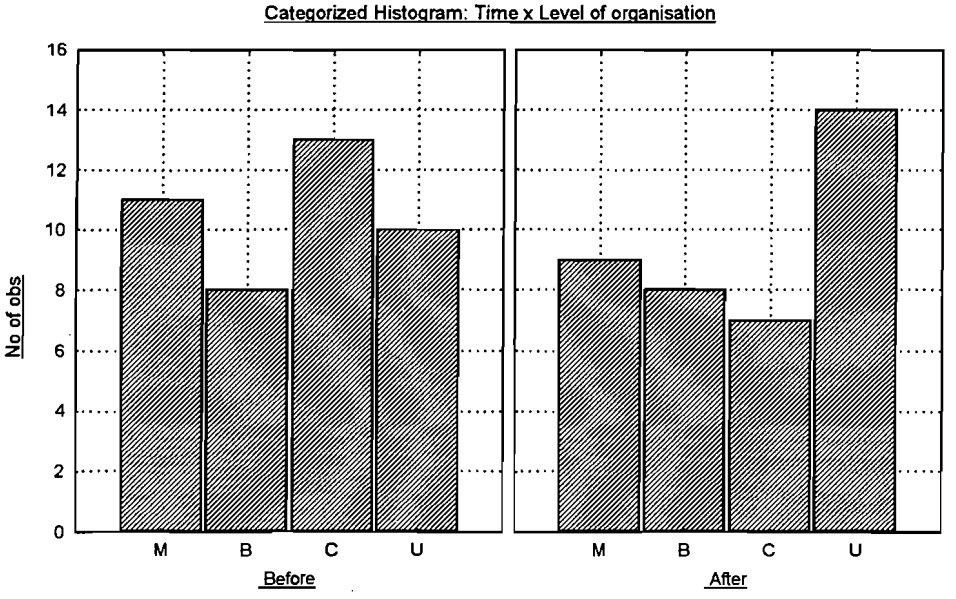
Condition & Time ↓	LEVEL				Row TOTALS
	M	*B*	*C*	*U*	
Expml, Before	6	3	6	6	21
Expml, After	6	3	2	7	18
Total	12	6	8	13	39
Cntrl, Before	5	5	7	4	21
Cntrl, After	3	5	5	7	20
Total	8	10	12	11	41
Column TOTALS	20	16	20	24	80

The third factor impacting on the data analysis interpretation relates to the number of participants in the research. In the case of this research, the number of participants was low, and therefore any statistical significance (or no statistical significance) should be interpreted with caution.

Both the number of individuals attending the group discussions, as well as any significant difference between attendance numbers of the various groups, were seen as points of interest, which could shed some light on the importance people attached to the process of the transformation. An analysis checking for any significant difference between the attendance of individuals across the various levels of the organisation could have been carried out. The researcher chose not to carry out such an analysis statistically, as the subject numbers in each cell were so low. The differences in

attendance have been represented instead through the use of histograms to aid the process of comparison. While the results of the comparison, and possible explanations, may be based on logic rather than signs of statistical significance, this level of discussion is still of value to the process. These attendance numbers across the various levels, before and after the intervention, are represented graphically in the two histograms below, where Figure 3 provides aggregated information on the attendance across the different levels of the organisation, and Figure 4 presents the information broken down between experimental and control groups.

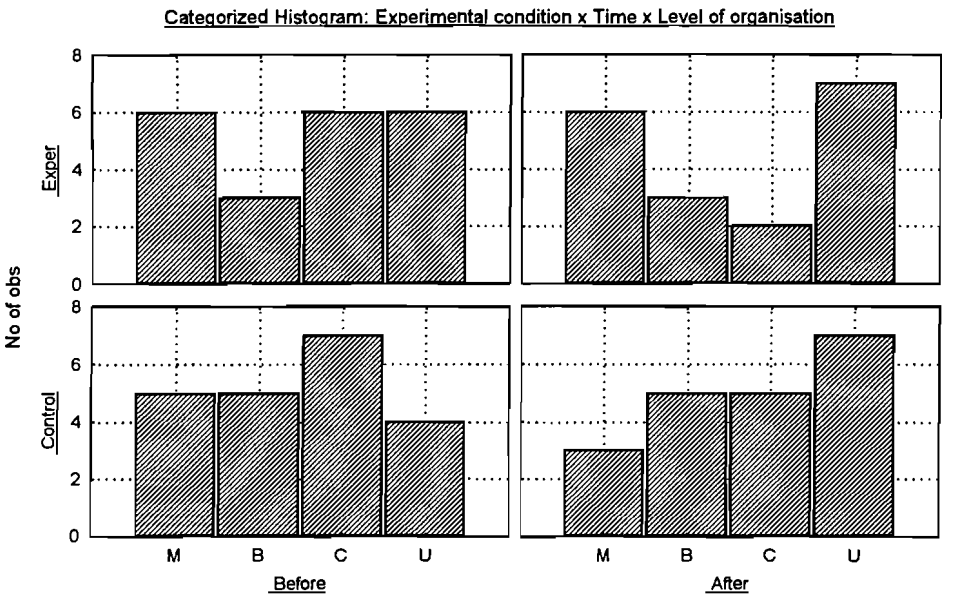
Figure 3: Attendance numbers, divided by organisational level, and time period



From Figure 3, it is evident that attendance numbers for all levels altered somewhat between the two time periods, with only the participant numbers from the B level remaining constant. While sixteen people were selected from each level to participate in the research, at no stage was any level fully represented by all the selected participants. The group with the largest number of participants present was from the U level, in the second stage. In contrast, in the second stage attendance numbers from both the M and C levels diminished, while the number of participants from the U level increased. There may be speculation as to why this increase in numbers occurred for the U level. For the researcher, the question arose as to whether this may have been a result of the U level participants' position in the organisational hierarchy, and a possible lack of freedom – as compared with the other levels where attendance may

have been more tempered with a greater degree of choice. The further breakdown of attendance between experimental and control groups, across the organisational levels, is presented below.

Figure 4: Attendance numbers, divided by organisational level, time period, condition



It can be seen from Figure 4 that it was only certain groups where large changes in attendance levels were evident (particularly the C group in the experimental condition, and to a lesser degree the M and C groups in the control condition). Once again, the increase in attendance at the second stage by participants from the U level may be accounted for by their potentially lower sense of freedom. While there were logistical reasons for people not attending the focus group discussions (for example, responsibilities to the production process, or leave) the low levels of attendance may also be attributed to a limited interest in the changes. Other reasons, such as the fear people frequently expressed in terms of talking about the changes, may also have contributed. Unfortunately the reasons for lack of attendance (stated and not stated) was not a factor that was followed closely.

5.2 Analysis of group processes

Please refer back to section 4.5.2 for the discussion on the nature of analyses carried out. The discussion in Chapter 4 provides the rationale for the various types of tests utilised. During the presentation of results below, the analysis methods referred to in

Figure 3 of section 4.5.2 have been highlighted in the headings. In addition, for ease of reference, the abbreviated terms for factors in the group process scale are presented in the table below:

Table5: Group process scale factors: abbreviations used in tables, and full terms

Abbreviation	Full term
GR-HOM	Group Homogeneity
GR-G-CL	Group Goal Clarity
GR-COH	Group Cohesiveness
OPEN-GP	Open Group Process
INT-FRAG	Internal Fragmentation
PROB-SOL	Problem-solving through support and integration
OPEN-COMM	Open, authentic communication

5.2.1 Independent t-test: control and experimental groups, before intervention (Analysis A)

The allocation to groups (experimental or control) was carried out randomly, within a blocking structure (divided according to the level of the organisation). In order to assess whether no significant difference existed between the experimental and control groups before the intervention, a t-test was carried out, with experimental/control as the independent grouping variable and the group process scale results as the dependent factors. The results are presented in Table 6, where it can be seen that no significant difference exists between the groups. It can therefore be concluded that the random selection of the groups was effective (in terms of the factor of group interaction), with any difference between the groups being due to chance.

Table 6: Independent t-test: experimental and control groups; before intervention

Numbers in bold indicate significance at p < .05000

	Mean	Mean				Valid N	Valid N	S.D.	S.D.	F-ratio	p
	Expml	Cntrl	t-stat	df	p	Expml	cntrl	Expml	Cntrl	Vars	Vars
GR_HOM	5.625	6.050	-1.075	38	.289	20	20	1.468	0.985	2.219	.091
GR_G_CL	5.275	5.868	-1.575	37	.124	20	19	1.362	0.940	2.097	.123
GR_COH	5.762	6.200	-1.270	39	.211	21	20	1.319	0.818	2.604	.042
OPEN_GP	4.869	5.658	-1.911	38	.064	21	19	1.524	1.004	2.303	.081
INT_FRAG	2.675	2.600	0.178	38	.860	20	20	1.173	1.477	1.585	.324
PROB_SOL	2.508	2.367	0.629	39	.533	21	20	0.827	0.584	2.008	.135
OPEN_COM	2.222	2.125	0.464	39	.645	21	20	0.635	0.705	1.230	.649

5.2.2 Independent t-test: control and experimental groups, after intervention (Analysis B)

The second t-test performed assessed for any significant difference between the control and experimental groups following the intervention. The results are as follows:

Table 7: Independent t-test: experimental and control groups; after intervention

Numbers in bold indicate significance at p < .05000

	Mean	Mean				Valid N	Valid N	S.D.	S.D.	F-ratio	p
	Expml	cntrl	t-stat	df	p	expml	cntrl	Expml	Cntrl	vars	Vars
GR_HOM	6.139	6.026	0.385	35	.702	18	19	0.936	0.841	1.239	.655
GR_G_CL	**5.889**	**5.000**	**2.389**	**35**	**.022**	**18**	**19**	**0.608**	**1.462**	**5.792**	**.001**
GR_COH	6.056	5.553	1.268	35	.213	18	19	0.856	1.461	2.918	.032
OPEN_GP	5.406	4.882	1.310	31	.200	16	17	1.024	1.253	1.498	.440
INT_FRAG	2.736	2.987	-0.483	35	.632	18	19	1.387	1.741	1.577	.354
PROB_SOL	**2.000**	**2.528**	**-2.729**	**33**	**.010**	**17**	**18**	**0.632**	**0.509**	**1.542**	**.385**
OPEN_COM	2.444	2.509	-0.251	34	.803	18	18	0.836	0.706	1.404	.492

As can be seen above, a statistically significant difference does exist for the factors of group goal clarity and problem solving, between the experimental and control groups

following the intervention. For 'group goal clarity', p = 0.022 (< 0.05) and for the factor of 'problem solving', p = 0.01 (< 0.05). While a statistically significant difference is indicated here, on elements within both Part A and Part B of the group process scale, caution needs to be exercised in how this is interpreted. The key reason for this caution is the small sample size, which limits the ability of the researcher to conclude that the significant degree of variation is due to something more than chance. The question is whether the significance is consequential (and of real importance within the context), or statistical only (discernible within the data alone). However, the significant difference that exists needs to be considered when examining the benefits of relationship mapping.

The differences represented here could be seen in two ways. They are either due to other extraneous factors, or the participants of the experimental groups may in fact have been influenced by the relationship mapping procedure in terms of these factors. These possibilities are tested in (C) and (D), while the differences in terms of group processes between the various experimental groups is tested in (F), and used in assessing the outcome of the relationship mapping procedure.

5.2.3 Independent t-test: control groups, before and after intervention (Analysis C)

Table 8: Independent t-test: control groups, before and after intervention

Numbers in bold indicate significance at p < .05000

	Mean before	Mean after	t-stat	df	p	Valid N before	Valid N after	S.D. Before	S.D. After	F-ratio vars	p vars
GR_HOM	6.050	6.026	0.081	37	.936	20	19	0.985	0.841	1.372	.506
GR_G_CL	**5.868**	**5.000**	**2.177**	**36**	**.036**	**19**	**19**	**0.940**	**1.462**	**2.418**	**.069**
GR_COH	6.200	5.553	1.719	37	.094	20	19	0.818	1.461	3.196	.016
OPEN_GP	**5.658**	**4.882**	**2.059**	**34**	**.047**	**19**	**17**	**1.004**	**1.253**	**1.558**	**.363**
INT_FRAG	2.600	2.987	-0.750	37	.458	20	19	1.477	1.741	1.390	.482
PROB_SOL	2.367	2.528	-0.902	36	.373	20	18	0.584	0.509	1.316	.573
OPEN_COM	2.125	2.509	-1.677	36	.102	20	18	0.705	0.706	1.003	.988

The above table indicates that a significant difference exists in the ratings the control groups gave to the factors of 'group goal clarity' ($p = .036$; $p<0.05$) and 'open group processes' ($p = .047$; $p<0.05$) before and after the intervention. It is important to note that the degree of statistical significance (.036 and .047 respectively) is not very high. The direction of the change in response indicates that the participants viewed group processes as less open in the 'after' time period, and held less certainty in terms of goal clarity. The possible reasons for these outcomes are discussed in Chapter 7. No significant difference in the before and after ratings of the factor 'problem solving' was found – as compared with the experimental group (please see section 5.2.4). Again it needs to be stressed that caution must be exercised in the interpretation of the results due to issues such as the low numbers of participants, and the fact that some of the participants involved in the 'before' and 'after' sessions may not have been at both sessions.

5.2.4 Independent t-test: experimental groups, before and after intervention (Analysis D)

Table 9: Independent t-test: experimental groups, before and after intervention

Numbers in bold indicate significance at $p < .05000$

	Mean	Mean				Valid N	Valid N	S.D.	S.D.	F-ratio	p
	Before	After	t-stat	df	P	before	after	Before	after	Vars	vars
GR_HOM	5.625	6.139	-1.270	36	.212	20	18	1.468	0.936	2.458	.068
GR_G_CL	5.275	5.889	-1.760	36	.087	20	18	1.362	0.608	5.022	.002
GR_COH	5.762	6.056	-0.809	37	.424	21	18	1.319	0.856	2.378	.076
OPEN_GP	4.869	5.406	-1.214	35	.233	21	16	1.524	1.024	2.214	.121
INT_FRAG	2.675	2.736	-0.147	36	.884	20	18	1.173	1.387	1.398	.479
PROB_SOL	**2.508**	**2.000**	**2.084**	**36**	**.044**	**21**	**17**	**0.827**	**0.632**	**1.715**	**.277**
OPEN_COM	2.222	2.444	-0.942	37	.352	21	18	0.635	0.836	1.732	.240

The above table indicates that there is a statistically significant difference between the responses of the experimental groups before and after the intervention on the factor 'problem solving' ($p = .044$; $p < .05$). The fact that the area of significance is in the factor of 'problem solving' is of interest, as it is one of the aspects that the literature

claims relationship mapping, and more broadly, mental models, may impact on. The direction in which the participants' responses changed on the factor of 'problem solving' was towards the 'support' and 'integration' side of the scale. It needs to be stated again that the results of Part B of the group processes scale must be used cautiously as it is not entirely clear how the change in the rating scale would have impacted on participants' ratings. The extent of the significance is not very high ($p = .044$), but is interesting as it raises the question of whether the relationship mapping technique may have caused, or been associated with a change in the group processes. The previous analysis of the changes in the before and after responses of the control groups serves as a check on this factor, assessing for the impact of any external influences. As stated previously, the control groups showed no statistically significant difference between the before and after stages for the factor of 'problem solving'.

5.2.5 Analysis of variance: between control groups, post intervention (Analysis E)

The following analysis is an assessment of significant differences between the responses of the various control groups in the 'after' time period, in terms of the group process factors (as measured by the group process scale). The key purpose of this comparison is, once again, to serve as a control for any possible changes or statistically significant differences observed between the experimental groups. The summary table of means across the various organisational levels (Table 10), and the analysis of variance (Table 11) is presented below. This is followed by a discussion of the findings.

Table 10:

Summary Table of Means: Group process factors, across organisational levels

Smallest N for any variable: 17

	GR_ HOM	GR_ G_CL	GR_ COH	OPEN_ GP	INT_ FRAG	PROB_ SOL	OPEN_ COM
M	5.000	6.000	6.833	6.250	1.000	1.944	1.667
B	6.400	5.000	5.000	5.250	2.500	2.767	2.433
C	6.100	4.900	5.000	4.500	3.200	2.700	2.733
U	6.167	4.583	5.833	3.875	4.208	2.467	2.867
All Grps	6.026	5.000	5.553	4.882	2.987	2.528	2.509

Table 11:

Analysis of Variance: Group process factors, across organisational levels

Numbers in bold indicate significance at p < .05000

	SS Effect	Df Effect	MS Effect	SS Error	df Error	MS Error	F	p
GR_ HOM	4.004	3	1.335	8.733	15	0.582	2.292	.120
GR_ G_CL	4.092	3	1.364	34.408	15	2.294	0.595	.628
GR_ COH	8.447	3	2.816	30.000	15	2.000	1.408	.279
OPEN_ GP	11.077	3	3.692	14.063	13	1.082	3.413	.050
INT_ FRAG	**22.207**	**3**	**7.402**	**32.352**	**15**	**2.157**	**3.432**	**.044**
PROB_ SOL	1.473	3	0.491	2.930	14	0.209	2.347	.117
OPEN_ COM	3.048	3	1.016	5.422	14	0.387	2.624	.091

From Table 11, it can be seen that the factor of 'internal fragmentation' was found to be significantly different across the levels, although the degree of significance is minimal (p = .044; p<.05). For further post-hoc analysis between the levels of the organisation, Tukeys HSD (Honest Significance Difference) for unequal sample sizes was used but indicated no significance. In order to assess where the previous signal of significance might have arisen from, the less conservative LSD test was utilised, and statistical significance was indicated between the M and U levels (represented in Table 12 below).

Table 12:

LSD test: Source of statistical significance (factor INT-FRAG)

Numbers in bold indicate significance at p < .05000

	{1} M=1.0000	{2} M=2.5000	{3} M=3.2000	{4} M=4.2083
M {1}		.182	.058	**.007**
B {2}	.182		.463	.074
C {3}	.058	.463		.275
U {4}	**.007**	.074	.275	

5.2.6 Analysis of variance: between experimental groups, post intervention (Analysis F)

The following table (Table 13) presents the means for each factor of group processes, across the various levels of the organisation (for the experimental condition). To

assess for any significant differences between the various levels of the organisation in the experimental condition, a further analysis of variance was also carried out (represented in Table 14).

Table 13:

Summary Table of Means: Group process factors, across organisational levels

Smallest N for any variable: 16

	GR_ HOM	GR_ G_CL	GR_ COH	OPEN_ GP	INT_ FRAG	PROB_ SOL	OPEN_ COM
M	6.167	5.833	5.583	5.400	2.208	2.056	1.917
B	6.667	6.000	5.500	5.167	3.250	2.278	2.389
C	6.000	6.250	6.750	5.750	1.250	1.750	1.833
U	5.929	5.786	6.500	5.417	3.393	1.889	3.095
All Grps	6.139	5.889	6.056	5.406	2.736	2.000	2.444

Table 14:

Analysis of Variance: Group process factors, across organisational levels

Numbers in bold indicate significance at $p < .05000$

	SS	Df	MS	SS	Df	MS		
	Effect	Effect	Effect	Error	Error	Error	F	p
GR_HOM	1.188	3	0.396	13.714	14	0.980	0.404	.752
GR_G_CL	0.391	3	0.130	5.887	14	0.420	0.310	.818
GR_COH	4.611	3	1.537	7.833	14	0.560	2.747	.082
OPEN_GP	0.409	3	0.136	15.325	12	1.277	0.107	.954
INT_FRAG	9.900	3	3.300	22.784	14	1.627	2.028	.156
PROB_SOL	0.449	3	0.150	5.940	13	0.457	0.328	.805
OPEN_COM	**5.392**	**3**	**1.797**	**6.497**	**14**	**0.464**	**3.873**	**.033**

The only factor represented as significant in the above table is that of 'open communication', with a p-value of .033 ($p<.05$). Tukey's HSD for unequal sample sizes was used as the tool for post-hoc comparison of means on the variable 'open communication', to assess between which levels of the organisation a significant difference in response lay. The results are presented below, in Table 15.

Table 15:

Tukey's HSD for unequal sample sizes: source of significance (factor OPEN-COMM)

Numbers in bold indicate significance at $p < .05000$

		{1}	{2}	{3}	{4}
		M=1.9167	**M=2.3889**	**M=1.8333**	**M=3.0952**
M	**{1}**		.830	.999	**.042**
B	**{2}**	.830		.846	.596
C	**{3}**	.999	.846		.291
U	**{4}**	**.042**	.596	.291	

The area in which a significant difference exists is between groups U and M ($p = .042$; $p<.05$). There are no other statistically significant differences represented at the 0.05 level.

5.3 Analysis of post relationship mapping questionnaires

The post relationship mapping questionnaire consisted of 24 items (rated along a 7-point Likert-type scale; please see Appendix F) dealing with the effectiveness of the relationship mapping technique and the transformation. This questionnaire was only used with the experimental groups following the relationship mapping, with all results discussed below therefore relating to these groups specifically. Table 16 presents a legend of all the Focus Group Rating (FGR) items, explaining abbreviations that are used for these rating items. For the analysis of the participants' responses to this questionnaire, an analysis of variance was used. Table 17 presents the results of this analysis.

Table 16: Focus Group Rating items: abbreviations used, and full terms

Abbreviation	Full term
FGR1	Relationship mapping has helped me to discuss the change process through simplification of ideas
FGR2	Relationship mapping has helped me to discuss the change process through helping to organise my understanding of where the different elements/people are
FGR3	Relationship mapping has helped me to discuss the change process through providing a common 'language'
FGR4	Relationship mapping assisted in making the different views of the change process clearer within the group
FGR5	Relationship mapping assisted in making the different views of the change process clearer between groups
FGR6	Everybody in the group participated in the mapping
FGR7	I felt my views were taken seriously in terms of being included in the map
FGR8	I felt my views were taken seriously in terms of being acknowledged, but not more
FGR9	There was strong group cohesiveness during/after relationship mapping, in terms of communication
FGR10	There was strong group cohesiveness during/after relationship mapping, in terms of views of the change process/mental maps
FGR11	There was strong group cohesiveness during/after relationship mapping, in terms of team work
FGR12	There was strong group cohesiveness during/after relationship mapping, in terms of a joint sense of security about understanding the future/our positions
FGR13	Relationship mapping has improved my understanding of my role in the change process through improved understanding of the environment
FGR14	Relationship mapping has improved my understanding of my role in the change process through improved understanding of my past/ future role
FGR15	Relationship mapping has given me a sense of security in being able to predict which way the change process will move
FGR16	The technique is useful in that it simplifies
FGR17	The technique is useful in that it is individualistic
FGR18	The technique is useful in that it provides a common language
FGR19	The technique is useful in that it helps to predict/explain behaviour
FGR20	The technique is useful in that it improves my understanding of myself
FGR21	The technique is useful in that it improves my understanding of the change process
FGR22	I have seen a change in the company in the last year in management
FGR23	I have seen a change in the company in the last year in relationships
FGR24	I have seen a change in the company in the last year in the way we work together

Table 17:

Analysis of Variance: Differences across organisational levels (FGR22 & FGR23)

Numbers in bold indicate significance at p < .05000

	SS Effect	Df Effect	MS Effect	SS Error	Df Error	MS Error	F	P
FGR22	**29.683**	**3**	**9.894**	**25.429**	**14**	**1.816**	**5.447**	**.011**
FGR23	**27.738**	**3**	**9.246**	**20.762**	**14**	**1.483**	**6.235**	**.007**

The only items which have been included here are those where significance was indicated – Focus Group Rating item 22 ("I have seen a change in the company in the last year in management") and Focus Group Rating item 23 ("I have seen a change in the last year in relationships"). The p-values indicated are .011 and .007 respectively ($p < .05$).

To further assess between which groups a significant difference exists, a post-hoc comparison of means was carried out, using Tukeys HSD for unequal samples. The results are presented in Table 18 and Table 19 below, where it can be seen that statistically significant differences in responses to both Focus Group Rating item 22 and Focus Group Rating item 23 occurred between the M and U levels. The results presented here, and the extent to which they can be generalised to a broader population, must be viewed cautiously, for reasons such as the small sample sizes.

Table 18:

Tukey's HSD for unequal sample sizes: source of significant difference (FGR22)

Numbers in bold indicate significance at p < .05000

		{1}	{2}	{3}	{4}
		M=4.8333	**M=5.3333**	**M=3.5000**	**M=2.2857**
M	{1}		.968	.758	**.025**
B	{2}	.968		.543	.064
C	{3}	.758	.543		.805
U	{4}	**.025**	.064	.805	

Table 19: Tukey's HSD for unequal sample sizes: source of significant difference (FGR23)

Numbers in bold indicate significance at $p < .05000$

		{1}	{2}	{3}	{4}
		M=4.6667	**M=5.0000**	**M=5.0000**	**M=2.2857**
M	{1}		0.987	0.993	**.021**
B	{2}	.987		1.000	.069
C	{3}	.993	1.000		.163
U	{4}	**.021**	0.069	0.163	

The final analysis of the participants' responses to the post relationship mapping questionnaire includes the comparison of means across the different levels of the organisation, for each of the 24 items. This information is included in the table below, and is discussed below, and in greater depth in Chapter 7.

Table 20:

Summary Table of Means: Post relationship mapping questionnaire items, across organisational levels

Smallest N for any variable: 16

	FGR1	FGR2	FGR3	FGR4	FGR5	FGR6	FGR7	FGR8
M	5.667	5.833	5.667	5.333	5.167	6.333	5.667	4.333
B	5.000	4.667	5.667	5.667	5.333	6.333	6.333	4.333
C	6.000	6.000	6.000	6.000	6.000	6.000	6.000	4.000
U	6.000	5.286	4.857	6.286	6.400	4.857	4.714	2.571
All Grps	5.722	5.444	5.389	5.833	5.688	5.722	5.444	3.611

Summary Table of Means contd.

	FGR9	FGR10	FGR11	FGR12	FGR13	FGR14	FGR15	FGR16
M	5.167	5.500	5.833	5.667	5.333	4.500	4.500	5.167
B	6.000	5.333	6.333	5.667	6.333	6.333	5.333	5.667
C	6.000	6.000	6.500	6.500	6.000	6.000	6.000	6.000
U	5.143	5.429	5.167	3.857	4.857	4.286	4.857	5.857
All Grps	5.389	5.500	5.765	5.056	5.389	4.889	4.944	5.611

Summary Table of Means contd.

	FGR17	FGR18	FGR19	FGR20	FGR21	FGR22	FGR23	FGR24
M	2.833	5.667	5.167	4.500	4.500	4.833	4.667	4.500
B	3.667	5.667	5.667	6.333	5.667	5.333	5.000	5.000
C	6.000	6.500	6.500	6.000	6.000	3.500	5.000	5.500
U	5.000	6.286	6.143	5.714	5.571	2.286	2.286	4.000
All Grps	4.167	6.000	5.778	5.444	5.278	3.778	3.833	4.500

The results discussed below focus mostly on the averages across organisational levels for the elements in the participant rating scale, with a more detailed focus on the group aggregates per level where these are of interest. Where results are given, they apply directly to the scale used in the research, where a rating of:

1 indicates strong disagreement,

2 indicates disagreement,

3 signifies slight disagreement,

4 indicates a feeling of neutrality,

5 signifies slight agreement,

6 is indicative of agreement and

7 signifies strong agreement.

From the above table, the following links within the frames of analysis have therefore been determined:

5.3.1 Empowerment

For all the items seen as linked with the frame of analysis of 'empowerment' (Focus Group Rating items 13, 14, 15, 19, and 20), the aggregated ratings across the organisational levels were between 4.9 and 5.8. In contrast, for the aggregated ratings for each of the groups from the different organisational levels, the range moved from 4.3 to 6.5. There were therefore none that viewed the relationship mapping procedure as negatively impacting on their sense of empowerment.

For items 13 ("improved my understanding of my role in the change process through improved understanding of the environment"), and 14 ("improved my understanding of my role in the change process through improved understanding of my past role/future role"), group averages were 5.4 and 4.9. Of interest, the aggregated results from both B and C level were 6 and above for these two factors, while for the M and U levels the aggregated ratings were less. For item 15 ("has given me a sense of security in being able to predict which way the change process will move"), the group average was 4.9. In considering the further breakdown, it is interesting to note that for item 19 ("The technique is useful in that it helps to predict/explain behaviour"), all groups had an aggregate of above 5. The highest and second highest ratings came from the C and U levels (with aggregates of 6.5 and 6.1 respectively). Item 20

("improves my understanding of myself") may also have been seen as a statement of empowerment or control. For this, the group average was 5.4, with B and C level groups rating highest with 6.3 and 6 respectively.

5.3.2 Communication

The items seen as fitting within the frame of analysis of 'communication' included Focus Group Rating items 1, 2, 3, 4, 5, 16, 17, and 18). For all of these elements (barring factor 17: "The technique is useful in that it is individualistic"), the aggregated ratings across organisational levels were between 5.4 and 6. The averages across the various groups for the items 1 ("helped me to discuss the change process through simplification of ideas"), and 2 ("helped me to discuss the change process through helping to organise my understanding of where different elements/people are") were 5.7 and 5.4 respectively. For items 3 ("helped me to discuss...through providing a 'common language'"), 4 ("assisted in making different views of the change process clearer within the group"), and 5 ("assisted in making different views of the change process clearer between groups"), the averages across organisational level were 5.4, 5.8, and 5.7. For items 16 ("The technique is useful in that it simplifies") and 18 ("provides a common language"), aggregated ratings across organisational levels were 5.6 and 6 respectively.

It is interesting to note that at a finer level of detail, very few of the aggregated responses from each group (rather than averaged across organisational levels) fell below 5. For many of the items, responses of groups were clearly in the 'Agree' category. In addition, for many of these elements it was the C and U groups that rated higher agreement with the statements, as compared with the B and M level groups (in particular, for items 1, 4, 5, 16, and 18). Item 17 ("The technique is useful in that it is individualistic") was the only one where the aggregated results across organisational levels fell below 5 (it fell at 4.2). Broken down further, this response emerged mostly from the B and M levels, with group averages of 2.8 and 3.7. The difficulty in interpreting this response emerges from a flaw in the scale – as these groups may have been focusing their disagreement on one of two statements caught in this factor: "The technique is useful" or "it is individualistic". While this is a flaw in the scale,

comments from the qualitative results may serve as a form of triangulation on this matter, and provide differently stated views.

5.3.3 Understanding the change

The Focus Group Rating items seen as relevant to this frame of analysis, 'understanding the change', included items 21, 22, 23, and 24. As identified in Table 17, statistically significant differences for items 22 and 23 emerged between the responses of the M and U level groups. The U level indicated the greatest disagreement with the statements "I have seen a change in the company in the last year in management" and "I have seen a change in the company in the last year in relationships". For the items 21 ("improves my understanding of the change process") and 24 ("I have seen a change in the company in the last year in the way we work together"), aggregated ratings across organisational levels were 5.3 and 4.5 respectively. The responses to these factors between groups from the different organisational levels were fairly similar. It is of interest to note that for item 21, which dealt specifically with one of the possible impacts of relationship mapping, the C, B, and U levels' aggregated ratings were 6, 5.7, and 5.6. It was only the M level's rating that fell below a 5 (with a rating of 4.5).

5.3.4 Group processes

Items seen as related to the element of 'group processes' or interaction were Focus Group Rating items 6, 7, 8, 9, 10, 11, and 12. Barring factor 8 (the reversed item of "I felt my views were taken seriously in terms of being acknowledged, but not more"), the aggregated results across organisational levels for all items ranged from 5.4 to 5.8. For groups from the M, C, and B levels, the aggregated rating from each group on item 6 indicated agreement with the statement "Everybody in the group participated in the mapping". The U group's response was less strong, with an aggregated rating of 4.9. For items 7 ("I felt my views were taken seriously in terms of being included in the map"), and 8 ("I felt my views were taken seriously in terms of being acknowledged, but no more"), ratings were 5.4 and 3.6 respectively. Of interest, while the M, B, and C levels indicated a more neutral aggregated response to item 8, it was the U level that disagreed with this statement, with a rating of 2.6. For items 9 ("strong group cohesiveness...in terms of communication") and 10 ("strong group

cohesiveness...in terms of views of the change process/mental maps") aggregated responses were 5.4 and 5.5 respectively. For items 11 ("strong group cohesiveness...in terms of team work"), and 12 ("strong group cohesiveness...in terms of a joint sense of security about understanding future/our positions") aggregated responses were 5.8 and 5.1. While more meaning can be drawn from the individual group aggregates (rather than across the organisational levels), the overall implication is of relatively sound group processes. It is of interest to note the lower group aggregate for the U level on factor 12 – which may possibly have been due to the greater level of anxiety experienced by this group in terms of job security. In contrast to analysis carried out on the group process scale (please see section 5.1.2), where a significant difference was found on the factor of 'open communication' (between the M and U levels), no statistically significant differences were found in terms of the group process related ratings here.

The results presented above relate specifically to the quantitative measurements included in the study. To gain an understanding of the experiences of participants from a different angle, this thesis moves on to the presentation of the qualitative results (Chapter 6). A summary and integration of all results (qualitative and quantitative), as well as a discussion in terms of their relation to relevant literature, then follows in Chapter 7.

Chapter Six

RESULTS: QUALITATIVE DATA

The results of the qualitative data analysis are presented below. The research focused on the perceptions of participants, both in terms of the perceived impact of relationship mapping and differences in views emerging from the focus group discussions versus the relationship mapping. Therefore, the information gathered was of a highly personal nature. The difficulties involved in capturing and quantifying differences and similarities in human perceptions need to be borne in mind when viewing the results of the analysis. For a detailed discussion of the methods of data analysis selected to deal with this area, please refer to section 4.5.1 in Chapter 4. Instead of a purely objective quantitative analysis, overriding impressions have been documented within the frames of analysis, that is the key themes of 'empowerment', 'communication', and 'understanding of the change'. With the nature of qualitative research, and the sheer volume of information obtained, it was deemed necessary to sum up the views fitting into each frame of analysis (as has been done through the use of tables) and then flesh them out through the use of quotes during the analysis. In addition to the analysis of information within these tables, views expressed directly by participants about the effect of the relationship mapping technique (presented in Table 26) have also been assessed. For ease of reference, the tables have been placed in the text, following the section they relate to.

6.1 Theme One: Empowerment

The first theme explored was that of empowerment – within the change process and as a result of the change process. The theme of 'empowerment' was investigated with two purposes in mind. First, to consider the different factors contributing to either a negative or positive impression of empowerment, and second, to consider any possible shifts in the focus around this area, following the relationship mapping. The term 'empower' in the Oxford dictionary is defined as "authorize, license...give power to; make able" (Allen, 1990, p. 384). In the context of the research, 'empowerment' was therefore looked at from the perspective of the extent to which people felt control over the changes taking place, and the degree to which the changes had given them a renewed sense of being in control. The feeling of empowerment an

individual may have frequently cannot be described through rational or logical means, being instead more of a personal and subjective experience. Emerging strongly from the analysis of the data was the fact that the meaning of 'empowerment', and the form of control or power it implies, differs according to the user. The responses of participants are presented in Table 21 – broken down into the factors that were seen as increasing or decreasing the feeling of empowerment. From the views presented, a further six sub-areas were identified through the process of thematic analysis (as described in Chapter 4, section 4.5.1) – seen as distinct sub-themes within which data could be grouped. These included:

- 'Acknowledgement/Involvement'
- 'Resources/Enablers of change'
- 'Uncertainty/Certainty'
- 'Forced change'
- 'Structure/Nature of relationships'
- 'Mindsets'

The presence or absence, and the nature of these factors, resulted in differing levels of perceived empowerment. An awareness of the roles played by participants in the change process was felt to be important due to its potential impact on factors such as the level of understanding of change, and empowerment. In particular, the role played during the change process (summarised in Table 22) has a direct link with the identified sub-theme of 'acknowledgement/involvement', and is therefore discussed within this sub-theme. Participants elaborated to different degrees (at the different time periods) on their roles in the change process. Despite limited commentary on this at some points, clear patterns emerged.

6.1.1 Acknowledgement/Involvement

The sub-theme of 'acknowledgement/involvement' related specifically to information around the impact of the presence or lack of acknowledgement and inclusion in the change process. As stated, this was identified through thematic analysis as closely linked with the role played in the change process.

6.1.1.1 *Acknowledgement/Involvement: M level results*

There was no fundamental difference in responses of the control and experimental groups from the M level at both stages in terms of this factor. Comments indicated improved empowerment through involvement and acknowledgement for these groups, although references were made to limited involvement of other lower levels. In the second phase, there was also no clear shift within each group from the responses in the initial stage. From Table 22, it can be seen that participants from the M level viewed their roles within the change process in an active light – focusing on shaping the changes (e.g. system development), and spreading the message of change to others.

6.1.1.2 *Acknowledgement/Involvement: C level results*

For the groups from the C level, the issue of limited involvement only emerged from the experimental group at the first stage (involvement was a reality to a slightly lesser degree than for those from the M level). There was no difference between the two groups on this factor in the second stage, with neither identifying it as an issue. When looking at Table 22, responses from the experimental group in the first stage reflect that many were actively involved in the change (for example, attending change workshops and exercises). The control group's responses reflect less involvement, and more confusion around the change (possibly as a result of more limited involvement). This would suggest that although the two groups were formed through random assignment, there were in fact differences between them at the initial stage in terms of the level of involvement in the changes. As a result, any subsequent difference is not necessarily due to the experimental group's involvement with relationship mapping.

6.1.1.3 *Acknowledgement/Involvement: B level results*

There was no major difference between the responses of the two groups from the B level at the initial stage in terms of acknowledgement/involvement. Both cited limited input, unsubstantial action on participants' suggestions where input had been made, and a perception of not being valued by the company. In the second phase, the control group reported the same issues around this factor, apart from the sense of involvement in the review meetings. The experimental group instead focused to a

greater degree on the way in which people felt they were not acknowledged (e.g. being replaced by technology), and why they had not been involved:

> The keys were to enable the directors to take the World Class Company concept to the managers...the white staff...the black and coloured people...However, the directors kept the keys, and brought the World Class Company closer to themselves. *(B, experimental group, Time 2)*

From Table 22, it can also be seen that both groups from the B level viewed their involvement in the change as minor. Comments reflected a limited sense of control, with participants on the receiving end of the changes rather than being actively involved in introducing changes. The following indicates the difficulties experienced in playing this passive role, and the link with recognition:

> It is very difficult to talk about the role you played. When you have many years and much experience, but are still paid a low salary (and less than what whites receive) you don't want to play a big role. *(B, experimental group, Time 1)*

> I hope to get standards up to the highest, yet there is no acknowledgement of work, and increases are limited. *(B, control group, Time 2)*

6.1.1.4 *Acknowledgement/Involvement: U level results*

At the U level, not being acknowledged or involved in the changes was a key factor in their sense of not being empowered. The main difference between the two groups at the first session included more focus by the control group on the issue of lack of advancement. Both made comments here reflecting a far more fundamental sense of being unvalued, of not being listened to, not being asked an opinion, receiving no advancements or promotions despite lengthy service and having a strong fear around job security:

> To be frank, I started in 1970, when the company was small. It is now a big company, but I am still in the lowest grade. Even the kids I bore find me in the same grade. It is hopeless. We worked ourselves out, but they don't consider our contribution. We are not important. *(U, control group, Time 1)*

In the second session, the control group focused on similar issues – although with more of a sense of hopelessness:

> We just work, we don't talk...I will carry crates till I die. We must just do it: they don't want your input. *(U, control group, Time 2)*

> The end goal is to replace people with machines. *(U, control group, Time 2)*

There was a shift in the experimental group's response, dealing with involvement from the perspective of relationships (with comments around the great distance between workers and senior management, and the need for all to move closer). From Table 22, it can once again be seen that participants from the U level indicated that

their role in the change process had been more passive – playing a part through accepting and adapting to the changes, rather than direct involvement. There was generally limited involvement (although some were involved in activities such as suggestion schemes). In addition, the ways in which the U level viewed themselves as being involved reflected a basic lack of understanding of the changes – with comments focusing on factors such as wage negotiations rather than the notion of a World Class Company (WCC).

6.1.2 Resources/Enablers of change

The sub-theme of 'resources/enablers of change' relates to an array of resource types identified by participants, such as time, technology, staff, and stocks. Once again, the presence or absence of these factors was seen as impacting on the sense of empowerment.

6.1.2.1 *Resources/Enablers of change: M level results*

When considering this sub-theme, analysis of the results indicated that for the M level, there were no major differences at the initial sessions between the two groups (experimental and control). Both focused on limited resources (e.g. technology, stocks, a skilled workforce, and sufficient time) as a key factor decreasing empowerment. In the second phase, the control group once again addressed similar concerns around resources. The experimental group, however, focused both on technology and resources, not only in terms of the lack thereof, but also in terms of the way in which technology was distributed within the company. They identified the need for a more equal distribution across the whole, thereby providing an idea of the 'bigger picture'.

6.1.2.2 *Resources/Enablers of change: C level results*

The two groups from the C level dealt with similar issues in the initial phase in terms of resources (e.g. dysfunctional systems, lack of stock) – with the control group noting a few additional, detracting factors such as undedicated staff. In the second phase, there was no distinct difference between the two. In comparison to the first time period, both groups expressed greater frustration around a lack of control due to limited time.

6.1.2.3 *Resources/Enablers of change: B level results*

At the B level, there was greater emphasis placed by the control group on the decrease in empowerment due to resources (specifically, new technology and the resultant increase in administrative activities) – while the experimental group did not address this issue. In the second period, no major change was evident in the control group's response. The experimental group (through their relationship map) focused on their perception of the threat of technology, and then discussed this within the framework of all factors operating together in the organisation:

> technology...is being emphasised at the expense of people. The can of Doom is being used to represent people who are dying: being put out by technology. *(B, experimental group, Time 2)*
>
> *What would help:* The technology...and the people are working hand in hand towards the transformation. *(B, experimental group, Time 2)*

6.1.2.4 *Resources/Enablers of change: U level results*

For the U level, no clear difference existed between the two groups at the first stage – this was not an important issue for participants from this level. Where technology was raised as a factor decreasing empowerment, it was more from the perspective of poor job security. At the second stage, while there was no change in the response of the control group, the experimental group, following the relationship mapping, commented on the need for resources to affect change.

6.1.3 Uncertainty/Certainty

The key factors emerging as contributors to the participants' sense of certainty or uncertainty with regards to the changes were communication, understanding the organisational vision of change and receiving feedback. The close link perceived, therefore, between factors such as communication and empowerment, highlights the danger of looking at certain elements in any change process in isolation.

6.1.3.1 *Uncertainty/Certainty: M level results*

At the initial stage, no major difference was evident in the responses of the experimental and control groups from the M level around this factor. Overall, there was a sense of lower uncertainty as compared with other levels. Participants commented on the greater uncertainty they felt was experienced by lower level workers. Some noted improved communication and greater focus regarding what

needed to be achieved, while others requested further information. In the second phase this sub-theme played a greater role in decreasing empowerment – with both groups reporting frustration around communication and increased uncertainty. For the control group, this was mostly in terms of having insufficient knowledge to spread the message of change, while the experimental group related this to a concern around not having a view of the big picture. No major differences existed between the two groups, although there was more awareness within the experimental group (following the relationship mapping) of the importance of a common vision:

> We are now less empowered. Communication has broken down and we know less of the big picture. *(M, experimental group, Time 2)*

6.1.3.2 *Uncertainty/Certainty: C level results*

At the C level, there was no major difference between the two groups at the initial stage, with uncertainty around the change (e.g. rumours, no feedback and retrenchments) decreasing empowerment. The only difference came from the experimental group, with one person reporting a greater ability to ask questions and clarification from management (a factor related more to personal attitude). In the second phase, while the control group reported on similar issues as before, there was a greater sense of job insecurity, and uncertainty around the aim:

> There is no goal: the concept of a WCC is bandied around as a joke. For a WCC, the MD need to act accordingly. (claims things that do not come true, such as no out of stock) *(C, control group, Time 2)*

The experimental group's focus shifted – with the relationship map emphasising two-way communication, and the link between improved communication and unity. Unity was seen as emanating from common clarity on the aims of the changes. In this way the group created a more holistic link between all of the factors.

6.1.3.3 *Uncertainty/Certainty: B level results*

Once again, at the B level there were no striking differences between the two groups' responses around this sub-theme of 'uncertainty/certainty' in the first session. Uncertainty originated from a lack of feedback, and, on a more fundamental level, limited knowledge of the aim of the change. In the second session, both groups shifted to greater focus on the lack of job security and the resultant uncertainty (although the role of some leaders in creating certainty through communication was acknowledged). For the control group, this was the only major difference from the

first session. The experimental group dealt more with the reasons for uncertainty. Among these were the replacement of people by machines, the sense that benefits of the change were not understood, where the knowledge and vision of the change lay, and the lack of two-way communication. Certainty was linked to relationships, and power, for instance, in the form of race differentials and position in the hierarchy.

6.1.3.4 *Uncertainty/Certainty: U level results*

No clear difference existed between the two U level groups in the first session. There was a greater sense of uncertainty and hopelessness than other levels due to the lack of knowledge of the changes as well as job insecurity, while certainty came from being able to talk. In the second session, the control group highlighted similar issues as in the first phase, with a major focus on job insecurity, and the sense that no changes were occurring. In comparison, the experimental group raised the view that communication, feedback, and a direct link with HR and the directors would help the change. The focus here was far more on using communication through relationships to achieve control.

6.1.4 Forced change

This sub-theme related to information around the degree to which the changes were as a result of choice, or forced action implemented from elsewhere.

6.1.4.1 *Forced change: M level results*

At the M level, there was no distinction at the initial stage between the experimental and control groups. Concerns around top-down change emerged in the experimental group following the relationship mapping session.

6.1.4.2 *Forced change: C level results*

No clear differences existed between the responses of the two groups from the C level at both the before and after stages. In the first stage, both focused on the lack of choice in the changes taking place, and that control lay in the hands of senior management. In the second stage, both noted the sense of being able to only focus on work, rather than on the changes.

> We sit with problems all day: we have no time to think about transformation. *(C, control group, Time 2)*

6.1.4.3 *Forced change: B level results*

In comparing the groups from the B level, while both groups raised the issue of a limited sense of control over the changes and the change being driven with a top-down focus, the control group focused on this to a greater degree:

> There are times when people have been moved from a job they are experts in, which they have been doing for years, like an engineer – and are moved to jobs which they have no knowledge of, for example, a foreman. You get people on the same level: some are trained, others not. They have no choice. *(B, control group, Time 1)*

> They talk about how the system is known as FIFO: 'first in first out'. But here it is 'fit in or fuck off'. The people on top make decisions – we have no control. *(B, control group, Time 1)*

In the second phase, the control group dealt with the same issues as in the first phase. The experimental group raised views related to the sub-theme only in terms of the need for the 'keys' to a World Class Company being passed around and shared, rather than being kept by the directors.

6.1.4.4 *Forced change: U level results*

At the U level, the control group did not address this issue (consistent with their view that there were no changes). It was only the experimental group in the first phase that dealt with the issue of forced change, focusing on factors such as needing to do as told by management, and having to adapt to the changes – a far more passive form of control.

> Before, I felt like I played a big role and made a difference. I had technical expertise, and worked with it. Then they changed my job – I have been moved from a technical to an ordinary job (checking liquid in bottles). I don't really feel like I can make a contribution now. *(U, experimental group, Time 1)*

In the second stage, while there was no change in the control group's response, while the experimental group, in contrast to their response in the first stage, did not address this issue.

6.1.5 Structure/Nature of relationships

6.1.5.1 *Structure/Nature of relationships: M level results*

At the M level, there was no major difference between the responses of the experimental and control groups at the initial stage. Both focused on structure and relationship-related factors seen as increasing and decreasing empowerment, such as teamwork and limited changes in decision-making structures, to a limited degree. In

the second phase, while the control group did not concentrate much on this issue, the experimental level placed more attention on the strength of the relationship of various sections with the Board. They thereby provided a fuller picture of the organisational context. The strength of this relationship was seen as impacting on the ability of that section to make changes effectively.

> The green pen symbolises the finance section, which is close to the Board and has a large amount of influence there...The brown pen, representing the HR section, is quite removed from the Board and has less of an influence. *(M, experimental group, Time 2)*
>
> *What would help:* The various departments...are all closely situated to the Board. *(M, experimental group, Time 2)*

6.1.5.2 *Structure/Nature of relationships: C level results*

At the C level, neither group addressed this issue directly at the first stage. At the second stage, there was no major difference in the response of the control group. The experimental group dealt with the issue of relationships as impacting negatively on control. The focus was on the need for unity rather than isolation in work and the perceived inadequacies in the structure when it came to communication channels to senior management.

6.1.5.3 *Structure/Nature of relationships: B level results*

When comparing the responses from the B level at the initial stage, there was more focus on the issue of relationships and structure in the experimental group. Some relationships were viewed as aiding empowerment, others hindering it. The control group's frustration with repeated changes in structure was evident. In the second phase, while there was no clear change in the response of the control group, the experimental group shifted its focus towards the negative impact of a lack of unity, and the view that race and hierarchy influenced the strength of relationships and communication between parties:

> The chain of paper clips between management and white workers represents the communication here, although the chain breaks between white staff, and the people on the floor. *(B, experimental group, Time 2)*

6.1.5.4 *Structure/Nature of relationships: U level results*

At the U level, no major difference was present between the two groups at first – with both viewing the type of relationship with supervisors/management as a factor either contributing or detracting from the sense of control. In the second stage, while there

was no major change in the control group's response around this factor (apart from the general sense of no real factors contributing to a sense of control), there was a shift in the experimental group's response. More emphasis was placed on relationships and structures within the context of racial equality. Colour differentials were particularly seen as impacting on the power and decision-making abilities of different groups, and the closeness of the relationship to the Managing Director and Directors. The structure of senior management was viewed within a framework of limited cultural and gender diversity. In addition, attention was placed on the need for a structure allowing for direct communication and interaction of workers with senior management, rather than through the tenuous link with the one black supervisor.

6.1.6 Mindset

6.1.6.1 *Mindset: M level results*

The sub-theme of 'mindset' related to the way in which people viewed the changes and the experience of work in general (e.g. a positive approach, or feeling unmotivated). This was seen as impacting on the sense of empowerment. Analysis of data relating to this sub-theme revealed that at the M level, there was a slightly different focus between the experimental group and control group around mindsets identified as aiding or limiting the sense of control. The experimental group dealt with factors increasing or decreasing empowerment (e.g. respectively, being able to look externally for technology providers, and resistance from senior people to change), while the control group concentrated on positive factors such as a greater sense of accountability. In the second stage, this focus did not emerge for either group.

6.1.6.2 *Mindset: C level results*

At the C level, both groups focused on this sub-theme of 'mindset' in the first stage, with the control group concentrating on the negative impact of other people's mindsets, and the experimental group identifying positive influences of personal mindsets (e.g. possessing a renewed sense of personal abilities).

At the second stage, while the control group did not address issues related to this sub-theme, the experimental group identified the resistance of many employees to the changes as a factor limiting their ability to control or impact the change:

> The ball of wool hanging by a rope represents 80% of the company: people who are making it difficult for themselves by resisting the changes, and working in isolation as opposed to in a team. *(C, experimental group, Time 2)*

6.1.6.3 *Mindset: B level results*

Only the experimental group from the B level dealt with this sub-theme at the first stage. They did this in terms of the personal/mental benefits of the change programmes, and the need to control the changes through a mindset of acceptance. In the second phase, one individual's initiation of changes and resultant sense of control reflected a minor change in the control group. The experimental group shifted their attention to the general uncertainty of people within the organisation to the changes:

> The light symbolises the light of transformation, with a noose around it. It is being dampened by the stop-start attitude of people in the company...saying 'Shall I change? Shall I not change?' *(B, experimental group, Time 2)*

6.1.6.4 *Mindset: U level results*

It was only the control group from the U level which raised ideas relating to the sub-theme of 'mindset' at the first stage. They focused on dealing with the changes and taking control through boycotting the meetings of the external consultant. In the second period, neither group dealt with this area.

Table 21: Factors impacting on perceived empowerment

Group	INITIAL TIME PERIOD (BEFORE)		SECOND TIME PERIOD (AFTER)	
	Factors decreasing E	**Factors increasing E**	**Factors decreasing E**	**Factors increasing E**
M1 Exp. **RM**	Resistance from those at the top IS problems Loss of positive feelings around change; no longer a "friendly family" Lack of tools/ manpower Out of date technology Lack of specific feedback and information on changes Uncertainty around future Limited increase in authority and decision-making power *Reported for lower levels:* Lack of involvement/ understanding of change	Mindset change: able to look to external environment for new technology Greater focus: aim of company/ what needs to be done In one team: improved communication and discipline	*From relationship map:* Decisions taken at the top Dysfunctional technology Limited supplies(out of stock) Lengthy processes to resolve problems Strength of relationship with those in power (e.g. Board) Knowing less of the big picture Lack of feedback *Reported for other levels:* Lack of information/ view of vision *From discussion following RM:* Less empowered: less communication; know less of the big picture	*From relationship map:* Relationship with Board (e.g. Finance/ Training section) What would help (from RM): View of vision for all Evenly distributed technology Process for problem-resolution: clear Open, shared communication No gaps between all in company (all closely situated to Board)
M2 Cntrl. **No RM**	Too much work (work frantically) Job insecurity Dysfunctional systems No time for strategic thinking Limited tools/ technology Expertise lost: unqualified staff Trying to do too much leads to lack of control Uncertainty leads to job insecurity Reported for lower levels: Lack of information; feel threatened, and expect the company to control their future; Don't see the benefits	Leading by example: feel in control Trust and open communication People get recognised for work Communication channels to steering committee are open: quick reporting When fewer issues to deal with: in control Talk directly to people: don't need to go through all the levels More focus Greater discipline/ accountability Work as a team rather than silos Went on courses in order to motivate/ inform other levels	Insufficient time: frantic Short-term panic: no long-term goals Plans for communication unclear Change has slowed down/ no progress with change Don't have the right message to pass down Tired of saying "we'll get there" Too much administrative work	Know what needs to be done Only the lower levels need to be informed

C1 **Exp.** **RM**	Lack of job opportunities Pain involved in change (retrenchment, restructuring) leads to indecision, rumours No feedback No control over out of stock Top down decisions: no choice Lack of tools/ poor systems Do what we must do Lack of consultation/ involvement	Able to ask managers questions Initiate changes in own area Possess confidence/ the right to ask questions Changes made me aware of my ability to go further Think and plan ahead: attitude change	*From relationship map:* No communication after CA's time: decreased unity Decreased feedback from management Communication doesn't get to the top People resist the changes and work in isolation *From discussion following RM:* Too busy, no time to notice change Only role is to work	*From relationship map:* Communication during CA's time was good Unity: all understood the aim What would help (from RM): All employees working as team Communication Feedback Being able to communicate directly with top management
C2 **Cntrl.** **No RM**	Placed in completely different jobs with no knowledge: no choice Management's attitude to customers makes work difficult Lack of planning – inappropriate change CA had a negative impact: "Why couldn't we change our own company?" Poor computer systems: out of stock Limited understanding of change Too much work No feedback Contract workers: not dedicated; need to be supervised So much change - difficult to keep up		No time Many problems – no time to focus on change Rumours: company is trying to save money by retrenching Work is pushed from one dept to next Uncertainty: lack of information around competitors No end goal to change: WCC is viewed as a joke	

B1 **Exp.** **RM**	Top-down change: no choice Lack of information/ feedback No involvement/ input; no say (even though real role players are those working with the products) Limited activity: no motivation; OD workshops increased motivation Working for extended period, with poor recognition: change is difficult Negative relationships (with managers)	Control change by accepting it Understand own dept through OD exercises Realise: need to consider own training needs Relationships between different sections have improved OD exercise pointed out personal talents/ strengths	*From relationship map:* Uncertainty around whether to change The fact that all can change and enjoy the benefits: hidden Technology used at the expense of people Keys to WCC held by the directors Race differentials in terms of relationships/ communication No unity between everyone *From discussion following RM:* Change is scary: concern for job security Need to be educated to keep up Machines are replacing people	*From relationship map:* Close communication between managers and directors Communication between managers and white staff *What would help (from RM):* People working as a unit Technology and people working hand in hand All with clear view of the vision Complete chain of communication Workers can communicate with directors
B2 **Cntrl.** **No RM**	Placed in completely different jobs with no knowledge: no choice Too few resources (people, technology) No understanding of the what is meant by a WCC (intangible) No action on suggestions Top management have control/ make decisions Adapt or die: no choice No feedback More administrative work Lack of involvement/ input No sense of belonging to company Changes made without consultation	Changes in structure helped (but then changed again)	No change – only promises No acknowledgement of work More work due to the new systems No feedback – "out of the picture" Just told what to do No involvement in change Insecurity in terms of jobs (and therefore no unity) End goal: Extra work: no choice. No team work to help	Initiate changes in own area Chance for input at the review meetings: listened to Some leaders bring information on external competition

U1 **Exp.** **RM**	Not listened to by management – no control Moved from skilled to unskilled job Delays in changes – decision making is lengthy Concern regarding machines replacing workers Can't talk to colleagues (fear re job) Have to adapt to change: no control Limited understanding of change Input to management not acted on Must do as told by management	Accepted change and adapted *The following was all from the same person (black supervisor):* Able to say what I feel is right Office doors to management are open Can speak about how I feel	*From relationship map:* Coloured supervisors: smaller salary/ decision making powers (Can't make decisions alone) Board/ HR: all white No link between supervisors and directors MD no closer in relationship/ structure is the same MD/ directors all high up on table – far away from workers	*From relationship map:* One black supervisor: acts as a link with the other supervisors for workers *What would help (from discussion):* Resources to make changes Management moving closer *What would help (from RM):* Communication/ information , and direct communication with HR/ directors Workers and supervisors working together, with a closer HR link Representation of other races at different managerial levels
U2 **Cntrl.** **No RM**	Grievances and concerns reported to CA: not acted on. No advancement in job grades – still the most disadvantaged No recognition for work What changes? No job security *(basic level of empowerment)* In one department: dismissed without warning, even for first error Excluded from meetings, and gossiped about	Plan to impact on the area of wages Good relationship with supervisor: check for shared understanding Can talk to supervisors, and they listen to us *(basic level of empowerment)* Took control by boycotting CA meetings Change benefited one individual: moved into more satisfying work	Just work: no change Input or involvement in the change is not requested by company No recognition End goal: "replace people with machines"	

Please note: "CA" refers to change agent, "WCC" refers to World Class Company, and "RM" refers to relationship mapping

Table 22: Role played in the change process

Group	INITIAL TIME PERIOD (BEFORE)	SECOND TIME PERIOD (AFTER)
M1 **Exp.** **RM**	Involved in change due to department (marketing/sales) – yet out of stock aggravates work Involved in initial interview and survey Wrote a report on operational factors – received no feedback and lost interest Staff did the changes – not the CA Involved in system development – interesting, but frustrating without all the tools Many changes in purchasing dept: but role is hard due to poor systems	*From discussion following RM:* Invested much time/ effort in change – now there is a new major change in systems Should communicate what has worked We must learn how to do things/ accept
M2 **Cntrl.** **No RM**	Attended many courses: easier to motivate the lower levels with prior exposure; needed to walk the talk Needed to be responsible for people, and convey message of change Difficult: should have been consistency between departments re: message conveyed *For one person:* Gained awareness of those below, and their needs	Try to communicate and spread message of change (need to get all talking the same language) Lead people General managers and few levels below included in change – trained, been exposed Tired of saying "We'll get there" Uncertain of role/ do not have the right message Managers are busy administering, not managing
C1 **Exp.** **RM**	Attended meetings, asked questions Excluded at first, then attended OD exercise – useful as action-oriented Attended CA meetings, training group, and OD exercises, personal leadership courses OD exercises only: no consultation before or after Attended workshop with CA after they had checked the systems. Only feedback to management afterwards Receive no explanations around out of stock – unable to deal with queries	*From discussion following RM:* Role is to work: boss wants the job done – therefore cannot have a perception of the change
C2 **Cntrl.** **No RM**	Much more work, less time Carry on as before (geographically separated department: not changed) Uncertain of what job is: no one can inform what it entails Confused by change: offices and positions constantly change Unable to perform in job effectively: management is unconcerned about the client	No change in role – work gets more No time to think about transformation: sit with many problems

B1 **Exp.** **RM**	Gave input in the beginning stages. Lost interest when CA wanted new, inappropriate systems – they did not understand our work enough Gave input to CA – no other role All in department work as managers with responsibility – greater role in department Difficult to talk about role: long-term employee, but unrecognised Supposed to be included in meeting with foremen, but never informed	
B2 **Cntrl.** **No RM**	Role is the same – no change Sent on a computer course as part of training for the transformation: not provided with a computer Do many jobs due to staff leaving Suggestions made to CA based on knowledge of losses not acted on Can only make suggestions – top management have control Changes made without consultation around tools needed	Motivated and will try to perform – if there is help from systems Had little influence overall – blocked by superiors, who expect work to be done (no matter what) Hope to get standards up to the highest – yet limited recognition, low job security
U1 **Exp.** **RM**	Contributed through accepting changes/ adapting Moved to new department: adapted No role: removed from technical to non-technical job Play a role through suggestion scheme Issues lists drawn up – with concerns (not necessarily resolved)	
U2 **Cntrl.** **No RM**	Not involved "Introduced to CA, ... told them our grievances...they did nothing with our grievances, so we left them" Involved at first: nominated leaders to get information – but felt oppressed, so left. Plan to impact in the area of wages "But...CA started to oppress us. If we misinterpreted CA's rules, we were dismissed. We called management and told them we weren't interested in attending CA's meetings. If we called the union, they couldn't get involved ... we should have known CA's rules. So we decided to quit"	"We just work...they don't want your input"

Please note: "CA" refers to change agent, "WCC" refers to World Class Company, and "RM" refers to relationship mapping

6.2 Theme Two: Communication

As with theme one, theme two was investigated with two purposes in mind. First, to consider the different factors contributing to either a negative or positive impression of communication, and second, to assess any possible shifts in the focus around this area, following the relationship mapping. From closer assessment of the information emerging (please see Table 23), the theme of 'communication' was broken down into a number of sub-themes. These included:

- Type of communication for which participants expressed need
- The impact of the presence or absence of communication
- With whom communication occurs (a factor very strongly linked together with the hierarchical structure of the organisation)
- Ease of communicating about change
- Factors seen as improving or worsening communication

6.2.1 Type of communication needed

During the process of thematic analysis, the different communication needs indicated by participants were identified as fitting within four levels across a continuum – with needs being largely dependent on the level of involvement participants had in the change process. These needs include: being listened to (a basic level of communication), a need for general information, an opportunity to provide input into the changes rather than only receiving information (two-way communication), and a need for feedback to suggestions or requests or following involvement in the changes.

6.2.1.1 *Type of communication needed: M level results*

At the M level, while the control group did not address the type of communication needed, the experimental group focused at both stages on the need for feedback, in terms of specific feedback relating to particular changes, successes, and future plans. The identified type of information could be strongly linked with management's role as the motivators and spreaders of change. In the second time period, there were no differences emerging in the control group's response, while the experimental group placed greater emphasis on decreased communication and feedback:

> Communication has broken down: we know less of the big picture. *(M, experimental group, Time 2)*

6.2.1.2 *Type of communication needed: C level results*

There was no fundamental difference between the responses of the two groups from the C level at the initial stage. They both called for specific feedback, more basic information around the changes, and the opportunity to give input through consultation. At the second stage, while the control group focused on similar issues as before (but in less detail), the experimental group shifted its attention towards communication within the organisational context, expressing a clear need for direct communication with senior management:

> There is still communication going up, but it does not quite reach the top. *(C, experimental group, Time 2)*

> For the change to improve, people must be able to get clear feedback, and communicate with top management. *(C, experimental group, Time 2)*

6.2.1.3 *Type of communication needed: B level results*

At the B level, the type of communication needed was a key focal point for both groups at the first stage – with no major differences evident between the two groups. The emphasis was on the need for feedback, general information around the changes, and two-way communication/involvement in the change. In the second stage, the groups dealt with similar issues as before, with the result that there was no major difference between the two groups (other than the experimental group's more detailed focus in terms of two-way communication):

> The directors...the managers...and all the workers...are linked together in a complete chain of communication. If the workers have a dire situation they can go directly to the directors. *(B, experimental group, Time2)*

6.2.1.4 *Type of communication needed: U level results*

Responses of the two U level groups at the initial stage were very similar, focusing on insufficient involvement and information on the changes, and more fundamentally, not feeling listened to. The experimental group, however, also dealt with the need for two-way communication. Where an absence of feedback was commented on, this was in relation to factors falling within the traditional wage negotiation field. This is perhaps indicative of a greater lack of understanding in terms of the aims of the change. In the second period, the control group's response was somewhat passive, accepting the lack of involvement and information:

> We just work, don't talk...We must just do it: they don't want your input. *(U, control group, Time 2)*

The experimental group looked at communication within the organisational structure, and the need for structural change in the communication process in order to create direct communication.

> *What would help:* When we need to communicate what we need, the message should go directly to both HR, and the directors. *(U, experimental group, Time 2)*
>
> Management needs to move closer, and communicate what will happen. *(U, experimental group, Time 2)*

6.2.2 The impact of a presence/absence of communication

6.2.2.1 *The impact of a presence/absence of communication: M level results*

The experimental and control group from the M level addressed similar issues at the first stage, with the view that limited communication was mostly an experience of the lower levels. This was seen to result in factors such as insecurity, limited understanding of the changes and no knowledge of the 'language' of change. In the second period, while the control group raised similar issues, the experimental group focused more on the impact of the vision not being openly visible to all.

> The keys hanging between the tables is middle management: they do not know what is expected of them...The workers...are driven by means of a whip...they know there is something going on, but are not sure of what. *(M, experimental group, Time 2)*

6.2.2.2 *The impact of a presence/absence of communication: C level results*

At the C level, there was no great difference noted between the responses of the two groups in terms of this sub-theme, at the two time periods. Both addressed the perceived connection between consultation with employees and the efficacy of leadership, and the negative impact of a lack of communication in terms of uncertainty and rumours.

6.2.2.3 *The impact of a presence/absence of communication: B level results*

In the first stage, both groups from the B level addressed the sense of decreased commitment and uncertainty as a result of poor communication (and the link once again between communication and efficacy of leadership). In the second phase, the control group dealt with similar issues, while the experimental group placed less emphasis on the impact of a lack of communication – focusing instead on the routes and relationships through which communication takes place.

6.2.2.4 *The impact of a presence/absence of communication: U level results*

Both U level groups dealt with similar issues at the first stage in terms of this factor (e.g. the link between communication, consultation and the abilities of leadership). At the latter stage, neither group focused much on the impact of the absence (rather than presence) of communication. Instead, the experimental group concentrated on relationships and routes of communication (as did the experimental group in the B level), while the control group gave limited comment.

6.2.3 With whom communication occurs

6.2.3.1 *With whom communication occurs: M level results*

At the M level, there were no great differences between the two groups at first. Both distinguished between those informed or not informed of the changes according to the level of the organisation (with a focus particularly on the exclusion of middle management and the workers), and the resultant need to get the message of change to these groups. In the second period, while there was no difference in the response of the control group, the experimental group emphasised two factors: the importance of everyone seeing the vision, and the view that the communication received was dependent on the proximity of relationship with management:

> The distance between the workers and the light is large: they are expected to continue working but do not have the same vision as those closer to management. *(M, experimental group, Time 2)*

6.2.3.2 *With whom communication occurs: C level results*

For those from the C level, both in the initial and latter time period, it was the experimental group that dealt with the factor of with whom communication took place. It was felt that feedback was only given to management and that communication took place in cliques rather than openly. The control group did not address this directly at any stage. In the second period, the experimental group placed greater emphasis on the need for communication to all – highlighting the potential benefit of unity:

> *What would help:* The candle, which represents the unity in the company, is whole and no longer smothered, and there is better communication. *(C, experimental group, Time 2)*

6.2.3.3 *With whom communication occurs: B level results*

At the B level, in the first stage only the experimental group dealt with the element of with whom communication took place, identifying the lower levels in the organisation as particularly excluded from the process. This was not a factor that was directly dealt with by the control group at either stage. In the second period, the experimental group concentrated on relationships, and to whom the change was communicated, through their relationship map. In particular, the level of the organisation (in terms of seniority) and race, emerged as moderating factors in terms of with whom communication was conducted:

> The keys were to enable the directors to take the WCC concept to the managers...the white staff in the company...and the black and coloured people, who are kept in the dark – represented by the wool under the hat. *(B, experimental group, Time 2)*
>
> *What would help:* The directors...the managers...and all the workers, represented by the uncovered balls of wool, are linked together in a complete chain of communication. *(B, experimental group, Time 2)*

6.2.3.4 *With whom communication occurs: U level results*

In terms of the U level, neither group addressed this issue directly at the initial stage. In the second stage, while the control group again did not focus directly on who was communicated with, the experimental group (as with the B level) highlighted the factors of hierarchy and race as moderators in terms of communication.

6.2.4 Ease of talking about change

Views fitting within this sub-theme were those relating to the personal ease participants experienced in talking to others about the change process. This did not relate to the general communication of the change to the entire organisation, but communication on a more individual level.

6.2.4.1 *Ease of talking about change: M level results*

At the M level, there were no distinct differences between the control and experimental groups initially. They highlighted their role as the 'messengers' of the change with difficulties such as talking to those who viewed change negatively or who lacked information on the details. In the second stage, while the control group highlighted similar issues (although with increased frustration in communicating

change when they felt it was not happening), the experimental group did not address this issue.

6.2.4.2 *Ease of talking about change: C level results*

At the C level, there was no major difference between the control and experimental groups at both phases in terms of this element. Factors seen as aiding the process of talking about change were aspects such as a positive attitude and talking with colleagues with similar understanding. Key difficulties in talking about the changes came from feeling uncertain and lacking information:

> This is negative – we lack the confidence to talk about the change, and don't want to talk about it because we feel unmotivated. *(C, control group, Time 1)*

In the second phase, neither group addressed this issue.

6.2.4.3 *Ease of talking about change: B level results*

Both groups from the B level addressed this issue in a similar manner at the initial time period, although the experimental group highlighted the beneficial aspect of talking to people with comparable experience. Both reported on the difficulty of talking about change when feeling little pride or recognition:

> We feel frustrated because we want there to be progress in our working conditions, but there is no progress. Therefore we are not proud and don't enjoy talking about the change. *(B, control group, Time 1)*

In the second time period the control group focused on similar issues (e.g. a lack of pride/positive attitude) and the difficulty in sharing information while experiencing job insecurity – while information related to this sub-theme did not feature for the experimental group.

6.2.4.4 *Ease of talking about change: U level results*

At the U level, the clear distinction between the two groups was the consistent remark from the control group (at both time periods) that there was no change – while the experimental group discussed the sense of fear and job insecurity as factors that made communication about the changes difficult. The one individual addressing this from a positive viewpoint linked ease in talking about the change to not being afraid. In the relationship mapping session of the experimental group, this factor did not feature.

6.2.5 Factors worsening/improving communication

This sub-theme dealt with factors that are not related to the elements identified in the other themes (e.g. 'with whom communication occurs', 'type of communication needed').

6.2.5.1 *Factors worsening/improving communication: M level results*

At the M level, there were few differences between the two groups at the initial stage. The main focus fell on factors improving communication such as enhanced communication channels to senior management and downwards and the sense of being listened to. Elements such as dysfunctional review meetings and poor intercultural communication were seen as detractors. In the second stage, the control group's responses were very similar to those in the first. The experimental group shifted focus onto why communication around the change was not occurring. They identified the Board level as the place where the information on the World Class Company concept was being held, the need for spreading communication to all, and for bringing all in the organisation closer together.

> *What would help:* The light represents the vision and mission: but this time it is shining...the workers can now see the vision. *(M, experimental group, Time 2)*

6.2.5.2 *Factors worsening/improving communication: C level results*

At the C level, both groups focused on similar issues at the initial stage, placing particular emphasis on positive relationships with management, as well as the review meetings, as factors improving communication. Other issues that were identified as detracting from communication were uncertainty leading to rumours and review meetings focusing on complaints. In the latter stage, the two groups differed somewhat from each other, and from their previous comments, with the experimental group focusing on communication within the process of change – considering the decrease and increase of communication as a process relative to the involvement of the change agent. For the control group, there was a feeling that no change was taking place and that the issues communicated did not come true. This was understood to decrease the effectiveness and value of communication.

6.2.5.3 *Factors worsening/improving communication: B level results*

For the B level at the initial time period both the experimental and control groups focused on the nature of relationships with managers as either improving or worsening communication. In the second period, the control group addressed, in addition to factors previously identified, the benefits of the review meetings. The experimental group shifted attention to where the knowledge of the change was held (with the directors), the need for complete communication between all, and the view that, at present, all was 'talk and no action'.

> *What would help:* The keys to being a WCC are being passed between all the people, and not only the directors. *(B, experimental group, Time 2)*

6.2.5.4 *Factors worsening/improving communication: U level results*

For those from the U level, little difference was evident between the two groups at the initial time. Both groups spoke about the importance of relationships in communication, their sense of having little communication or contact with management, and being excluded from the process of change. The experimental group did, however, mention the benefits of suggestion schemes and the drawing up of issue lists. In the latter stage, a difference did exist between the control and experimental groups. While communication for the control group could be seen as non-existent due to the need to 'only' work, the experimental group focused on the importance of drawing together relationships, altering structural arrangements and thereby improving communication.

Table 23: Perceptions of communication

Group	INITIAL TIME PERIOD (BEFORE)		SECOND TIME PERIOD (AFTER)	
	Negative perceptions of comm.	**Positive perceptions of comm.**	**Negative perceptions of comm.**	**Positive perceptions of comm.**
M1 Exp. **RM**	No feedback: just see "deckchairs rearranged"; Need specific feedback re: plans for departments Difficult playing management role with poor info Dysfunctional review meetings Leaders not effective: no feedback Unable to motivate with no info on victories/ progress Difficult talking to negative people *Reported for lower levels:* Limited communication to workers/ middle management decreases understanding; middle management rep the co, but have no information	Review meetings work: understand what leaders do In one team: Greater control, better communication and discussion Improved communication and focus (along with review meetings) Commitment linked with feedback Talking about change: straight forward *In one dept:* Weekly reporting of all levels has improved	*From relationship map:* Board holds vision – must be cascaded down Middle management have no knowledge of expectations Workers lack information/ view of vision Those further from management do not have vision Lack of feedback *From discussion following RM:* Less communication: know less of the big picture/ what has worked Big projects/ changes are not reported – people on the floor do not know	*What would help (from RM):* View of vision for all Open, shared communication All in organisation linked/ closer – improved communication
M2 Cntrl. **No RM**	Poor communication/ understanding between cultural groups Lack of an explicit timetable for change, involving all Some are insecure: no knowledge of change and their position People do not talk the same language i.t.o. change (many unaware of change/ left behind) – difficult to talk with those not included about specifics Inconsistency in message of change (between departments)	Improved open door policy: people are listened to Leaders contribute to change: spread the "gospel" Communication channels to steering committee are open: quick reporting Talk directly to people: don't need to go through all the levels Improved action, communication, team work, consultation Expected to play a role: convey message of change	Need to get message to groundswell Plans for communication unclear Slowing down of change leads to uncertainty, questions Don't have the right message to pass down Tired of saying "we'll get there" Try to communicate change - lots left behind. All need to talk new language (at present only some are) Should communicate from top to bottom – so all feel part of company	Only lower levels need to be informed

C1 **Exp.** **RM**	Pain involved in change (retrenchment, restructuring, limited/ no answers) leads to indecision, rumours Feedback on new systems given only to management No explanations/ information on out of stock Leaders must consult for effective change People operate, and discuss change, in cliques Need information in order to feel more positive Need information on achievements	Manager is capable of change: interacts and speaks with staff Management attitude has changed: allow and answer questions Review meetings have improved communication Greater accountability, questioning, ongoing awareness Possess confidence/ right to ask questions Easy talking about change – colleagues can relate	*From relationship map:* No communication after CA's time – decreased unity Decreased feedback from management Communication upwards doesn't reach the top *From discussion following RM:* Why was CA used before workers gave input? Boss cannot bring correct change: takes only own views to meetings For effective change: management need our input	*From relationship map:* Communication before and during CA (time period) *From discussion following RM:* Direct head is effective: talks to you *What would help (from RM):* Communication – would lead to increased unity Clear feedback Being able to communicate directly with top management
C2 **Cntrl.** **No RM**	No response to complaints No understanding of change, or what is expected Communication breakdown: no information on changes Feel no control without feedback Review meetings turn into complaints sessions Lack confidence to talk about change: insecure, uncertain of aim, unmotivated Rumours go around – hopefully the good ones are true	Review meetings: force talking, and thereby improve communication Direct head keeps us informed (BUT do not see people higher up) Aim to think positively, and take message of change through the company	Hear about change – but none Hear rumours: save money by retrenching Large changes (SAP) not communicated MD is viewed as a joke: says out of stock will not happen –always does Talk – but no change	

B1 **Exp.** **RM**	Poor feedback post-CA → decreased commitment, rumours Waiting for feedback Cannot talk to boss; uninvolved in review meetings: lack knowledge of changes Communication has not worked No involvement/say in, or notification of changes Information would decrease our fear Working for extended period, with poor recognition: change is difficult *Reported for lower levels:* Lack information around changes: great job insecurity (scared of replacement by machinery) – should be informed of changes	Superior is easy to talk to – contributes to change Communication has improved Easy to talk with those with the same experiences Aim of change: make us productive, improve communication, make us World Class Company workers	*From relationship map:* People talk about change – but no action Keys to WCC held by directors (meant for distribution) Race differentials i.t.o. relationships/ communication (Communication breaks between white staff/ workers on the floor) Workers kept in the dark *From discussion following RM:* Not informed of changes; too busy: Informed informally only No feedback; not informed of major changes	*From relationship map:* Close communication between managers and directors Communication between managers and white staff Directors have power to make or break communication *From discussion following RM:* For one dept: communicate regularly in meetings *What would help (from RM):* All with a clear view of the vision Complete chain of communication Workers can communicate with directors
B2 **Cntrl.** **No RM**	No feedback Unsure of leader's abilities: never see/ talk with them One aim of change: quick communication and feedback system – but more like a "bad Photostatting machine" Poor commitment due to lack of communication Negative views get passed on easily Difficult to talk about change: same working conditions; no pride Need chance to express views (WCC will hopefully allow this)	Some managers do have willingness to listen	No feedback – "out of the picture" Just told what to do – not asked feelings No 2-way communication: did not get input on change from all on site Could talk about change if more positive Insecurity in terms of jobs (and therefore no sharing of information) Supervisors should communicate re change	Review meetings: time for feedback Some leaders bring information on external competition Chance for input at review meetings: listened to

U1 Exp. **RM**	Managers sit in meetings – but do not communicate changes/ actions Leaders must involve/ inform floor for effective change Not listened to by management Cannot speak with supervisors (not listened to) – yet temps get preferential treatment No direct 2-way communication Unable to get right information to leaders Communication is downwards: supervisors to workers Can't talk to colleagues (fear re job) Talking about change feels negative (fear machinery) Supervisors' attitude does not help communication	Able to say what I feel is right *(due to role as spokesperson)* Office doors to management are open Suggestion scheme: can say what one feels Easy to talk about change – "I am not afraid" Issues lists drawn up with feelings (but not resolved)	*From relationship map:* No link between supervisors and directors Communication goes from HR down to bottom	*From relationship map:* One black supervisor acts as a link between workers and other supervisors *From discussion:* Direct head listens (but does not always act) *What would help (from RM):* Communication/ information, and direct communication with HR/ Directors (two routes for communication) *What would help (from discussion):* For change, need open discussion Management must move closer, and communicate process (for change) Need for information – only hear rumours
U2 Cntrl. **No RM**	No response to questions from managers Uncertain of leader's ability: no communication/ contact with them Grievances and concerns reported to CA: not acted on/ answered No feedback from proposals around grades No change Excluded from meetings, and gossiped about Only talk to supervisor for specific tasks (not about change)	Good relationship with supervisor – ensure understanding of issues In one section: Can talk to supervisors, and they listen to us	No change Just work: do not talk Input or involvement in the change not requested by company	

Please note: "CA" refers to change agent, "WCC" refers to World Class Company, and "RM" refers to relationship mapping

6.3 Theme Three: Understanding the change

The third frame of analysis dealt with the understanding participants held of the change process. Participants' views relating to this frame of analysis have been summarised in two tables dealing with:

- The aim of the transformation process (Table 24)
- The presence or absence of change in certain factors (Table 25)

With these elements taken into consideration, a fuller picture of the level of understanding of the change process could be formed.

6.3.1 Aim of the change process

6.3.1.1 *Aim of the change process: M level results*

At the M level, there was no major distinction between group views around the aims of the change process. Both the experimental and control group looked at this aspect with a broad focus. Consideration was mostly given to business aims, such as productivity, but also factors such as staff development, new ways of thinking, and relevant technology. In the second time period, the control group dealt, in less detail, with similar issues. The experimental group reflected a similar focus, although increased questioning of the details was evident, especially on the way in which different elements linked together within the whole:

> Export creates chaos for production – we need to deal with it and create integration. *(M, experimental group, Time 2)*

> The operational side is drifting away from the heads of departments – people are less empowered...Maybe the management style is a deliberate part of the transformation process, but people are more disillusioned. *(M, experimental group, Time 2)*

6.3.1.2 *Aim of the change process: C level results*

For those from the C level, no major difference existed between the two groups at first (apart from greater uncertainty in the control group). They raised a similar range of issues around business, people development, and the constant nature of change as the M level. In the second phase more negative views were expressed in both groups, yet it was only in the experimental group that there was still a focus on certain positive objectives. Along with some of the previous aims there was a new focus on unity and the importance of teamwork.

6.3.1.3 *Aim of the change process: B level results*

At the B level, participants in both groups demonstrated a people/staff-oriented focus, followed by one on business, as compared to the M and C levels. There was greater questioning in the control group around the World Class Company concept, evident through the following comment:

> The desire is to become a WCC. Yet we don't have anything (a company) to compare ourselves against. How do we measure it? What is it? *(B, control group, Time 1)*

In the second phase, both groups raised similar issues (although in less detail). There was a shift emerging from the relationship map – with this experimental group looking at the need for unity, and the interplay between the different parts of organisation.

6.3.1.4 *Aim of the change process: U level results*

At the beginning stage, both groups from the U level concentrated on problems on the ground such as worker's facilities and staff-related issues such as wages. Commentary reflected uncertainty and disillusionment around the changes:

> I don't understand what it means. *(U, experimental group, Time 1)*

> Change is not relevant – we still experience the same problems. (e.g. colour differentials in the resolution of employee problems) *(U, control group, Time 1)*

In the second phase, both groups discussed similar issues as in the first session. However, the experimental group also expressed views on how the company should be, from a more holistic perspective (in terms of the integration of the parts of the organisation, racial composition, and relationships). The control group's approach reflected to a greater degree an external locus of control. The types of factors, such as adult education and grievances, identified in both stages by those from the U level indicate an unclear picture of what the changes are about – when compared to views expressed by other levels.

6.3.2 Factors changed/not changed

The types of issues raised by participants in terms of factors that had/had not changed successfully were broken down into five elements. These included staff related issues (e.g. employment practices; human-resource oriented decisions); relationships/the way people work together (e.g. teamwork); business processes/structures (e.g. day-to-

day issues; business-oriented outcomes); the actual change process; and the mindset or attitude people possessed around change, the company/business.

6.3.2.1 *Factors changed/not changed: M level results*

At the M level, no great difference in response existed between the two groups at the initial stage, both focusing on a range of issues related to all five elements identified above. Issues emerging as changed fitted most frequently into the element of 'mindset...around change' (e.g. motivation, leaders' commitment). This was followed by business processes/structures, with the other three elements (the change process, relationships, and staff related issues) emerging less frequently. Factors seen as unsuccessful reflected all the elements, with business processes/structures (e.g. poor technology), and staffing issues (mostly in terms of unskilled staff) being key. Comments around these were indicative of detailed knowledge (e.g. regions neglected in the change process) despite the other elements emerging less frequently. In the second stage, the control group focused on similar issues as before (although both groups highlighted more the change as unsuccessful due to its uneven nature across the company). The experimental group identified similar issues as in the first phase (concentrating primarily on business processes/structures), yet a shift occurred towards the element of relationships and relationships within the whole. More awareness of the needs of all staff and the importance of all benefiting from the change, was also apparent. Other issues (e.g. technological problems) are referred to within the context of the entire organisation:

> The distance between marketing and sales is growing...The brown pen, representing the HR section, is quite removed from the Board and has less of an influence. *(M, experimental, Time 2)*
>
> *What would help:* The various departments... are all closely situated to the Board, with the technology distributed much more evenly. *(M, experimental, Time 2)*

6.3.2.2 *Factors changed/not changed: C level results*

In the first phase, the two C level groups identified similar issues as unsuccessful in the change, their primary focus being on staff related issues (e.g. poor hiring practices), followed by business processes/structures (such as poor meeting procedures). Issues relating to the mindset around change (e.g. a shift from a 'family' culture) and the change process also emerged, with a fairly in-depth knowledge of the change demonstrated. In both groups, factors seen as successful connected with the

elements of staff (e.g. the increase in training). In addition, the experimental group attended to the other areas (e.g. inter-departmental relationships, and the positive role of the change agent), while the control group's response detailed less in terms of successful factors. In the second phase, the control group addressed similar issues as in the first period. Concerns focused on staff related issues, business processes, and the perception of no major action in the change process, while certain staff related issues (e.g. affirmative action) and business processes (e.g. new technology) were viewed as successful. The experimental group dealt with some similar issues as before (e.g. staff pay), although there was less detail around some of the business process/structure related elements. Instead there was greater focus on the aspect of relationships, that is, the lack of unity following the change process, and the need for closer teamwork.

6.3.2.3 *Factors changed/not changed: B level results*

No great difference was evident at the initial period between the responses of the two B level groups. Areas viewed as unsuccessful related to all five elements identified, although the main elements were those of staff related issues (e.g. poor pay, lack of experience), business processes (e.g. planning), and relationships (featuring more here than at the M and C levels). Changes seen as successful mostly related to business processes/structures (e.g. the shift system, planning), and the element of relationships (e.g. between different sections). In the second time period, the control group focused on similar issues. For the experimental group, similar issues emerged, although there was greater focus on the need for interdependency of the business elements, and details were more specific (e.g. *which* staff members were not informed of the changes):

> *What would help:* The technology...and the people are working hand in hand towards transformation. *(M, experimental group, Time 2)*
>
> The keys were to enable the directors to take the WCC concept to the managers...the white staff...and the black and coloured people, who are kept in the dark...the directors kept the keys, and brought the WCC concept closer to themselves. *(M, experimental group, Time 2)*

6.3.2.4 *Factors changed/not changed: U level results*

The U level groups dealt with similar factors at first, both in terms of factors changed and not changed, with the key focus on relationships and staff related issues. Factors seen as unsuccessful in terms of staff related issues mostly revolved around working

conditions, pay, hiring practices, and perceived colour differentials in the treatment of staff. The impact of relationships was noted in terms of limited teamwork, and poor relationships with leadership:

> Can't say whether they (management) are capable of change: we don't visit them and they don't visit us. We don't even know who they are. They don't even come and tell us at the end of the year if we have worked well or not. *(U, control group, Time 1)*

Factors seen as positively changed were the elements of staff (e.g. equal opportunity), relationships, and business processes/structures (e.g. the shift system). In the second time period, while the control group dealt with similar issues (in less detail), no positive factors were highlighted. The focus indicated a strong external locus of control:

> They are not even concerned for those who worked hard: there is no service payment, even though the company developed through us. *(U, control group, Time 2)*

The experimental group raised similar issues as in phase one – although participants dealt with factors such as staff related problems and issues around relationships within a broader organisational picture. They looked at the need for unity and a representative company in terms of race and gender. While some of the individual issues mentioned earlier were left out, this overall picture was the key focus:

> *What would help:* There must be a mix of people from different cultures and races as directors...The workers and supervisors must all be together, with a closer link to HR...a direct link from the workers and supervisors to the directors. *(U, experimental group, Time 2)*

Table 24: Understanding of change: aim of change

Group	INITIAL TIME PERIOD (BEFORE)	SECOND TIME PERIOD (AFTER)
M1 Exp. RM	Improved bottom line, greater effectiveness, low cost production To be a World Class Company – a leader in the market Not being overcome by competitors Finding the "Best practice solution" Empowerment and upliftment of people Continuous change Faster decision making Flexibility Technology/ innovation	*From relationship map:* Co is trying to introduce new processes and systems Operational side is drifting from heads of departments: deliberate management style? "Are we winning? Are we worse off? We don't hear the victories" *From discussion following RM:* Low cost producer, international market competitor; World Class Co. Integration of all parts of the business (stop sole focus on export) Prevent out of stock
M2 Cntrl. No RM	Survival by adaptation – constant change and challenging World Class workforce, remuneration and productivity; Profitability Not all are aware of change: we do not know enough about it Align all with new vision and goals (set at the top) in terms of behaviour, action, &process (old way of working was unsuccessful) Evaluation of everything done People and process development; To accept the talent of people	World Class Company (jargon?) Ongoing changing of perceptions Greater productivity, improved technology
C1 Exp. RM	Aim: World Class Company Training of people, development of production process and products To change the attitude of people – bring out the positive; Innovation To make money For existence Savings: we must constantly change the way things are done Re-alignment between where we are and want to be Satisfying the customers by preventing out of stock	*From relationship map:* Greater profits Team spirit and greater unity *From discussion following RM:* Role is to work. "My boss wants the job done – therefore I have no perception of change" Teamwork An improved future; Building a better company – that is on top
C2 Cntrl. No RM	Greater profitability, efficiency, & smoother processes World Class Company – supply whoever needs To be positive, and to be the best "We lack an understanding of what the change is about, and … don't see the change. What is the change?" "Don't know what I am trying to achieve" Rumours go around: hopefully positive ones are true	Rumours: that attempts are being made to save money by retrenching No goal: "The concept of a World Class Company is bandied around as a joke".

B1 **Exp.** **RM**	Improve productivity, communication, and training A World Class Company Getting products out, and to destinations on time To work as a team as opposed to individuals The right managers, in the right jobs To be market leaders and innovators Skilled, motivated workforce Negative part is that jobs may be lost	*From relationship map:* To be a World Class Company All in the company working as a unit, with people and technology working together towards change All benefiting from change *From discussion following RM:* Technological changes for greater competitiveness To be a World Class Company – if we do not progress, we will fall out To be the best in your area of responsibility Reach for the horizon, for new goals
B2 **Cntrl.** **No RM**	A World Class Company, but "How do we measure it? What is it?" Improve the way external and internal customers feel Greater interaction between higher and lower groups Review meetings, and general feedback To look after people; Happy staff There is no measurable, tangible goal – commitment is hard Lots of money for all	To be a World Class Company: money-making, motivated, proud
U1 **Exp.** **RM**	World Class Company (need support from all for this) Modernisation of bottling lines "I don't understand what it means" No change Basic Adult Education Programmes; A living wage Changes in buildings, facilities for workers, but not worker's conditions All need to be happy "Cannot understand changes – replaced by temp on return to work"	*From relationship map:* No changes, except for things like Adult Basic Education Company should be representative (e.g. all cultures/ races as directors) *From discussion following RM:* The company should be representative of all races Relationships need to change World Class Company "To make us into World Class Company people…pay us more" Nothing has changed
U2 **Cntrl.** **No RM**	No change – colour differentials in terms of solving employee problems To make the company hold a top position, to be a World Class leader Change is irrelevant: we still experience the same problems (e.g. colour differentials) Involved with CA, told them our grievances, but there was no change Shift work brought by CA	To increase wages - "We have worked for a long time, yet new people get more money" To replace people with machines There won't be any change

Please note: "CA" refers to change agent, "WCC" refers to World Class Company, and "RM" refers to relationship mapping

Table 25: Understanding of change: factors that have/have not changed

Group	INITIAL TIME PERIOD (BEFORE)		SECOND TIME PERIOD (AFTER)	
	Unsuccessful	**Have changed successfully**	**Unsuccessful**	**Have changed successfully**
M1 Exp. **RM**	Upgrading of technology & people New technology not used Out of stock (as a result of the wrong people in key positions) Top need to walk their talk Need positive feeling re-awakened, and greater commitment Need to focus on export division Need to acknowledge staff Core people and expertise left (based on CA recommendations) Key people resisted changes Change agents are still around, despite proclaimed time span Lack manpower/ tools No salary increases, despite profit declarations No longer a friendly family Major problem: bottlenecks with IS (needs training in positive attitude) Poor focus on key production regions "Rightsizing" needed following the departure of PF: re-employing staff Empowerment	Issues identified by CA: common knowledge, but their neutral position helped formalise issues Greater team spirit (from CA?) *uncertainty re: what they changed* Greater focus on long term planning, and what we're about Positive mindset change: can look for outside providers of technology Attention to investment and training New positions in department; new vision; systems, new departments Structural changes: Directors in terms of specialisation, rather than geographical regions (opportunities) Once weekly meeting of steering committee (as opposed to once a month): shows commitment CA brought a "warm fluffy feeling" Profits (may have been due to market, rather than change agent) Company's perception of itself: from family feeling to more business-like	*From relationship map:* Decisions taken at top: people are less empowered – operational side separate from top mngt (deliberate?) Out of stock (big sales frustration) Lengthy process for resolution of problems Unevenly distributed, and poorly functioning technology Greater distance between marketing and sales HR: poor influence on the Board Middle-management uninformed of their role in change – left hanging Big bulk of workers do not care: should have started there/ should be informed (no view of vision: far from management) *From discussion following RM:* Resistance from those in charge Not all benefit from change Need people to man changes Need automation of production: remove costs Limited commitment– only from management Systems and technology need changing; new systems not used	*From relationship map* Finance/ Training close to the Board Sales staff well-trained and committed *From discussion following RM:* Management acquired tools to be focused Improved business/ productivity approach Sales have improved (although not necessarily from change process) In marketing there is change (although not through CA) Structures have changed *What would help (from RM):* All should be close to Board, with no major gaps in the company Evenly distributed technology Need full stocks Profits need to be distributed between all stakeholders
M2 Cntrl. **No RM**	Not all know about changes/ involved in exercises Should improve intercultural relationships All must be looked after, kept happy Concern: change is slowing Need to still fill in vacant positions	Greater focus Structural changes Good team at the top – enthusiastic Company is prepared to invest in projects: mindset change Better communication re: pay Focus on people development	Rollout planned incorrectly: should be continuous. Many left behind. Frantic and reactive change Insufficient focus on the day to day aspects of business Managers busy administrating, not managing	Those involved: great awareness/ commitment Productive, but unstructured Top levels of company have experienced change

	More paper work, too many meetings and training sessions, dysfunctional systems, no reserve time for learning - change is time-consuming Insufficient, and inadequate technology (e.g. computers) Unable to supply (out of stock – result of CA's work) Focus: too financial and short term, with few long term goals Standards not attained in production Focus: what could be achieved most quickly: glossed over aspects Cut staff fast: now re-employing Uneven changes over company	Interaction through change exercises; more knowledge of people's strengths CA acted as a catalyst, ensuring change went through More teamwork, and action Greater discipline, accountability; motivation Greater profits Affirmative action Stalled decisions now implemented Ownership by people other than top Management more amenable to change Change started at the top – easy to spread due to involvement of bosses	Too many problems, too little time Change has slowed down Short term panic, no long term goals Groundswell need to be included	
C1 **Exp.** **RM**	Aim: WCC, but no WCC salaries What are the achievements? Middle management works the hardest, but gets no benefits (union and management are taken care of) People are negative about change No highly visible, tangible change Problematic out of stock (result of poor planning, inexperienced staff in key roles, and increased sales) Retrenchments, uncertainty, limited staffing, rumours Too many meetings – productive? No change Change was not planned for key geographical regions Structure of accounts service failed	Between marketing and finance: better relationship, with greater co-operation Training receives more focus Improved productivity in bottling Measurement against standards 24 hour order-taking system is working Bonus that was paid to all staff Share more with other departments CA made improvements – but their role was to give advice, not to bring changes Many savings since CA Management provides answers to questions – attitude change	*From relationship map:* After CA: decreased unity from poor communication Resistance by 80% of people People working in isolation rather than in a team *From discussion following RM:* Too busy to see changes No change	*From relationship map:* Unity before and during CA's time *From discussion following RM:* Improvement in training e.g. computer courses *What would help (from RM):* All working together as a team All (incl. workers and supervisors) visibly receiving more from profits

C2 **Cntrl.** **No RM**	Unable to supply (out of stock) Inefficient, incompetent staff People forced into new, foreign jobs Little planning in change process – insufficient resources to meet needs (e.g. one person doing many jobs) Co. does not learn from its mistakes Poor morale, unhappiness Do not know who is in charge Profits not shared with workers Many casuals: lack company loyalty Many (lower down) just have to work: change seems a waste of time CA cost a lot of money Disheartening: goods cheaper when bought from store rather than the co. Feeling of togetherness is gone (were we too casual?) Management wanted to impress CA, they retrenched the wrong people (people return as consultants) Co. made changes on poor info. Decisions were made, and reversed Long-term staff not promoted Change starts at the bottom: workforce keeps the company going (need to motivate them with money)	Limited job satisfaction (but not paid much) Many competent staff have been retained	MD needs to act accordingly for a World Class Company – claims things which do not come true (e.g. no out of stock) Talk, but there is no action No changes in past two months Rumours: they are trying to save money through retrenchment Work is pushed from one department to the next Minimal salary increases More work, fewer staff	New equipment installed to speed up production New computer system (although not communicated to all) Sales section: more black staff through affirmative action
B1 **Exp.** **RM**	Poor planning: insufficient stocks, limited materials, few bottling suppliers Limited accountability Inefficient training, limited career opportunities Should socialise in departments, with management, and across racial groups – no unity Workers should evaluate bosses Need team-work Affirmative action has not happened Decisions made, but not action	Transparency in management structure Regained motivation when CA was present, and through OD exercises Much training of management Greater responsibilities with clients – meet them, inform management Work together more as a team; improved socialising People work smarter, not harder Relationships between different sections have improved Better planning and production	*From relationship map:* Light of change dampened by stop-start attitude of people Fact that all can benefit from change is covered Technology emphasised at expense of people WCC held by directors – not spread Non-white workers kept in the dark Lack of unity *From discussion following RM:* Need to understand information to keep up, and need to be educated	*From relationship map:* WCC concept and keys brought to directors by CA *From discussion following RM:* Get together for socials, meetings, team-building Directors/management are committed Better inter-departmental relationships *What would help (from RM):* All working together as unit Technology and people working

	Need right managers, in right jobs No new system for pay Need skills analysis, and managers who respect their workers Leaders are capable: why did they pay CA so much? More systems, but non-functional Division between age groups: < 30s are motivated; older staff are scared Work improved, but not pay		Too busy to consider changes Poor commitment further down	together towards change Workers with direct access to directors when faced with problems Keys to being a WCC passed to all Commitment of all to WCC
B2 Cntrl. **No RM**	Internal customers treated badly Poor interaction between staff levels Changes (e.g. green areas) cost lots, but changed little Need improved relationships Positive changes (e.g. in structure) were altered again, after all had adapted Inexperienced, and too few staff Limited sense of belonging, and motivation Expertise lost - rehired as consultants; Competition over still-vacant posts; External contractors hold less co. loyalty People forced from areas of expertise, into foreign jobs Outsiders hired when posts are internally-advertised No change Access control does not work No progress in working conditions People need to feel authority/ responsibility Day to day issues neglected Promises not kept: salaries, and grading system unchanged Out of date computer systems (and therefore out of stock) Greater admin from new systems	More aware of customer care Overall control (security) has improved All employees paid bonus for good performance of company (once off) New offices have been built New departments created Improved integration (due to changes in country?) Shift system, and 24 hour order-taking system is working Driver's pool is working	Need a new vision in terms of dealing with cultural diversity Attitude is wrong – people are not motivated No choice in extra work. Would be easier with team work Promises, heavier workload, new systems that lead to more work: but no great change All try to bring change - no results Performance is not better post-CA: retrenched many, and then re-appointed. Did not listen to people on site Uncertain of where profits go Superiors offer no assistance in work	"New blood"/ staff leads to greater commitment to change

U1 Exp. **RM**	WCC is aim, but long-term staff are not looked after Relationships need to improve Use of people is wrong (too many with a say on the production line) Moved from a skilled job into an unskilled one – no opportunities Temps receive opportunities to learn operation of new machines No choice in terms of times of shifts No change External people appointed, despite policy of internal appointment No teamwork Contractors used, instead of paying permanent staff more Working conditions worse: dirty Many vacancies are not filled Supervisors fill jobs with wrong people: leads to low commitment	Chance of success: company is changing products (positive) Shifts in bottling created more opportunities for promotion Equal opportunity appointments Team work is better Relationship with management is better: can approach more *(one person)*	*From relationship map:* Directors/ HR: all white and male Race differentials in terms of supervisors: coloured supervisors have less power than white ones No link between supervisors/ directors Director: no closer in relationship; no change in structure *From discussion following RM:* Nothing has changed "There is a lack of respect of managers for others" Relationships need to change Need a more representative company in terms of races Management needs to move closer Need to be paid more There is a new machine, but it does not work Always one person holding back the process	*From relationship map:* Adult Basic Education Black supervisor used as a link between black workers, and other supervisors *What would help (from RM):* Mix of people from different races as directors Workers, supervisors, HR working closed together HR representative in terms of race and gender

U2 Cntrl. **No RM**	No change Colour differentials exist in the resolution of employee problems Contribution of workers is not valued – no advancement Requested more money: no change, but management have new cars It won't improve: Clear that there is money to pay us, but they don't No relationship with or knowledge of management Managers change frequently: cannot see attendance to problems Managers are not good at handling the process. (E.g. no feedback on proposals) "Shift workers do not work as hard, but get the same pay" Poor transport arrangements for workers CA brought shifts, & made 1 person do 3 people's jobs Poor relationships with supervisors	Positive relationships with co-workers Shift system aids efficiency in terms of loading of trucks Some black staff driving top trucks Changes/ updating of technology For one individual: "CA moved me to a different job. I am now more satisfied"	No promotion There won't be change: "I will carry crates till I die" Company does not promote from inside, and does not share resources or wealth amongst employees Inflexible transport system No service payment No concern for those who have worked hard (e.g. no service payment) Opportunity for overtime pay gone with introduction of shift system	

Please note: "CA" refers to change agent, "WCC" refers to World Class Company, and "RM" refers to relationship mapping

6.4 Overall shifts within relationship mapping groups

In the groups that underwent the relationship mapping procedure (the experimental groups), views raised by participants shifted at an overall level in some of the following ways (these shifts are general changes noted, although in some sub-themes certain groups presented no shift in viewpoint):

- Issues raised in the first session frequently were addressed from a different perspective in the relationship mapping period. Instead of individual issues being raised, links were often drawn between individual items within the context of the entire organisation – leading to a more holistic picture. This occurred in contexts such as the interplay between people and technology, the distribution of technology across the system, all having access to the vision, awareness of other people and their needs, frequent references to unity, and emphasis on the proximity of relationships in the system. While this more holistic focus occurred, individual details (such as all the factors emerging in the focus groups around what had or had not changed) often received less focus.
- Participants focused to a larger extent on the reasons behind certain factors (e.g. why they had not been involved, where the knowledge of the World Class Company concept was being held, which types of people in the organisation were communicated with, and the type of mindsets leading to poor change).
- While the relationship maps generally presented a view of the change within the perspective of the entire organisation, perceptions relating to the more personal sub-themes (e.g. ease of talking about change) often did not feature in the maps (despite being present at the previous stage). The maps instead represented a more collective experience of the changes.
- In many instances the control groups within each level responded consistently in the two periods, reporting on individual factors, while the experimental groups (through the relationship mapping) were able to address what needed to change. This indicated a more active thinking around the process, rather than the reiteration of frustrations with the change.
- In terms of the areas of empowerment and communication, it is clear that the types of frustrations raised are directly related to the role played by the different levels. For example, in terms of empowerment, the M level (with their active role

in implementing the changes) focused more on resource needs, while the U level (with their limited involvement) placed greater emphasis on acknowledgement and involvement as factors that would increase their sense of empowerment. In addition, comments made by participants in terms of the changes reflected differences in understanding across the four organisational levels – in terms of depth of knowledge, breadth of understanding (both factors decreasing with a move down the organisational structure) and focus. For the higher levels, there was greater focus at first on business oriented issues, while staff related issues dominated the thoughts of the lower levels. Following the relationship maps, many shifted their focus towards relationship-oriented issues within the broader company context.

- In all cases participants provided less detail in the second phase. This may have been due to numerous factors (e.g. lack of interest in the change, frustration due to discussing the change a second time). Through the relationship mapping, the experimental groups from each level did provide additional information in the second stage.

6. 5 Reported impact of relationship mapping

The following summary is an overview of the types of effects that participants and the key organisational facilitator of the research, reported around the relationship mapping process (please see Table 26):

6.5.1 Empowerment

- Comments by participants that dealt with the personal impact of relationship mapping were placed within the frame of empowerment. These comments indicate that empowerment as a result of relationship mapping took a number of different forms. While these are positive, the key organisational facilitator's comment regarding the perceived nature of the maps is of importance here. This individual perceived the maps as frequently reflecting a more external locus of control, through participants not indicating within these maps the ways in which they would contribute to the change themselves.

- One form of empowerment was the result of having partaken in the process (e.g. being provided with the opportunity to give input) – and would perhaps have emerged with any process focusing on the views of participants.
- Empowerment (or greater control) in another form came as a result of realisations through the process. Comments indicating these new realisations focused on ideas such as change needing to start with the self, the importance of teamwork and personal responsibility, and all needing to play some role in the change. Comparing comments, these more personal realisations seemed to occur more at the lower levels.
- The third form related to tools and ways of thinking learnt through the process. This included using mapping as a simple means to document thoughts, overcoming obstacles through bringing together different ideas into a bigger picture, and developing a holistic picture with all the elements and necessary changes recognised. The following comment reflects this area well:

> The pictures are now in my head: I know where I fit in, and what will make a difference. If things change, we can move in our mental picture. *(U, experimental group, Time 2)*

6.5.2 Communication

- The non-verbal attribute of the relationship mapping technique was highlighted frequently as a positive factor. This was seen as positive in terms of visualising feelings, allowing participants to sketch their perceptions when talking was not effective, expressing viewpoints through metaphors and without words, and talking indirectly about change. The nature of the maps did however provide difficulties for some (e.g. representing the change through metaphor, the desire for a wider range of 'tools' or items to create the three-dimensional map with, and personal uncertainties such as feeling a lack of sufficient creativity to carry out the process).
- It was noted that the maps helped to quantify information, make it more tangible through representation, and allow information to emerge more easily. The simplification of perceptions through the relationship maps into a more manageable form was seen in both a positive and negative frame. From a positive perspective, participants felt the maps reduced information overload and allowed for a presentation of relevant views in one holistic picture. However, the

simplification was also seen as negative in that by reaching a compromise map, some of the richness and accuracy of individual maps may have been lost.

- The impact of language was noted, with a number of outcomes. It was only in certain groups that different languages spoken by participants impacted on the process (usually leading to a simplified map). In order to come to a shared view, participants discussed their views during the building of the maps, with the noted outcome in one group that the more vocal had a larger impact, while the less vocal used the map to explain their views.
- The role of the maps in allowing for the sharing of views emerged frequently (e.g. serving as a discussion guide, providing a chance for hearing others' perceptions and expressing one's own thoughts and making explanations easier). While the U level group commented on the map allowing for a shared understanding, through discussion, it is worth considering whether this discussion would have occurred without the use of the relationship map as a catalyst.

6.5.3 Understanding the change

- Comments made around the understanding of the change, generated through the relationship mapping, focused on a number of key issues. The benefit derived from the maps providing an opportunity for all issues within the change to be considered together, was raised. It was felt to provide a holistic picture of the change, tying all factors together, and, through this process, exposing gaps in personal knowledge. The fact that all could participate in the structuring of a joint map, bringing together different understanding of the change and thereby sharing views, was highlighted.
- Many of the groups commented on the improved understanding gained of others' needs. With maps frequently depicting all people within the organisation, this became a stronger focal point than it might otherwise have been. The role of relationships in the change and the need for unity and teamwork, frequently emerged.
- The key organisational facilitator noted that structures arose frequently as the focal point, highlighting a "culture of 'us versus them'", rather than the understanding of the roles participants could play in creating the changes.

6.5.4 Other factors

- Participants indicated that the roles played during the relationship mapping were informed by personal background, and the resulting understanding held of the change. However, it was felt that all participated to generate a shared understanding. Different views were dealt with through listening, questioning, learning about each other and compromising.
- In addition, the main organisational facilitator focused on the ease with which participants used the tool, and the potential usefulness of the mapping tool in monitoring mental views of transformation on a constant basis.

Table 26: Impact of relationship mapping (communication, empowerment, understanding, and general)

Group	Communication	Empowerment	Understanding of change	General
M1 **Exp.** **RM**	Aids communication: Visualises feelings Serves as discussion guide Quantifies and makes problem areas measurable Able to view others' perceptions Tool: aids communication Bubbled all the information to the surface: more tangible Hinders communication: In finding shared view, compromise or average reached may be inaccurate/ too simplistic Too few/ unvaried "toys" for map Impact of different languages: Difficult for Afrikaans-speakers: all the company terms are in English (but same outcome)	Created greater focus; less foggy about issues Simple method of documenting thoughts	Realise: don't know all about environment Clarified present point, and what is not known about the change Transformation is an ongoing process Organised all into one picture Helped in understanding the gap between sales and marketing Thought systems and technology were fine: obviously not Good to have insight into practical frustrations of lower-level workers	Roles played during RM: All different backgrounds: well balanced; All participated Dealing with different views: Asked for clarity when confused
C1 **Exp.** **RM**	Aids communication: Useful discussion – will it happen? Helped in process of sharing ideas Gave chance to express views Useful – "Why don't managers ask workers for their input before introducing CA?" Hinders communication: Viewing self as uncreative makes RM difficult Bit difficult at first: no knowledge of what to expect Impact of different languages: No problems in terms of language	To involve all people, one must begin with oneself All divided during work: opportunity to give input	All held shared understanding at the final point Helped understanding: didn't know views of others before Realise: need to work as a team for change to work (understanding of role) Opportunity to look at others' needs, as well as own	Roles played during RM: Different departments: all play different role due to different understanding. No problems: all worked and shared Dealing with different views: Listened to different views Helped make different views clearer

B1 Exp. **RM**	Aids communication: Able to express and think without words Can talk about things indirectly Reflect on, and discuss each person's perception Helps through simplifying things Reached a common understanding through talking Hinders communication: Difficult to think of wool in abstract sense (e.g. as a part of the company) Impact of different languages: Different languages make it hard: struggle to talk about the map - made it simpler, and may have lost some of the meaning Provided a medium of communication to overcome problem of different languages	Realise: If one is negative, create your own prison Change starts with the self Can't pull in different directions: all must work together "We need to push to understand each other, and become one" "Need to talk more in order to understand where we're going" "Need to ensure we have a positive attitude, and look at the positive factors" – must not blame others (all must take responsibility for personal actions) Overcame obstacles with different ideas – forming a "bigger picture" Helped create understanding of company diversity RM provides an indication of change through joint work – sad all cannot see the benefits RM re-emphasised need to change "We have a mission and vision. I want to grow, the company wants to grow. We need to learn what the company wants"	Able to bring together things that hinder the process Makes us realise: crux of transformation is people working together – need a joint effort Could structure views together Factors included (systems, people, technology) depends on experiences (RM helped bring it all together) Improved understanding of other's views relative to own, and the relationship between workers and management Allows a diverse group to come together and understand each other, and reach a common goal	Roles played during RM: All participated, shared experience All played different roles through different ideas – aim was to reach a common goal Managed to be focused Dealing with different views: Compromised; took the best of all the ideas Learnt about each other

U1 Exp. **RM**	Aids communication: Exposes issues All came up with an understanding (although from discussion around map first) Easier to understand views by sketching them Makes giving explanations easier Easy and understandable tool More effective than talking Hinders communication: Some problems (e.g. trying to determine what to symbolise), but all participated Impact of different languages: More vocal could put their views more clearly Different languages not a problem - RM explained views more clearly Even when unable to verbalise thoughts: can see example	Greater understanding of what to expect, and what is not happening Realise: All have a role in the process of change Learnt from talking together (e.g. what is happening, who people are) The RM has shown us how to achieve what we want Provides holistic picture, where individuals fit in, and what must be done for change "The pictures are in my head: I know where I fit in, and what will make a difference" "If things change, we can move in our mental picture"	Greater understanding that nothing has changed All bring a particular picture of the activities of people, relationships, what needs to change, and that communication needs to be improved Realise: for change: Need resources to make changes Need open discussions for changes Management need to move closer, and communicate what will happen Provides a holistic view	Roles played during RM: All participated; all played the same role Dealing with different views: Discussed views Helped to understand different views: provided opportunity to talk, and discuss important factors Overall: worked well
Views of key organisational facilitator	Unfreezes people who are unable to articulate/ do not want to talk/ intimidated	Views expressed indicated largely external locus of control	Focus frequently on structure, and culture of "us versus them" Would be useful to focus in addition on *how* to get from current picture, to desired state, and what individuals can do to help	Usefulness of information: "Used results/ comments from RM as a barometer of where people's mindsets are regarding the transformation" Impact of process: Would be most useful if part of a bigger process; part of continuous monitoring of the transformation Unexpected: "how easily people took to it"

Please note: "CA" refers to change agent, "WCC" refers to World Class Company, and "RM" refers to relationship mapping

U1 Exp. **RM**	Aids communication: Exposes issues All came up with an understanding (although from discussion around map first) Easier to understand views by sketching them Makes giving explanations easier Easy and understandable tool More effective than talking Hinders communication: Some problems (e.g. trying to determine what to symbolise), but all participated Impact of different languages: More vocal could put their views more clearly Different languages not a problem - RM explained views more clearly Even when unable to verbalise thoughts: can see example	Greater understanding of what to expect, and what is not happening Realise: All have a role in the process of change Learnt from talking together (e.g. what is happening, who people are) The RM has shown us how to achieve what we want Provides holistic picture, where individuals fit in, and what must be done for change "The pictures are in my head: I know where I fit in, and what will make a difference" "If things change, we can move in our mental picture"	Greater understanding that nothing has changed All bring a particular picture of the activities of people, relationships, what needs to change, and that communication needs to be improved Realise: for change: Need resources to make changes Need open discussions for changes Management need to move closer, and communicate what will happen Provides a holistic view	Roles played during RM: All participated; all played the same role Dealing with different views: Discussed views Helped to understand different views: provided opportunity to talk, and discuss important factors Overall: worked well
Views of key organisational facilitator	Unfreezes people who are unable to articulate/ do not want to talk/ intimidated	Views expressed indicated largely external locus of control	Focus frequently on structure, and culture of "us versus them" Would be useful to focus in addition on *how* to get from current picture, to desired state, and what individuals can do to help	Usefulness of information: "Used results/ comments from RM as a barometer of where people's mindsets are regarding the transformation" Impact of process: Would be most useful if part of a bigger process; part of continuous monitoring of the transformation Unexpected: "how easily people took to it"

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Chapter Seven

INTEGRATED SUMMARY AND DISCUSSION OF RESULTS

The following chapter provides an overview of the integrated qualitative and quantitative results. These are presented within the frames of analysis, 'empowerment', 'communication', and 'understanding the change', with the element of group processes considered as an additional check on relationship mapping. The summarised results within each frame of analysis assess the relationship mapping technique as a tool for examining participants' understanding of change, and identify the possible impact of the technique on those using it. Results presented within each frame of analysis are discussed critically, and linked with relevant literature and theoretical debates. The implications of the findings are also presented in terms of the use of relationship mapping for participatory OD assessment. The understanding that those from different organisational levels (or job grades) may experience both the change process and the relationship mapping technique in distinct ways has also been taken into consideration in the research design and presentation of the results.

7.1 Empowerment

A number of key sub-themes emerged from the thematic analysis of the information in relation to the frame of 'empowerment'. These included 'acknowledgement/involvement', 'resources/enablers of change', 'uncertainty/certainty', 'forced change', 'structure/nature of relationships', and 'mindset'. These were all seen as factors either increasing or decreasing the sense of empowerment or control people felt over the change, or as a consequence of changes taking place. Results for both experimental and control groups indicated that these elements were experienced differently by those from the various organisational levels, and that experience was closely linked to the individual's role in the change process. In the organisation under study, the organisational levels corresponded with the degree of active involvement in the changes. Greater involvement was found at the executive levels of the organisational hierarchy. These participants focused to an increased extent on, for instance, the sub-theme 'resources/enablers of change' as impacting on or lowering their level of perceived empowerment as change-implementers. On the opposite side of the spectrum (in terms of organisational

hierarchy) the B and U levels dealt to a greater degree with 'acknowledgement/involvement' and 'uncertainty/certainty' as negatively influencing their perceived levels of control.

7.1.1 'Empowerment'-related information: a comparison

In considering relationship mapping as a method for the participatory evaluation of change, attention was directed towards changes in the type of information emerging with use of the technique. The following changes were noted in terms of information relating to the frame of 'empowerment':

7.1.1.1 *Questioning and problem solving*

In most experimental groups there was a greater degree of questioning and assessing of reasons for the state of affairs. For example, in the B level group, the reasons behind their lack of involvement and uncertainty were questioned, while the M level group sought reasons for the inequality of influence within departments. There was greater activity around problem identification and the search for routes to problem resolution. An example is the C group's identification of the need for two-way communication and unity – leading to the proposed solution of an improved chain of communication moving upwards. This questioning and problem solving was in contrast to the listing of issues characterising the experimental groups' response in the first phase, and the focus group discussions held with the control group in both stages. While this shift to questioning and a degree of problem solving was evident for all four of the experimental groups, reactions varied in relation to different sub-themes and were seen as dependent on the role the group played in the change.

In most cases, the responses from the control and experimental groups were similar at the initial stage in terms of aspects relating to empowerment. This was found for all, apart from the responses of the C level control and experimental groups in terms of their roles in the change process, which indicated that randomisation was not entirely effective. However, with the shift to greater problem solving and probing in the experimental groups, a possible causal relationship between the relationship mapping use and the observed problem solving and questioning is indicated. Interestingly, the analysis of the group processes instrument indicated statistical significance in the

second stage between the control and experimental groups for the factor of 'problem solving through support and integration' (where this was absent initially). The experimental groups' responses indicated an improved sense of problem solving through support and integration – tying in with the type of problem solving evident in the maps. Due to the qualitative nature of most of the data and statistical limitations in the study, causality of this nature cannot be stated with certainty. This would imply that further investigation of this matter is required.

The tendency towards problem solving and questioning that emerged reinforces Stake's (1975) argument for participatory assessment. This is particularly in terms of the notion that organisational members hold the solutions themselves, with the need for external agents as facilitators of knowledge elicitation, rather than as experts. Without relationship mapping's participatory orientation, some of the problem solving processes may not have occurred. The argument for the problem solving capacity of maps is strengthened by Fiol and Huff's (1992) suggestion that maps locate the individual's current position, the ideal situation, and allow for recognition of the route between them. However, while problem solving was evident, the ideas depicted in the maps may serve as initial thoughts rather than blue prints for the plan of action, due to the limited detail. Of interest is whether these maps would hold more detail if a greater amount of time had been devoted to them, or whether the methodology simplifies information inherently. In addition, it does need to be noted that these results may have emerged through any method allowing for the creation of an image of the 'ideal future' – such as the method of visioning put forward by French and Bell (1995). However, within the framework of the study, and the triangulated results, these findings can be seen as relevant and of use in facilitating understanding of relationship mapping.

In contrast to the experimental groups, the control groups frequently demonstrated little change in the information presented in the second stage, although there was an increased sense of hopelessness (for example, in terms of the intensified feeling of limited job security). This sense of hopelessness or frustration may have been intensified by the fact that these control groups were answering the same questions a second time – a factor identified in the critique of this study. Being asked to respond to the same questions may not have triggered new thoughts, while the relationship

mapping groups were exposed to an entirely new experience. As argued by Eden et al (1992), it is often the process of articulation that assists in thinking. Where changes were noted in the control groups, these were mostly minor.

7.1.1.2 *An integrated view, and the elicitation of new issues*

Information emerging from the relationship maps indicated a more organisationally holistic perception by the experimental groups of the changes. The elements identified in the first phase were tied into a framework of the 'bigger picture'. Interestingly, issues were presented within a more holistic framework, even though participants were not asked to necessarily represent their views like this. In this way, as Stata (1996) argues, the mapping allowed for a form of systems thinking.

Additionally, this holism seemed to reveal gaps (for instance the U group's identification of the need for resources) and thus facilitate the emergence of additional factors. Many of the groups focused on new more integrated needs (e.g. closer relationships, unity, and teamwork). This concept of new issues emerging through the holistic 'picture' of mapping, ties in with Fiol and Huff's (1992) argument that maps allow gaps to be highlighted and attention focused. The problem solving element discussed above may be seen as an extension of this process. The emergence of new factors and relationships between elements in the change also fortifies the views presented by Shadish et al. (1991) on the importance of allowing issues to emerge through a non-prescriptive approach to research, with critical freedom of expression. Some of the issues may not have emerged using OD models that commonly present a list of factors for discussion. This view is in direct contrast with theorists such as Rifkin et al. (1988) who argue for the specification of evaluation criteria such as inputs, outputs, and general impact.

7.1.1.3 *Decreased personal information*

Another key change presented in the maps relating to the 'empowerment' frame of analysis, was the decrease in personal information expressed. This was particularly evident in terms of the sub-theme of 'mindset', where a more collective mindset was represented in the relationship maps, in contrast with the individual perceptions presented in the initial stage. In terms of this sub-theme, the use of relationship mapping may therefore have removed some of the focus away from individual issues

and transferred attention to collective matters. This finding highlights the importance of using relationship mapping as one of a number of tools – to ensure the compilation of both collective and individual information. Hodgkinson and Johnson's (1994) expressed concern regarding the loss of individual-level differences in the aggregate analyses of mental models was therefore found to hold validity in the current study.

7.1.2 Perceived impact of relationship mapping on empowerment

The difficulty in discussing an issue such as empowerment relates to the fact that it is a truly personal concept, with perceived empowerment being hard to tap through methods other than self-report. As a result, in considering the impact of relationship mapping on the sense of empowerment held by participants, the researcher relied on participant self reports in terms of their perceived levels of empowerment and control as well as comment by the organisational facilitator. Elements emerging are listed and discussed below.

7.1.2.1 *Participation as a form of empowerment*

Firstly, comments indicated that in itself, the opportunity to share and provide input improved participants' sense of empowerment. This satisfaction supports the notion that relationship mapping may serve as method for participation by employees in their transformation – tying in with Margulies and Wallace's (1973) view of diagnosis as aiding the process of involvement. The provision of space and time for input (which would, once again, occur through most research methods allowing for participation) may also have provided a chance for reflection – acknowledged by Hammer and Stanton (1997) as critical in any organisational situation. However, in contrast with many other methodologies that allow for input (surveys, interviews, tools such as process mapping used in business process reengineering), the level of participation here was greater in that the participants had total control over what factors of the transformation they wished to emphasise. Participants processed and expressed their own thoughts in the final 'product', instead of their ideas being removed, analysed, and represented by an external 'expert'. This is far more in line with the philosophy of Participatory Rural Appraisal as described by Chambers (1994), where the focus is on empowering participants to engage with and analyse their own information.

7.1.2.2 *Personal realisations through relationship mapping*

Secondly, participants commented on personal realisations following the relationship mapping, focusing on issues such as the importance of change starting with the self, thinking in a positive frame, working together with others and playing a role in the change. Support for the findings in terms of personal realisations was also found in the quantitative results. From the quantitative analysis of the post relationship mapping questionnaire, it was found that the B, C, and U level participants perceived improved self-understanding through the technique, while the M level was more neutral in response. Of interest, the difference between the levels was clearly evident here – with the lower levels (particularly the B and U levels) noting personal realisations far more than the senior levels. While the exact reason for this is difficult to determine, it could be attributed to the fact that this was, for many of those from the lower levels, the first opportunity to provide input into the organisational change process. Many of the personal realisations were linked with organisational relationships and interdependency – factors that also emerged to a greater degree for these lower levels. In addition, these personal realisations may also have arisen to a greater degree for the lower levels due to the fact that the information they presented in the relationship maps highlighted their limited role in the changes. In terms of the latter point, personal realisations may have been enhanced through the process of identifying contradictions - an element commented on by Senge (1990). In addition, in line with Downs and Stea's (1977) view that self-identity is linked with knowledge of the environment, the exposure of this environmental knowledge through relationship mapping may have facilitated these personal understandings. Personal understanding may also have been enhanced, as mapping is deemed to aid in the explanation of behaviour (Argyris & Schön, 1978).

Fiol and Huff's (1992) view of cognitive maps as tools that locate the individual in relation to their environment may also play a part here. Importantly, relationship mapping may serve as a means to achieve this during a situation of transition (a factor of particular importance as people may find themselves overwhelmed by change). This linked in with the quantitative assessment of the post relationship mapping questionnaire where all groups indicated agreement with the element: "improved my understanding of my role in the change process through improved understanding of the environment".

7.1.2.3 *An external locus of control*

In contrast with views expressed by participants, the organisational facilitator noted that the maps did not seem to demonstrate an internal locus of control. The organisational facilitator thought that much of the focus was on changes others in the system should be making. If the questioning process following relationship mapping had been extended (for example, 'Indicate your personal role in the ideal future depicted?'), this could have been countered. It is of interest that participants in all levels did not actively demonstrate, in the absence of probing, their own role in the change – a factor that may be linked to the reality that, in general, the maps did not represent more personal information. Additionally, this may be the result of the map being an aggregated one, or that those involved in the mapping process were not part of natural work teams and therefore would not necessarily be able to generate a joint plan of action.

7.1.2.4 *Facilitating thought*

Participants indicated that the mapping technique served as a useful tool for facilitating thinking related to the change process (allowing for holistic thinking, bringing together different elements, documenting thoughts, and visualising possible changes) and in this way improving control. It is of great interest that the comment about 'being able to visualise changes in one's mental map', demonstrating an internalisation of the method, came from the U level. This was in contrast with the concern expressed by some members of the organisation's Human Resource division, that the lower level workers would not be able to understand and utilise the technique appropriately. Instead, it was particularly members from these levels who indicated personal benefit from utilisation of the mapping technique as an aid to thinking. In considering literature in the field, many theorists (Anthony et al., 1993; Freebairn-Smith, 1996; Hunt, 1996) argue for the benefits of visual techniques in eliciting information and tacit insight.

Tying in with the view that mapping aids in the process of predicting future behaviour (Downs & Stea, 1977), the U level group commented on a greater understanding of what to expect from the change. This comment was of concern, as the understanding and thinking was generated from people who had limited involvement in the changes. In this way, while thinking may have been facilitated, the benefits of this would have

improved by taking the mapping process to another level of discussion with other groups from different organisational levels. In addition, while it is argued that assumptions need to be surfaced for testing (Senge, 1990), individually held assumptions may not be surfaced through relationship mapping where it is carried out as part of a group process. From quantitative analysis of the post relationship mapping questionnaires, it was clear that none viewed the technique as negatively impacting on their sense of empowerment. Most responses ranged between 'slight agreement' to 'agreement' to the tool as a facilitating mechanism for the understanding of the environment, of the personal role, and for the prediction of the way the change process would move (with the B and C levels mostly rating highest agreement).

7.1.2.5 *The impact of relationship mapping on issues identified*

Finally, in considering the possible impact of relationship mapping on the sense of empowerment held by those using the technique, it is helpful to consider the sub-themes emerging from analysis. In particular, the relationship mapping procedure may have had impact on the sub-themes 'acknowledgement/involvement', 'uncertainty/certainty', and 'mindset'. This links in to factors discussed above, such as the possible sense of empowerment emerging from participation in the relationship mapping procedure itself ('acknowledgement/involvement'), and the clarification of thoughts and ideas potentially impacting on the sub-themes of 'uncertainty/certainty'; and 'mindset'.

7.2 Communication

From the analysis of information, the sub-themes emerging in relation to 'communication' included 'type of communication needed', 'impact of presence/absence of communication', 'with whom communication occurs', 'ease of communication regarding change', and 'factors worsening/improving communication'.

7.2.1 'Communication'-related information: a comparison

Changes in relation to the frame of analysis, 'communication', were similar to, and therefore reinforced, the findings on the frame of analysis of 'empowerment' in terms

of aspects such as problem solving and information simplification. These are discussed below, in reference to 'communication'.

7.2.1.1 *An integrated, 'collective' view*

As with the 'empowerment' frame of analysis, information emerging during and following relationship mapping placed 'communication' issues in the context of the entire organisation. Greater emphasis was placed on the need for communication encompassing the entire organisation (e.g. a two-way flow of communication, built into the organisational structure). In some, a more 'collective awareness' emerged. For example, where the M-level groups initially considered the impact of a lack of communication from a fairly personal and individual perspective, this changed in the experimental group to an awareness that the vision was not generally clear to all within the organisation. Within this 'collective awareness' was a concern for others in the system (particularly in terms of the general clarity of the vision) and an emphasis on unity and all-encompassing communication. It is of interest that the importance of the vision emerged so strongly for all levels, in the relationship mapping stage, where it had not featured so strongly before. One reason for this may have been that participants may have used it as the central organising notion in representing their understanding of the changes – yet it is of significance that they chose to use 'vision' in this way. The highlighting of this issue ties in with the array of theorists who argue for the importance of vision in organisational success (Prahalad, 1997; Senge, 1997; Vaill, 1996).

However, personal issues (such as the ease of talking about change) were no longer represented. This would again highlight the need to use other research methods in combination with relationship mapping, ensuring in this way that personal and not only collective perspectives are tapped. Of interest is the question of whether these personal issues would be represented in maps created by individuals rather than groups. The loss of personal information links in with many of the difficulties of team mental models (Hodgkinson & Johnson, 1994), but is in stark contrast with the benefits argued for individual maps – such as their support of personalised communication (Downs & Stea, 1977).

7.2.1.2 *The emergence of new information*

In addition, new information relating to the frame of 'communication' emerged, such as the link identified by the B and U level groups between communication and the elements of race and position in the hierarchy. Another example of this was the conceptualisation by the M level group (only in the second stage) that knowledge of the World Class Concept was held only with the Board. The C level's process representation of communication was of interest. The map was presented as a moving model, rather than as a 'snapshot', allowing for an understanding of causal influences on their experience of communication. As argued by Cossette and Audet (1992), the mapping process may allow for the elicitation of ideas difficult to uncover through other methods.

One of the possible reasons for the emergence of new issues is the sharing that occurred through the technique – allowing for a group-developed view. If Nonaka's (1996) conception that the process of articulation aids in uncovering tacit insight and new views is true, it could be argued that any method allowing for articulation and discussion may promote this. In addition, while this change in information was evident, detail present in the initial stages was lacking, and these new issues were represented in fairly simplistic ways. For the true benefit of this new information, it is the researcher's view that more time would need to be invested in their exploration, perhaps through other methods. The mapping would therefore serve as a trigger system (Fiol & Huff, 1992) – while more exploration may be needed for the full understanding of issues. However, for some there was no change in the information, such as for the C level's response following relationship mapping in terms of the impact of a lack, or presence, of communication. At both stages, issues such as the perceived connection between leadership ability and communication and the negative results of rumours were raised.

7.2.1.3 *Problem solving*

The control groups, as with the 'empowerment' frame of analysis, expressed the same views in both the first and second stages in terms of 'communication' (although the tone was more passive). In contrast, the experimental groups were less negative – engaging in problem solving around communication issues. For example, the B and U levels dealt with routes for communication (rather than the impact of poor

communication), while the M and B levels identified the need for knowledge of the change (the World Class Company Concept) to be passed through the organisation. This problem solving orientation could once again be linked with the emphasis on the bigger picture rather than individual elements. These shifts in the experimental groups, compared with the similarity of elements identified by the control groups in both the first and second stages, could allow for an argument of causality in terms of the types of changes. Once again, the limited number of subjects, the qualitative nature of information, and the fact that all information was not documented with the use of a precise method such as a dicta-phone implies that causality cannot be inferred with certainty.

7.2.2 Perceived impact of relationship mapping on communication

While the above discussion focused on changes observed in information dealing with the issue of 'communication' following relationship mapping, the issues raised below relate to the perceived impact of relationship mapping on communication. These views emerged through discussion with the participants themselves and the organisational facilitator.

7.2.2.1 *Changing the nature of information*

Participants reported that relationship mapping impacted on organisational communication by: simplifying information, making it more tangible and quantified, allowing for sharing and providing a common language. These views were supported by both the quantitative and qualitative analysis (in terms of the post relationship mapping questionnaires, and participant comments, respectively). The simplification of information was seen as both positive and negative – allowing for manageability of information, but removing a degree of richness. The simplification of the message adds to the facilitation of communication (Harrington, 1988), while contributing to the prevention of information overload (Anthony et al., 1993; Downs & Stea, 1977; Klimoski & Mohammed, 1994). However, in order to accommodate the sharing of views, information may have been lost in an over-simplified or 'compromised' map. This is supported in the quantitative results, where analysis of the post relationship mapping questionnaire indicated disagreement, from the M and B levels, with the statement that "the technique...is individualistic". Margulies and Wallace (1973)

argue that diagnosis may allow for shared perceptions to be revealed. However, in groups where not all perceptions were shared, useful information may have been discarded. One solution to counteract this finding may be to use multiple mental maps – thereby allowing for the emergence of personal understanding, and a more substantial process of information sharing (particularly with those who have not stayed abreast with the changes). It would have been interesting to observe the types of joint models emerging from groups of people across the organisational hierarchy.

Another issue of interest to the researcher relates to the possible impact of removing the non-directive focus of relationship mapping. While this would have removed many of the benefits of the technique, some guidance in terms of the inclusion of possible issues may have promoted more substantial and perhaps more comparable maps. Despite the difficulties of sharing information in a joint map, this was also reported as positive, with the method serving as a framework for the communication of views within the groups. Quantitative analysis also linked in with this, in terms of agreement indicated by participants with factors such as the technique "making different views of the change process clearer".

The fact that participants perceived the process as enabling the tangible expression of ideas, corresponds with the view that cognitive maps provide for graphical depiction of ideas (Downs & Stea, 1977; Langfield-Smith, 1992). In this way, it is seen that perceptions are made more 'real'. Information seemed to emerge more easily, being 'bubbled' to the surface. Quantitative results indicated an overall positive impact of relationship mapping on communication, with group aggregates (across levels) testifying to a sense of the discussion of change being positively influenced. From the quantitative results of the group process ratings, it was noted, however, that no statistically significant difference was found between the control and experimental groups on the group process factor of 'open, authentic communication', either before or following the relationship mapping. While none of the experimental groups reflected disagreement with the concept of 'open, authentic communication' following the relationship mapping, statistical significance was found between the M and U level's responses. M level participants reported strong agreement with a sense of open communication, while the U level was more neutral.

It is of interest that the mapping was seen as providing a common language. This was supported in the post relationship mapping questionnaire, with the group aggregates indicating agreement. Extending this positive aspect, the method could be used to facilitate communication across broader organisational levels as well as cultural gaps. It may also provide for the common language members of the M level groups expressed as missing due to many being left behind in the changes.

7.2.2.2 *The non-verbal aspect of mapping*

Lastly, participants highlighted the non-verbal nature of relationship mapping as both aiding and detracting from communication – in contrast with the researcher's preconceptions that this non-verbal component would be received in a positive light only. While it was argued that the method allowed for visualisation, indirect communication, and sketching when talking was difficult, those who felt that they needed, but lacked, creativity for the process may have been inhibited in expressing their ideas. In addition, the non-verbal benefits of the technique were diminished at points in the map-building process where the content to be included was discussed by participants, at which time the more vocal may have dominated. However, those who were less vocal were able to use the maps to demonstrate ideas. This is in strong contrast with Radford's (1995) assertion that relationship mapping allows for representation of ideas independent of language. However, this latter concern may particularly apply in the context of group relationship mapping.

The organisational facilitator argued that the maps aided those who were unable to articulate their views, who did not want to talk or who felt intimidated. The strength of non-verbal forms of expression can be seen in the use of metaphors, for instance, depicting the change process as an entity hanging by a noose. The use of such powerful images links in with Nonaka's comments regarding the benefits of metaphors, and reinforces the perception that such metaphors could be used for broader organisational communication (Hill & Levenhagen, 1995). In addition, the non-verbal nature of much of the relationship mapping process may allow for the abstraction and reflection seen as necessary for learning (DeChant, 1996; Kolb, 1996; Mayo & Lank, 1997; Seivert et al., 1996). In considering the different approaches from the various organisational levels to relationship mapping, the researcher observed that the U level engaged immediately with the mapping process, while the

M level focused for a period of time on discussion of the map and elements to include. As a result, this latter group may have lost some of the non-verbal benefits of mapping.

7.3 Understanding the change

Comments relating to the understanding people held of the change were divided into two sub-themes: 'aim of the change process', and 'factors changed/not changed'.

7.3.1 'Understanding the change'-related information: a comparison

The following changes in information relating to the frame 'understanding the change' were noted as emerging from the relationship mapping group:

7.3.1.1 *An integrated, 'collective' view*

While the initial sessions produced lists of issues which were frequently unrelated, the relationship maps presented the aims of the change process and factors seen as changed or not changed, within the context of an integrated holistic 'picture'. This linked in with changes identified in the other frames of analysis. The perceived 'aims of the change' were also affected by this more holistic focus, with the emphasis in the latter stage on issues such as unity and teamwork. Similarly, 'changed/not changed' elements were presented within an integrated framework. It can be seen that relationship mapping may therefore have allowed for a form of systems thinking.

It is, however, of concern that factors that did not fit neatly within this framework may have been lost. With the focus of relationship mapping on relationships between elements, individual issues may have been left out. This ties in with the view stated by Eden et al. (1979), that the format and nature of the modelling methods used may impact on the type of issues incorporated. It is of interest that participants, while encouraged to represent whatever aspects they considered to be relevant to the change process as they understood it, focused so heavily on structural interrelationships. Across the different levels, the complexity of maps differed (with greater complexity being evident in the M level map). This finding is mirrored in Hodgkinson and Johnson's (1994) view that those who require a greater degree of insight for their

positions, and who hold greater responsibility, possess taxonomies that are richer in nature.

7.3.1.2 The emergence of new issues

In addition, as with information relating to the other frames of analysis, the holistic focus may have played a role in the emergence of new issues – through assisting in the identification of gaps. For example, the M group placed emphasis on the needs of all staff – perhaps as a result of their increased awareness of the entire organisational picture. In this way, understanding of the changes may have been improved. As argued by Fiol and Huff (1992), attention may have been focused and memory triggered – therefore allowing for better organisation of ideas. Seivert et al. (1996) talk about learning through self-discovery, with information being drawn from inside rather than outside. While this may have played a role, it would possibly be intensified through the prior development of individual maps. It would be interesting to know if this new information would have emerged if, during the process of assessment, attention was placed on items identified by traditional OD models. When considering models such as that developed by Porras (1987) or Kilmann (1989), the usefulness of information elicited is difficult to doubt. However, the development of an understanding of the types of issues seen as important by those within the organisation would perhaps not be facilitated. Lastly, the fact that maps were generated through a process of information sharing may have aided the elicitation of these new ideas. In support, participants commented on the way in which different people contributed based on their understanding of the change.

7.3.1.2 *Diminished detail*

As with the other frames of analysis, a decrease in the level of information with regards the frame of 'understanding the change' was noted. The nature and strength of human and departmental relationships were depicted far more regularly than issues such as technology or business processes. An exception was the M level, where this business process focus was still largely present, alongside an increased focus on relationships. This emphasis on relationships was very evident for the U level, although understanding this emphasis aids a fuller picture of the group's perceptions. As previously noted, while detail may have been lost, the mapping process assisted in developing an understanding of factors participants themselves saw as important. The

key concern, in terms of the decreased detail, relates instead to the fact that, with the relationship mapping's focus on inter-relatedness, exclusion of independent factors may have been forced. While loss of detail applied in terms of the range of issues identified, more specific information was present in the maps in terms of the elements included (e.g. for the B group: *which* staff levels were informed of the changes). A useful further step would have been to mix the different levels, thus overcoming limits of information and facilitating understanding. This may counteract the possibility of 'group think', or the concern raised by theorists such as Hunt (1996), and Mayo and Lank (1997) that adaptability may be decreased if groups become fixed on models developed.

7.3.1.3 *Greater probing*

In terms of the perceived aims of the change process, in certain control groups (particularly the C and U level control groups) the degree of disillusionment was greater in the second phase and higher than the experimental groups'. As stated previously, the fact that these groups were responding to the same questions as in the first phase may have played a role here. Alternatively, the experimental groups may have demonstrated a more positive attitude due to the process of engaging in a degree of problem solving. Shifts in understanding were evident even at the U level, despite the fact that this group clearly possessed the least information around the change (focusing initially on aspects such as wages). Once again, while causality cannot be inferred with certainty (for reasons already discussed), it appears that there was a link between the relationship mapping, and the changes observed. While the relationship maps at all levels shifted, with a degree of problem solving evident, the difference in exposure to, and experience of, the changes was possibly highlighted by the findings from quantitative analysis of the post relationship mapping questionnaire. Here a statistically significant difference was found between the responses of the M and U level groups' responses to two of the items. For both items (seeing a change in the previous year in terms of both management, and relationships) the M level indicated a far greater sense of change.

7.3.2 Perceived impact of relationship mapping on understanding the change

The impact of the relationship mapping technique on the participants' understanding of the changes, as described by participants and the organisational facilitator, is discussed below.

7.3.2.1 *Presenting a holistic understanding*

Participants reported that the technique did have a positive impact on their understanding of the changes by placing all the elements of change in a holistic picture, and thereby exposing gaps in the framework. Linked with this holistic view was a heightened awareness of others' needs. This focus ties in with Senge's (1990) argument of the importance of systems thinking – allowing for a view of the inter-relatedness of components. The fact that maps were based on many people's opinions was also seen as beneficial. These elements were reinforced by analysis of the Likert-type scale, where participants indicated varying levels of agreement with the element "improves my understanding of the change process". In addition, the focus on enhanced understanding through the process of sharing, links in with Stata's (1996) statement that organisational learning occurs through the sharing of mental models and insights. However, for the researcher the question arises of how much true sharing there was – as individuals may not have fully tapped into their individual maps first. In this way, the methodology differed from other techniques, such as that suggested by de Geus' (1996) with the formation a joint mental model through the combination of many individual mental maps. As discussed before, it would be of interest to generate many individual mental models first and then a group map, comparing this with information generated with the formation of an initial group model. The degree to which these models are in fact shared is also not certain. However, as suggested by Fiol and Huff (1992), the development of shared models is easier where cognitive complexity of group members is similar. This may have applied here, as groups consisted of people from the same organisational level, who from their responses, were involved in the change to similar degrees.

In commenting on the technique, the organisational facilitator argued that understanding may have been enhanced with greater questioning on exactly how movement should be made from the current reality to the desired state.

7.4 Group processes

The research design included an assessment of group processes or interaction at all stages, through the group processes scale. This allowed for a check on the effectiveness of randomisation, and monitoring of changes in elements relating to group interaction. While consideration was given to the assessment of group processes as a moderating factor on relationship mapping, interaction with the organisation led the researcher to believe that the risk of drop out was high (due to factors such as the operating environment of the organisation). In addition, a thorough assessment of group processes could not take place before and after relationship mapping in the experimental groups, due to the constraints of real-world research. The opposite causality was of interest, and was derived from literature reviewed (e.g. Bettenhausen, 1991; Klimoski & Mohammed, 1994). As a result, group process measures were taken in the initial stage and following relationship mapping, to assess the nature of this link. The role of group processes as a moderating factor for relationship mapping was therefore not assessed as the key focus (apart from participants' feedback following relationship mapping), but would be of interest in future research.

7.4.1 Implication of findings related to 'group processes'

Analysis of the group process instruments indicated that randomisation was effective (in terms of group interaction in particular) – with no statistically significant difference between control and experimental groups, in first stage, in terms of group processes. In the second phase, significance was found between control and experimental groups on factors such as 'problem solving' and 'group goal clarity' (with the experimental groups shifting towards heightened problem solving, and the control groups indicating decreased group goal clarity). The change in the control groups towards decreased 'group goals clarity' may have been the result of these participants undergoing the same question process for a second time – with the resultant uncertainty around their purpose. The shift towards greater problem solving in the experimental groups links in with the reported impact of relationship mapping in facilitating thinking. There is therefore evidence for causality in terms of a positive impact of relationship mapping on perceived problem solving, although this causality can only be inferred with a degree of caution. This is as a result of factors such as the

limited number of subjects, and the levels of subject mortality between the two research stages.

In terms of the impact of group processes on the relationship mapping, participants from all levels did report that in the development of the maps all played a role, dependent on their personal knowledge. Analysis of the post relationship mapping questionnaire indicated, at a broader level, that group processes in the relationship mapping groups were sound. These views, and the team-oriented nature of relationship mapping, link in with Montgomery and Scalia's (1996) comment that organisations would benefit from information elicited from a wide range of sources. However, it is still in question whether group processes would have impacted on relationship mapping itself. One of the ways to overcome this dilemma would have been to include an additional measurement of group processes immediately before the relationship mapping. This difficulty ties in with the reality of real-world research. Participants cannot be involved in every element even where an 'ideal' research design is sought.

7.5 Relationship mapping: other observations

In terms of the efficacy of relationship mapping, a number of other observations, unrelated to the frames of analysis, need to be made. The relationship mapping technique was compared against Margulies and Wallace's (1973) five continuums, in terms of which it is suggested that research methods be rated. It appears that relationship mapping could best be described as direct, problem solving, unstructured (in that it does not identify elements to be included), less time consuming, and easy to administer. In contrast with methods such as process mapping, it does not take long to teach the technique. However, there are trade-offs such as less detailed information. Relationship mapping may provide images less 'real' and less detailed than those provided by sophisticated technology such as simulation software, but the technique includes a human element. By the conclusion of the research, Radford's (1995) view that the technique is accessible, even to those who are illiterate, was still viewed as accurate.

In terms of the support of relationship mapping for the foundations of OD, there is a strong link with the items identified by theorists in the field – such as participation and a systems focus (French & Bell, 1995; Hanson & Lubin, 1995), and problem solving (Huse & Bowditch, 1977). Cognitive mapping in general is seen as aiding behaviour change through shaping how people perceive the world (Fiol & Huff, 1992; Senge et al., 1994), although future research would need to investigate whether this holds true specifically for relationship mapping. From the results of this particular research, a link is clear between relationship mapping and the elements considered to be critical for successful change, most notably those of communication and empowerment (as identified by Trahant & Burke, 1995).

Chapter Eight

CRITIQUE OF THE STUDY

Following the discussion of research results, it is deemed important to engage in a critique of the study to consider the limitations and strengths of the research. In this way, discussion of the results is placed within a broader understanding of methodological shortcomings and strengths in order to provide some basis for the interpretation of findings. The following section is therefore directed towards the presentation of a critical assessment of the research processes, content, and outcomes, and the value of the research itself.

Many of the elements identified below relate to the reality of fieldwork, and in particular, the use of an experimental-type design in the context of a real organisation. Research in such a setting can never be perfect, as the researcher frequently does not have control over the participation of subjects or the research circumstances. Despite these difficulties, some judgement needs to be made in terms of the usefulness and value of the research findings, and means for remedying shortcomings. Some critique of the methodology has already taken place in the sections dealing with methodology and the presentation of results. To prevent repetition, these issues will not be restated here.

8.1 The research design

The research design was conceptualised as a classical control group design (untreated control group design with pre-test and post-test). The incorporation of a control group in the design provided a means through which to enhance the quality and reliability of the findings. It does, however, need to be noted that the measurement technique used, in the form of the focus group discussions, was not unobtrusive and may therefore have had an impact on the findings (with this applying for both experimental and control groups). This learning is a positive one – future studies would benefit from the use of a less interactive measure. In addition, with the control groups repeating the same discussion in the second session, responses may have been affected by a degree of boredom. This may possibly account for the decreased length of response given by these participants.

The research did not allow for control of subject mortality, with a number of participants being unable to attend different stages of the research. However, the design did incorporate the use of pre-tests and post-tests in the form of group process assessments, and allowed for a degree of methodological triangulation, in order to provide for greater control.

8.2 The researcher's role in the process

One of the difficulties in conducting research in a field setting is the issue of access (Cook & Campbell, 1976). In the current study, the researcher entered the research process and was introduced to participants as a neutral person (in this way facilitating openness and honesty). However, the researcher's first go-ahead for the study came from management. The development of questions through the action research process was also chiefly from the management 'camp'. While neutrality and confidentiality was assured and adhered to (a non-biased approach maintained and comments not tied back to particular individuals), this link with management needs to be acknowledged. In addition, the researcher entered the research situation with limited knowledge of the actual aims of the change process. This can be seen in a positive light as the researcher played the role of a 'blank slate', yet some useful information and ideas may not have been elicited or questioned due to this bounded initial knowledge of the change process aims.

8.3 Participant-related issues: selection, involvement, and information

With participants selected and allocated to control or experimental groups on a random basis (within a blocking structure), elements such as selection, history, and maturation were controlled (Cook & Campbell, 1976). Analysis of the group process instruments indicated that randomisation was effective between the control and experimental groups at the initial stage (in terms of group processes). This randomised selection therefore contributed to the overall control group design of the research. In this way, differentiation between possible experimental effects and those resulting from participant characteristics or external influences was assisted.

Involvement of participants across all the stages of the research varied (as has been discussed in Section 4.1.1). In retrospect, it would have been beneficial to record

participants' responses to the research process itself and their reasons for lack of attendance. These comments and reactions may have formed an additional basis for triangulation of the results, gauging how people felt about the change process and thereby adding to the richness of the research findings. During the research, the types of comments made were noted, but the exact comments and their regularity were not documented.

Participant-related information collected included gender, population group, and home language. While this was useful in providing an overall profile of participants, individuals and their responses were not tagged. The research process was designed in this way to ensure that participants felt sufficiently comfortable and safe to discuss their experiences of the change openly. Due to the fact that participants' responses were not individually monitored, analysis was limited to group-level assessment, with more rigorous statistical analysis not being possible (please refer back to section 5.4.1 for a more thorough discussion of this constraint). Investigation into the different experience of relationship mapping across factors such as gender, age, and language may be of interest, although this was not part of the current study.

8.4 Research methodology: tools and procedures

The purpose of incorporating a range of methodological tools into the study was to investigate the utility and impact of relationship mapping, whilst providing for a degree of triangulation. The manner in which these techniques were implemented is critiqued below.

8.4.1 The group process scale

Methodological issues relating to the group process measure, including factors such as reliability and validity, have been discussed in section 4.4.6. In addition to the key points mentioned, it is important to note the usefulness of this measure. Analysis of results indicated that respondents were consistent in their responses to the various sub-scales, with reverse-scored items rated in correspondence with items from the same sub-scale. The use of two different types of rating systems (for Part A and Part B of the group process instrument) was of concern. It became evident (from participant queries), that the utilisation of the two different scales was confusing and

needed to receive greater attention. To counter this, explanations of the rating scales took place in English, Afrikaans, and Xhosa, and were provided until there were no further queries.

8.4.2 Focus group discussions

The focus group discussions served as a data-collection technique to provide an alternative source of information to the relationship mapping procedure. This aided as a form of pre and post measure for the control groups – allowing for comparison with the experimental groups' initial responses. In the second stage, focus group discussion questions for the experimental groups included some of those dealt with in the first stage, and additional questions relating to the relationship mapping procedure. The fact that not all the questions were exactly the same as in the first period places a constraint on the extent to which responses could be compared. Despite this, a range of information was elicited, with a sound number of similar questions asked to allow for comparability. Additionally, the facilitation of all focus group discussions by one individual (the researcher) may have beneficially prevented style variation. In terms of the questions used in the focus group discussions, it is important to note, once again, that these were derived from organisational literature, discussions with members of the organisation (honing the language to suite the organisational culture) and the initial one on one interviews. Through this process of action research, development of questions suitable to the organisation and the change-related issues was aided, ensuring relevance of the measure.

8.4.3 The use of relationship mapping

In terms of the relationship mapping procedure itself, participants adhered to the instructions provided. However, as one individual in the management team commented, it would have been better if there had been a greater variety of objects to manipulate. This would have provided participants with an additional array of representational tools. In addition, as the organisational facilitator noted, further development of the questioning process following the relationship mapping, may have enhanced participant involvement in the change process. A supplementary question could have been 'What needs to be done to get to your envisaged ideal state?'

Probing the role of participants in the changes may also have lead to a greater sense of control and a more empowered outlook.

8.4.4 The post relationship mapping questionnaire

Following the relationship mapping procedure, use of the post relationship mapping tool contributed to information around the impact of the relationship mapping and allowed for a degree of triangulation. Here, the Likert-type scale utilised was the same as that used in Part A of the group process instrument (preventing the further introduction of another scale format). The scale incorporated a number of corresponding items, and utilised reverse-scoring for one item. This measure was beneficial in that it allowed for participants to place their views privately. Nevertheless, it had limitations that would apply to most measures of this nature, in particular, a limit on the richness of information elicited due to the structured format, although an attempt was made to counter this by providing the possibility for additional comments. In addition, for some items, participants may have become confused through the combination of two independent issues in one phrase (e.g. "The technique is useful in that it is individualistic").

8.4.5 Use of translators

For all discussions with participants (including focus group discussions, explanations of relationship mapping and the rating of various scales), use was made of translators to ensure that participants were able to understand the discussion and express themselves. All scales handed out to participants were translated into English, Afrikaans, and Xhosa to aid participant understanding. While these translators facilitated the process of discussion (and the clarification of instructions), difficulties inherent to the use of translators arose. Included here is difficulty in converting ideas expressed in one language into another, with exactly the same degree of emphasis. In addition, translation of expressions such as metaphors is not necessarily effective. Some of the information provided by participants may therefore not have been accurately or fully captured. This concern is one that relates to all research and is not specific to this study. If the alternative is to exclude certain participants, the use of translators is clearly the better option.

8.4.6 Recording of participant input

Another factor for consideration in this critique relates to the recording of participant input. It has already been noted that during the interviews and focus group discussions, participants' responses were recorded verbatim. Recording technologies (such as dicta-phones) were not used, due to the sensitivity expressed by participants. While this limited the precision of data collection, the checking of information recorded on flip charts during focus group discussions with the groups concerned, ensured that the data was accurate. Nevertheless, it would have been beneficial to have a second person taking notes, serving as a crosscheck and ensuring a sound database. In contrast, the use of video-recording facilities during the explanation stages of the relationship mapping sessions was successful in providing a solid source for information retrieval. While this information could have been maximised through use as a feedback source for the organisation, the sensitivity of the matter, and participants' fear of being videotaped, is, in itself, a highly useful information source on the organisational culture.

8.4.7 Triangulation

A key question relating to the methodologies discussed above is the issue of triangulation and the degree to which this was achieved. Methodological triangulation incorporated questions relating to efficacy of relationship mapping in the experimental groups' focus group discussions, the post relationship mapping questionnaires, and the discussion with the key organisational facilitator. Some of the elements within the group process scale, such as those relating to open communication, and problem solving, also linked in here (with a useful cross-check between the group process scale and certain items rated in the post relationship mapping questionnaire). It was mostly in the experimental group processes that triangulation applied (such as the link between the group process instruments, and the post relationship mapping questionnaire). Triangulation was only catered for with particular components (not all the issues covered in the focus group discussions were mirrored in other measures). While the methodological triangulation was not complete, it did provide for greater control over findings. The difficulties encountered due to the qualitative nature of the study further points towards the importance of triangulation, and the need for more quantitative assessments of the relationship mapping technique as a follow-up to this particular research.

8.5 Data analysis

Assessment of the key constraints with regards the qualitative analysis have already been covered in section 5.1.1 of the Chapter 5. In addition to critical assessment of the results and analysis previously made, a few additional issues need to be highlighted. Firstly, it is acknowledged that during the analysis of the qualitative data, the researcher engaged subjectively with the material, although a systematic approach was used (through the process of thematic analysis). Analysis of the reliability of coding, using an inter-rater reliability check (determining agreement between the researcher's rating, and codes assigned by independent raters) indicated a high level of agreement. This removed some of the concerns relating to the subjective nature of coding. It is also noted that the use of a number of independent analysts assessing the data and determining themes and sub-themes in order to ensure reliability across all the data, would have been beneficial. However, the benefit of utilising one analyst lies in the greater possibility of consistency in terms of the development of patterns and assessment of the data (where rater characteristics do not need to be balanced).

8.6 Efficacy of the action research approach

The key period during which an action research approach was utilised was in the development of questions for the focus group discussions. Here it allowed for members of the organisation to interact with the researcher and shape the questions in a manner that suited the organisation's culture. The researcher was also able to further develop the questionnaire in line with any possible areas that may have been omitted at first.

However, it emerged (particularly following further discussion with the key organisational facilitator) that the action research method could have been taken to an additional level. The impact of relationship mapping – in terms of enhancing organisational understanding of the change process – may have been greater if the feedback to the organisation had been more effective. This criticism relates to the broader issue of how the research was carried out as a whole. At the initiation of the research, it was agreed that the feedback of the research results, to all those involved, would take place through a mechanism jointly determined by the organisation and the researcher. When the researcher provided feedback, this was passed on to one

component of the organisation – rather than to all participants or sections of the business. The agreement was that the joint method for general feedback would then be determined. While this feedback process was envisioned, no real feedback to those involved in the research took place. One key reason was the fact that the research did not take place within a broader organisational initiative, but was treated as a separate 'gauge' of where staff members were. With a poor link to any other organisational processes, the outcome was that management felt that it would be unwise to feedback to the organisation without solutions to the identified issues. While this critique does not have a bearing on the validity of the results, it can be seen that the potential long-term impact of the relationship maps may have been decreased.

8.7 Internal validity, and broader applicability of results

As already stated, through the use of randomisation, many of the dangers to internal validity (such as history, maturation, and selection effects) were controlled. Through randomisation, the participants included in the study could be seen as representative of the population from the research site at the time of the research. However, the representatively of the sample to the organisation as a whole, and to other similar scenarios of organisational development, cannot be conclusively determined. It could be argued that some of the general issues surrounding relationship mapping may apply for the use of technique in any scenario of organisational development (particularly where these results are supported by literature in the field). This research did not allow for broader assessment of the generalisation of the results to other organisations, although the rigour of the research design may allow for greater degree of generalisation. For further assessment of the usefulness and impact of relationship mapping across a variety of scenarios, cross-organisational studies would be of interest.

In conclusion, the above discussion has attempted to reveal limitations and strengths of the current study. While limitations were present, these can be used in a valuable manner to inform future research, in this way aiding in the greater understanding of relationship mapping. The following section (Chapter 9) deals with the conclusions derived through the research, in addition to which recommendations for future research are made.

Chapter Nine
CONCLUSION

The research set out to attain two primary goals. The first of these was to examine the effectiveness of relationship mapping as a tool for exploring the experience of 'planned organisational change', in a participatory manner. The second goal was to investigate the possible impact of relationship mapping on those using the method. Research results for both of these goals were examined through three frames of analysis or 'lenses', derived through a review of the literature pertaining to mental models and OD and further developed through interaction with the organisation. These frames of analysis are significant in their own right and include 'empowerment', 'communication', and 'understanding the change'. Incorporated into the research was an analysis of group processes, serving as an additional check on the relationship mapping technique. The study was carried out in a South African manufacturing organisation and incorporated assessment of these goals across four, hierarchically-divided, organisational levels.

In designing the research, literature related specifically to the fields of OD, perception, and cognitive mapping (the theoretical foundation of relationship mapping) was examined. A review of relevant literature has been presented, with the purpose of providing a basis through which to understand and interpret results.

In attempting to explore the research goals, as set out above, the methodology incorporated the use of an experimental group design, combining quantitative and qualitative methods. Participants were randomly selected, with a control and experimental group for each of the four organisational levels. The initial stage of the research involved the use of in-depth interviews (to develop the focus group questionnaire schedule), focus group discussions, and a group process scale for all groups. In the second stage, while the control groups engaged with the same methodologies, experimental groups went through the relationship mapping procedure, followed by a focus group discussion, use of the group process scale, and a post relationship mapping questionnaire. Use was made of translators in all interactions with participants.

Qualitative data collected was examined using thematic analysis, while quantitative data was analysed with statistical measures such as independent t-tests and analysis of variance. Through the process of thematic analysis, information categorised within the various frames of analysis was structured into sub-themes (elicited entirely from the data). Information extracted from the relationship mapping groups was contrasted with that emerging from those undergoing focus group discussions only. In support of the qualitative comparisons made across the stages of the research, analysis of the group process scale contrasted findings between control and experimental groups across the time periods, and across the different levels of both experimental and control condition.

9.1 Key findings: changes in information

Findings revealed that, through the relationship mapping technique, information in terms of all three frames of analysis showed an increase of focus on systems and interrelationships, and a greater degree of questioning and problem solving (as compared with information emerging through focus group discussions alone). For all three frames of analysis, a level of new information emerged. With this change towards a more systemic representation of information, it can be seen that the method enables participants to focus beyond their own jobs and consider the broader picture. The level of detail presented in the maps in terms of each of the analysis frames was less than that emerging from the focus group discussions, and while this was found to be beneficial in making information more manageable, a level of richness was lost.

Contrary to expectations that the technique would provide for an individualistic way of representing experience, a dearth of the more personal and individual information was evident in the relationship maps. While the technique may have provided for an original form of representation, this lack of the 'personal' is a potential flaw in the method. To examine this concern more fully, use would need to be made of individual as well as group-level maps (as this finding may have been related to the fact that maps were jointly derived). The study has therefore contributed to the level of understanding of the unique types of information elicited through relationship mapping. The experimental design, together with the fairly consistent similarities in the information emerging at the initial stage between the control and experimental groups, allows for some inference of causality to be made in terms of these information changes. However, causality in terms

of the impact of relationship mapping on these information changes cannot be claimed with certainty due to previously specified limitations in the study.

9.2 Key findings: impact of the technique on participants

In considering the impact of the technique on participants, within the 'empowerment' frame of analysis it was found that the technique allowed for participant involvement, provoked personal realisations in terms of the participants' role in the change, and facilitated thinking. However, the relationship maps did not appear to demonstrate an internal locus of control – thus raising questions on the extent of empowerment. In terms of 'communication', participants felt the technique helped to change the nature of information (simplifying, concretising, quantifying, allowing for a common language) and provided a framework for sharing views. Simplification of information was also seen as a drawback, alongside the loss of personal views in the creation of a composite map. It is also questionable whether the metaphorical nature of information presented in the maps is specific and detailed enough to allow action to flow from it. The information would need to be processed further for action to result. The non-verbal nature of the map, while promoting a different, metaphorical form of expression, was experienced as inhibiting to those who felt visually uncreative.

In terms of the impact of the method on the understanding participants held of the change, participant reports indicated improved comprehension through considering all factors as interrelated, and through the process of sharing with others. Of concern was the trend that information related far more to relationships than 'harder' business issues. While these 'harder' issues were raised through the focus group discussions, their absence in the relationship maps may imply that this is a result of relationship mapping itself, rather than a consequence of the organisation's change process. This consideration would need to be assessed in further studies of the method. Although this focus on relationships provides a useful perspective, its limitation would constitute a potential flaw in the method.

Results were marked by clear distinctions across the different organisational levels. The role played by participants in the change process was closely linked to their position in the organisational hierarchy, with the depth of information in both focus group

discussions and relationship maps reflecting the level of knowledge held. However, to fully explore the mental models and tacit knowledge held by individuals, a more lengthy process of elicitation would be required.

Analysis of group processes indicated no statistical significance between control and experimental groups prior to relationship mapping, while a shift (in different areas) was evident in both the control and experimental groups in the second stage. From these findings, it appears that relationship mapping may have aided group interaction (and in particular, problem solving) in the experimental groups. This would require further investigation. Interestingly, differences found between levels in both the control and experimental groups existed between the management and bargaining unit levels.

9.3 Overall contribution of the research

At an overall level, it is believed that the research contributed to some understanding of relationship mapping, the role it may play in participatory assessment of OD and in understanding the experiences of those undergoing OD. Its impact on those using it has also been considered. The fact that users of the technique are able to generate their own representations with little or no assistance – thereby aiding participation – supports the value of relationship mapping as a tool in transformation. However, it is recommended that the technique be utilised alongside other research tools, allowing for the balancing of its possible weaknesses. From information emerging from the groups, it was felt that understanding of the field of OD itself has been improved (in particular, through viewing the inter-relatedness of elements within a OD process). While the research here did not explicitly attempt to add to the theory on OD, the sub-themes developed have provided a picture of the unique experience of change within the chosen organisational environment, in this way adding to the body of related knowledge.

9.4 Suggestions for future research

As a result of the research experience, the use of the relationship mapping technique, and consideration of the findings within the context of the research limitations, suggestions for future research have emerged which would allow for further exploration of relationship mapping. Firstly, the current research was able to determine some of the implications of using relationship mapping as a means to assess OD in a

participatory manner, and understand participants' experience of OD. However, causality could not be strongly inferred due to the nature of the data and elements in the research methodology. In expanding on the current research, future investigation of the relationship mapping technique would benefit from the utilisation of more data, and a scenario where the responses of all individuals could be tracked over the time period, with groups balanced in attendance numbers. Control of other moderating factors, such as educational level, may also aid. This would allow for a greater degree of certainty in the analysis of results. With the reality of research in a real-world setting, these elements could not be controlled in the current study.

It would also be of interest to explore in further detail the non-verbal characteristics of the relationship mapping technique. The current study involved the analysis of information presented in the relationship maps, as explained by participants (presented in Appendix H) – yet analysis of the relationship mapping images themselves (please see Appendix I) did not take place. This would provide a useful additional level to analysis, and in an individual mapping session, could remove the need for participants to verbalise their maps.

In considering the impact of the relationship mapping procedure on those using it, the current study relied on self-reports and observations. However, the long-term impact of the method on elements such as 'empowerment' was not tapped. Potential value could therefore be derived from a longitudinal study assessing behaviour and actions following the relationship mapping period. Implementation of a longitudinal study incorporating repeated use of relationship mapping over a period of time would also be of interest – allowing for consideration of factors such as the reliability of the method, and the depth of information elicited through repeated mapping sessions. Use of a more intensive mapping period may also aid in the determination of whether the simplification (and in some ways, over-simplification) identified in the maps in the current study is inherent in the technique, or a result of its use in the research.

The research focused specifically on maps generated by groups of people – adding a layer of complexity and bringing in additional variables. Much of the theory around team mental models indicates the difficulty in generating shared maps. While the research may have contributed to the understanding, results indicate that a level of

personal input was lost. Future research could enhance understanding through a comparison of composite maps developed through consolidation of individual maps, versus the creation of a composite map as a starting point. In this way, the level of tacit insight elicited through individuals could be considered and compared. It would be interesting to identify alternative methods for generating valid composite maps which do not lose the rich detail that may be found in each of the component maps. Assessment of the degree to which maps are truly 'shared' would aid in the understanding of the field. In addition, videotaping of the actual process of the relationship map construction, with a focus on the analysis of participant interactions, would possibly deepen the understanding of group relationship mapping. Understanding of the concept and nature of shared mental maps and their long-term impact would also be enhanced through investigating differences between the types of relationship maps emerging from various forms of teams, versus those constructed by groups of people (brought together for the process of mapping only).

In terms of the usefulness of relationship mapping within an OD scenario, assessment of the impact of the method on other critical factors, such as employee commitment, would be of great interest. While the research dealt with a limited array of OD-related aspects, relationship mapping may have an impact on other components of OD. It may also hold potential as a change management tool. Within the changing South African context, it may be possible to use relationship mapping to investigate the differences in perceptions emerging from various categories of people (divided, for example, in terms of race, gender and language).

In conclusion, within the constraints of the research process, it is felt that the two major goals of the research have been attained. The research has demonstrated both the effectiveness and the drawbacks of relationship mapping in assessing employees' perceptions of organisational change. The research also clearly demonstrates that relationship mapping has a measurable impact on those using it.

APPENDIX A

Message sent to participants by the organisation

TRANSFORMATION PROGRESS

Our progress in becoming a world class company needs to be measured like everything else that we do. You have been randomly selected to part take in an exercise to determine how the employees of "XYZ" perceive the progress of the transformation process and what, if any, further developments/changes are required. This will ensure that we do things for the right reasons.

The exercise will be conducted by Justine Neke from UCT who will contact some of you for initial in depth interviews shortly. There will also be a group exercise of approximately 2 hours after which she will again conduct interviews with some of the participants.

We hope that you will use this opportunity to assist "XYZ" in keeping the transformation process on the right track.

Please contact myself or Ms R. B. if you need any further information.

Mr F. L.

APPENDIX B

Questions for in-depth interviews and focus group discussions *(Use: Pre relationship mapping for both groups; Post relationship mapping for the experimental group)*

1. What has your experience of the change process in XYZ been?
2. Role in the change process? (link to perspective?)
3. Understanding of the change process?
4. Ease of talking/thinking/communication about the change process?
5. Sense of personal control with respect to the change process?
6. Are your leaders/ senior management capable of bringing about a successful change process?
   → if so, why?
   → if not, why?
7. To what extent do you believe that your direct head contributes to the change process?
   → why?
8. To what extent are people committed to change?
9. Have you seen a change in the company in the last year?
   → in management
   → in relationships
   → in the way you work together
   →If you feel that there has been a change, what and how?
10. What do you think the chances are that the company will improve? (the possibility of change)
    → in terms of relationships
    → in the way you work together
11. What has/has not worked in the change process?
    → on a group level?
    → on an individual level?
    → at an organisational level?
12. How did the change process affect:
    → the individual
    → the department
    → the site
13. What do you see as the end goal?

APPENDIX C

Questions for focus group discussion: post relationship mapping *(Use: Post relationship mapping for the experimental group)*

Where in bold: participants to rate responses on separate form (Appendix F).

Indication of probe: →

Communication in terms of the change process

1. What was it like doing the relationship mapping?
   → how useful?

2. How has relationship mapping helped you/not helped you to discuss your change process?
   → **simplification of ideas?**
   → **organise understanding of where different elements/people are?**
   → **provided common "language"?**
   PLEASE RATE 1

3. Where there any problems experienced with relationship mapping?
   → e.g. some not being graphically oriented.

4. Did relationship mapping assist in making different views of the change process clearer:
   → **within group**
   → **between groups**
   PLEASE RATE 2
   → what influences different views?

5. In what ways, if any, have language abilities impacted on relationship-mapping (or the ability of an individual to get their views considered)?
   → different languages
   → eloquence
   → language of those with power/influence

6. To what extent has relationship-mapping helped to deal with communication between individuals in the group who speak different home languages?

Group processes

7. To what degree did all participate in the mapping?

PLEASE RATE 3

→ Why?

8. What roles helped and what roles did not?

→ What were the different roles?

PLEASE RATE 4

9. In the group, was there anything that did not work?

→ ways of dealing with conflict?

→ is there room to discuss/resolve within the procedure?

10. How did you deal with different views ?

→ communication

→ listening

→ was this dependent on power dynamics?

PLEASE RATE 5

Enhances participant understanding

11. Has relationship-mapping improved your understanding of the change process?

→ in terms of what to expect? (How?)

→ in terms of what has occurred before/ others behaviour? (How?)

→ in terms of. your position/ role? (How?)

Effect on individual's sense of control

12. In what way, if any, has relationship-mapping improved your understanding of your role in the change process?

→ **understanding environment**

→ **understanding past/ future role**

PLEASE RATE 6

13. What, if anything, do you plan to do differently after the relationship-mapping?

→ communication/ interaction?

→ behaviour?

→ job tasks?

→ relating to change?

PLEASE RATE 7

Usefulness of technique

14. In which ways is the technique useful?

→ **simplifies?**

→ **individualistic?**
→ **provides common language**
→ **predicting/explaining behaviour**
→ **improving understanding of self?**
→ **improving understanding of the change process**
→ Discuss

PLEASE RATE 8

15. Does it help in creating a holistic picture of the change process/organise knowledge?

16. Has it helped in understanding different views?

<u>The change process: general questions</u>

17. *PLEASE RATE 9*
→ If you feel that there has been a change, What and How?

18. What do you understand under the change in the company
→ what is your perception?
→ how do you feel about change?

19. Are your leaders/ senior management capable of bringing about a successful change process?
→ If so, why?
→ If not, why?

20. To what extent do you think that your direct head contributes to the change process?
→ Why?

<u>What has been a success in the change process?</u>

21. What has/ has not worked in the change process?
→ on a group level?
→ on an individual level?
→ at an organisational level?

<u>Credibility of the change process</u>

22. What do you see as the end goal?
→ is it clear?

APPENDIX D

Group process scale

Part A

Please rate your responses to the following statements, using the scale below:

1 2 3 4 5 6 7

where 1 = Strongly disagree; 2 = Disagree; 3 = Slightly disagree; 4 = Neither agree nor disagree; 5 = Slightly agree; 6 = Agree; 7 = Strongly agree. Circle your response.

1. I feel I am really part of this group

1 2 3 4 5 6 7

2. This group knows exactly what things it has to get done

1 2 3 4 5 6 7

3. People who offer new ideas in this group are likely to get "clobbered"/ridiculed

1 2 3 4 5 6 7

4. Members of this group vary widely in their skills and abilities

1 2 3 4 5 6 7

5. My co-workers are afraid to express their real views

1 2 3 4 5 6 7

6. Each member of this group has a clear idea of the group's goals

1 2 3 4 5 6 7

7. If we have a decision to make, everyone is involved in making it

1 2 3 4 5 6 7

8. This group contains members with widely varying backgrounds

1 2 3 4 5 6 7

9. We tell each other how we are feeling

1 2 3 4 5 6 7

10. Some of the people in the group have no respect for others

1 2 3 4 5 6 7

11. I look forward to being with members of this group

1 2 3 4 5 6 7

12. There are feelings among members of this group which tend to pull the group apart

1 2 3 4 5 6 7

13. In this group everyone gets listened to

1 2 3 4 5 6 7

14. There is constant bickering (unnecessary argument) in this group

1 2 3 4 5 6 7

Part B

Please rate your response on the following scale:

1 2 3 4 5

where: 1 = Strongly agree with (a); 2 = Agree with (a); 3 = Neutral; 4 = agree with (b); 5 = Strongly agree with (b). Circle your response.

15. When we are working for solutions to task related problems, the group seems mostly concerned with:

a) finding the best solution

b) whose solution is accepted

1 2 3 4 5

16. The nature of the personal relationships between persons in this group tends to be characterised by:

a) knowing that others will provide support and encouragement

b) assuming that others will often act to your disadvantage

1 2 3 4 5

17. With respect to the objectives of this group, it is probable that individual problem-solving techniques will

a) be difficult to integrate

b) easy to integrate

1 2 3 4 5

18. In solving task related problems our group is satisfied with:

a) producing acceptable alternatives

b) finding the best alternative

1 2 3 4 5

19. When group members meet or work jointly on problems:

a) they tend to build on each other's ideas

b) they tend to compete for acceptance of personal ideas

1 2 3 4 5

20. When a promising but uncertain approach to a problem fails, the group:

a) focuses on the failure

b) focuses on learning from the approach

1 2 3 4 5

21. The way in which our group tries to regulate and tie together its activities is by:

a) a continuous sharing with each other of results on what we are doing

b) leaving it to one person in the group

1 2 3 4 5

22. In carrying out our assignment the group members try to:

a) act as consultants to each other

b) let each man/woman look after him/herself

1 2 3 4 5

23. If someone makes a mistake, others generally:

a) point out his/her error and discuss it with him/her

b) avoid drawing attention to it

1 2 3 4 5

24. In most dealings with each other, group members try to:

a) really open up about what they think and feel

b) keep their thoughts and reactions to themselves

1 2 3 4 5

25. When someone in the group offers praise or criticism to someone else:

a) you can really believe he/she means it

b) you can never really be sure what he/she is up to

1 2 3 4 5

26. When several team members are discussing an issue:

a) it is best not to say anything that might make one look bad

b) it is alright to comment or ask questions about anything one does not understand

1 2 3 4 5

EXPLANATIONS OF FACTOR ANALYSIS:

Part A

Factors:

Group Homogeneity: # 4 and # 8

Group Goal Clarity: # 2 and # 6

Group Cohesiveness: # 1 and # 11

Open Group Process: # 9, # 5 (reverse-scored), # 13, and # 7

Internal Fragmentation: # 12, # 10, # 14, and # 3

Part B

Factors:

Problem solving through support and integration: # 15, # 16, # 17 (reverse-scored), # 18 (reverse-scored), # 19, and # 20 (reverse-scored)

Open, authentic communication: # 21, # 22, # 23, # 24, # 25, and # 26 (reverse-scored)

Loading of factor items (Part B):

# 15: .78	# 16: .75	# 17: .70
# 18: .70	# 19: .64	# 20: .64
# 21: .78	# 22: .73	# 23: .60
# 24: .59	# 25: .51	# 26: .46

APPENDIX E

Relationship mapping procedure

1. The technique was developed as a means of long-distance communication about the political conflict in KwaZulu-Natal. Relationship mapping is a method that can be used to make sense of an organisational situation, and to communicate your understanding to others.

Explanations to be given to participants

2. It is not a physical map – instead, objects can be used to represent one's understanding of a situation.
3. There are no right or wrong answers: the 'map' helps to understand perceptions that are held by people.
4. Participants will be given the opportunity to represent the transformation/change over the last two years through the technique of relationship mapping.
5. A graphical representation will be made, using furniture/fittings in the room, where the:

   size of the objects represent the **influence** of any components such as a **technology/person/process** or system that is appropriate;

   distance between objects represents the **strength** of relationship between any parts of the map;

   colour and **shape** can also represent anything the group chooses;

   string may represent anything, such as boundaries or connections;

6. Provide both these examples, moving suitable objects around to demonstrate. E.g. Could look at the government in transformation. The aspects chosen by a particular group may be a person (Mandela), parties (the ANC, SACP, Cosatu), the process of the Truth and Reconciliation Commission. Each of these aspects would be represented by the appropriately sized object, and the distance between the objects would be used to demonstrate the closeness of relationship between each. Colour and shape would be used as desired. String and rope of different colours and thickness could also be used.

E.g. Another possibility could be a family, where there is a child and two parents. While the mother may be situated closer to the child in relationship to the father, the father's influence may be greater (signalled by a larger shaped object), due to the ownership of certain technology (a computer) – also represented by another object.

7. Participants are required to position the objects in the room in a way that demonstrates how the group understands the changes that the company has been going through for the last two years.
8. There will be a one-hour time limit for the relationship mapping process.
9. The focus of the group should not be restricted to a particular area/people/processes/technology by the facilitator: the value is in determining what the participants consider to be important enough to include.

<u>During the process</u>

10. Try to prevent anyone from dominating the discussion or decision-making: explain that it is a group map.
11. If any conflicts arise, leave the group to find a resolution. If they are unable to, and there is limited time, try to get them to come to some decision or compromise.
12. There should be no writing up on paper, such as writing down percentages to determine influence. If the group begins doing this, ask them to stop and think about which object in the room approximates the size of influence.
13. When they are thinking about size and distance at the initial stages, ask questions to encourage thought. For example, when they have come up with an object (e.g.: "this chair represents HR"), ask them "Is it the right size?"

<u>In terms of the researcher's role, and the process</u>

14. The role of the researcher is to serve as independent observer – with the aim of assessing the organisation's progress with the transformation.
15. All comments are confidential. There are no right or wrong answers.
16. Check with participants whether there would be any objections to the explanations, maps (and session) being captured on video-recorder. Explain that this would aid the organisation and the assessment process in understanding perceptions around the changes.

After the RM session

Questions to be asked:

17. Please explain your map?
18. If you were to improve the transformation, or make it more effective, what would you change?
19. Why?

APPENDIX F

Focus group discussion: participant ratings

Please rate your responses to the following statements, using the scale:

1 2 3 4 5 6 7

Where 1 = Strongly disagree; 2 = Disagree; 3 = Slightly disagree; 4 = Neither agree nor disagree; 5 = Slightly agree; 6 = Agree; 7 = Strongly agree. Please circle your response.

1. Relationship mapping has helped me to discuss the change process through:

a) simplification of ideas:

1 2 3 4 5 6 7 (FGR1)

b) helping to organise my understanding of where different elements/people are:

1 2 3 4 5 6 7 (FGR2)

c) providing a common "language":

1 2 3 4 5 6 7 (FGR3)

Any comments? _____

_____

2. Relationship mapping assisted in making different views of the change process clearer:

a) within group:

1 2 3 4 5 6 7 (FGR4)

b) between groups:

1 2 3 4 5 6 7 (FGR5)

Any comments? _____

_____

3. Everybody in the group participated in the mapping:

1 2 3 4 5 6 7 (FGR6)

Any comments? _____

_____

4. I felt my views were taken seriously in terms of being:

a) included in map:

1 2 3 4 5 6 7 (FGR7)

b) acknowledged, but not more:

1 2 3 4 5 6 7 (FGR8)

Any comments? _____

_____

5. There was strong group cohesiveness during/after relationship mapping, in terms of:

a) communication:

1 2 3 4 5 6 7 (FGR9)

b) views of the change process/ mental maps:

1 2 3 4 5 6 7 (FGR10)

c) team work:

1 2 3 4 5 6 7 (FGR11)

d) a joint sense of security about understanding future/ our positions:

1 2 3 4 5 6 7 (FGR12)

Any comments? _____

_____

6. Relationship mapping has improved my understanding of my role in the change process through improved:

a) understanding of the environment:

1 2 3 4 5 6 7 (FGR13)

b) understanding of my past/ future role:

1 2 3 4 5 6 7 (FGR14)

Any comments? _____

_____

7. Relationship mapping has given me a sense of security in being able to predict which way the change process will move:

1 2 3 4 5 6 7 (FGR15)

Any comments? _____

_____

8. The technique is useful in that it:

a) simplifies:

1 2 3 4 5 6 7 (FGR16)

b) is individualistic:

1 2 3 4 5 6 7 (FGR17)

c) provides a common language:

1 2 3 4 5 6 7 (FGR18)

d) helps to predict/explain behaviour:

1 2 3 4 5 6 7 (FGR19)

e) improves my understanding of myself:

1 2 3 4 5 6 7 (FGR20)

f) improves my understanding of the change process:

1 2 3 4 5 6 7 (FGR21)

Any comments? _____

_____

9. I have seen a change in the company in the last year:

a). in management:

1 2 3 4 5 6 7 (FGR22)

b) in relationships:

1 2 3 4 5 6 7 (FGR23)

c) in the way we work together

1 2 3 4 5 6 7 (FGR24)

Any comments? _____

_____

APPENDIX G

Decision rules:

1. Empowerment:

Comments relating to the degree to which participants feel control over the changes, or to which the change process has impacted on the sense of control and empowerment – and factors impacting here.

2 Communication:

Comments relating to issues of communication around the change process (that is, the passing on of messages between individuals and groups).

3. Understanding:

Views relating to the overall understanding of change – in terms of the aims of the change process, elements necessary for effective change (apart from those relating to communication and empowerment), and factors that have or have not changed.

APPENDIX H

Explanations of relationship maps, as provided by participants

The first map from each group was created, as described under the methodology section, in response to the request: "Make a representation of your understanding of the change process in XYZ over the last two years". The following map was the result of participants being asked: "How would you change your map if you were to improve the transformation, or make it more effective?"

(Please note: 'CA' refers to the change agent)

1. Relationship maps from the M level:

1.1 *"Make a representation of your understanding of the change process in XYZ over the past two years"*

"The light (a) represents the vision and mission of the company, while the jug (b) represents the Board. The Board has a vision that must be cascaded down to the rest of the company. Some of the departments in the company are represented by the pens: the company is marketing and sales driven, and so the large red pen (c) represents the sales and marketing directors (it is large because the marketing and sales sections have more power).

At the functional level, the red pen (d) represents the marketing section, while the small blue pens (e) represent the sales division. The operational side is drifting away from the heads of departments – people are less empowered and less satisfied due to decisions being taken at the top. Maybe the management style is a deliberate part of the transformation process, but people are more disillusioned. On the sales side (e), staff are well-trained and committed. The distance between marketing (d) and sales (e) is growing. The box (f) represents the distance between them. The empty tin (g) represents sales' biggest frustration: out of stock.

The red string (h) that stretches around represents the lengthy process we need to go through to get any problems resolved, particularly out of stock. The green pen (i) symbolises the finance section, which is close to the Board and has a large amount of influence there. The orange pen (j) is the Training/OD section, and also has a strong link to the Board. The brown pen (k), representing the HR section, is quite removed from the Board and has less of an influence.

Technology is represented by paper clips and elastic bands (l) and affects all disciplines. XYZ is trying to implement new processes and systems. Technology is particularly linked to the finance section (i). The black pens (m) represent the operational side: production, distribution, and services. They need to work closely together, but the technological systems are dysfunctional – represented by the plaster (n).

The keys hanging between the tables (o) is middle management: they do not know what is expected of them. The balls of wool (p) represent the workers. They are driven by means of a whip, represented by the belt (q). Their view of the vision, represented by the dead candle (r), is dim: they know there is something going on, but are not sure of what. The empty box (s) represents the out-of stock situation and the empty warehouses. The distance between the workers (p) and the light (a) is large: they are expected to continue working, but do not have the same vision as those closer to management. The gap between the tables emphasises that the distance that was there before the changes is still there. Middle management (o) is still hanging there, and can't close the gap.

There have been one or two stages in the transformation where there has been feedback. People have not had feedback for a long time, and are asking where we are going. Are we winning? Are we worse off? We don't hear about the victories."

1.2 *"How would you change your map if you were to improve the transformation, or make it more effective?"*

"The light (a) represents the vision and mission: but this time it is shining. The various departments, represented by the different coloured pens (b), are all closely

situated to the Board, with the technology (c) distributed much more evenly. The workers (d) can now see the vision, which is represented by the lit candle (e). The red string (f), which represents the process we need to go through to get any problems resolved, is much more linked to all the elements, and indicates improved communication. There are no longer gaps between the different parts of the company. The full bottle of oil (g) represents the full stocks, while the money (h) represents the profits that will be distributed amongst the stakeholders: the workers, the Board, the shareholders."

2. Relationship-maps from the C level:

2.1 *"Make a representation of your understanding of the change process in XYZ over the past two years"*

"The hat and jug (a) represents top management. The pens that are pointing down the middle (b) indicate the communication in the company. The candle (c) represents the unity between everyone before CA. During the CA time, communication down to everyone in the company was good: this is why the candle is uncovered (the box (d) is lifted) and the scissors (e) are not there [these were picked up to demonstrate]. There was unity between all, and all understood what it was about. The CA perspective caught people unaware, but communication still filtered down.

After the CA time, communication stopped – indicated by the scissors (e). This lead to a decrease in unity – represented by the candle (c) smothered by the box (d). We stopped getting feedback from management. There is still communication going up (f), but it does not quite reach the top. The ball of wool (g) hanging by a rope represents 80% of the company: people who are making it difficult for themselves by resisting the changes, and working in isolation as opposed to in a team."

2.2 *"How would you change your map if you were to improve the transformation, or make it more effective?"*

"The rope around everything (a) represents all employees working together as a team. If this could happen, profits would improve – indicated by the tin (b) – and workers would also benefit more. Top management gets benefits like petrol allowances and cars: the workers and supervisors would put more in if they were also visibly

receiving more. The candle (c), which represents the unity in the company, is whole and no longer smothered, as there is better communication. The team spirit at XYZ was injured during the CA time – they made promises that were not kept (like, that workers would not lose their jobs). For the change to improve, people must be able to get clear feedback, and communicate with top management."

3. Relationship-maps from the B level:

3.1 *"Make a representation of your understanding of the change process in XYZ over the past two years"*

"The chair (a) represents the gallows: hanging up our transformation process. The light (b) symbolises the light of transformation, with a noose around it. It is being dampened by the stop-start attitude of people in the company – represented by the green (c) and red (d) balls of wool. People are talking about change but not doing anything: too busy saying "Shall I change? Shall I not change?"

The pens (e) represent all of us in the company: we are joined, but the candle (f) – which represents the fact that we can transform and that everyone can enjoy the transformation – is covered. The ball of wool (g), which is covering the candle, represents technology that is being emphasised at the expense of people. The can of Doom (h) is being used to represent people dying: being put out by technology.

The box (i) represents CA, who came to XYZ bringing with them the concept of a World Class Company – represented by the tape (j). They brought the keys (k) to being a World Class Company to the directors, represented by the jug (l). The keys were to enable the directors to take the World Class Company concept to the managers – represented by the bottle of oil (m); the white staff in the company – represented by the blue ball of wool (n); and the black and coloured people, who are kept in the dark – represented by wool under the hat (o). However, the directors kept the keys, and brought the World Class Comapny concept closer to themselves.

The scissors (p) on top of the jug (l) represent the communication which the directors have the power to make or break. The white rope (q) around management (m) and the directors (l) indicates the close communication between these two. The chain of

paper clips (r) between management and white workers represents the communication here, although the chain breaks between white staff, and people on the floor.

The three balls of wool (s) represent everyone in the company, but the band around them (t) is not complete, indicating that we still need to work together before there can be unity."

3.2 ***"How would you change your map if you were to improve the transformation, or make it more effective?***

"All the balls of wool (a) are grouped together in a whole circle (b) – we are working as a unit. If we can work together as a unit, then we can be a World Class Company. The technology, represented by the ball of wool (c), and the people (d) are working hand in hand towards the transformation. The fact that all can benefit from the change is represented by the candle (e). Everyone must be able to see the light of transformation (f), in order to understand fully why processes and technology has changed.

The directors, represented by the jug (g), the managers, represented by the oil (h), and all the workers, represented by the uncovered balls of wool (i), are linked together in a complete chain of communication. If workers have a dire situation they can go directly to the directors. The keys (j) to being a World Class Company are being passed between all the people, and not only the directors. The green ball on the light (k) indicates that if we can decide that we would like to be a World Class Company, and can move forward together, the change will go ahead."

4. Relationship-maps from the U level:

4.1 ***"Make a representation of your understanding of the change process in XYZ over the past two years"***

"We'll take the table (a) and chairs (b) to mean XYZ as a large organisation. The light (c) and hat (d) on the table is Mr S., the Managing Director. The chairs are the symbol of the other directors working with him.

Mr S. is higher and is shown by a hat because he has more influence. The red wool (e) is a symbol of the Human Resources Department. The colour of the balls of wool is the same because they are all white and male. If there is any female there, we need to know. At this point it is only the white male.

The big jug (f) represents the white supervisors, while the candle (g) represents the coloured supervisors who are smaller than the white supervisors in terms of salary and being able to take decisions. The coloured supervisors can't make decisions on their own and must inform the senior white ones.

There is a big gap between the Human Resources Department and the supervisors because HR is closer to the directors. There is no link between the supervisors and the directors. Communication happens from HR down to the bottom. The green ball (h) represents the only black supervisor. There is a gap between this supervisor and the other supervisors. The black supervisor is closer to the workers, represented by the different pens (i), and is used as a link between the people and the other supervisors. There are no changes, except for things like ABED, but Mr S. is still no closer in relationship and the structure is still the same."

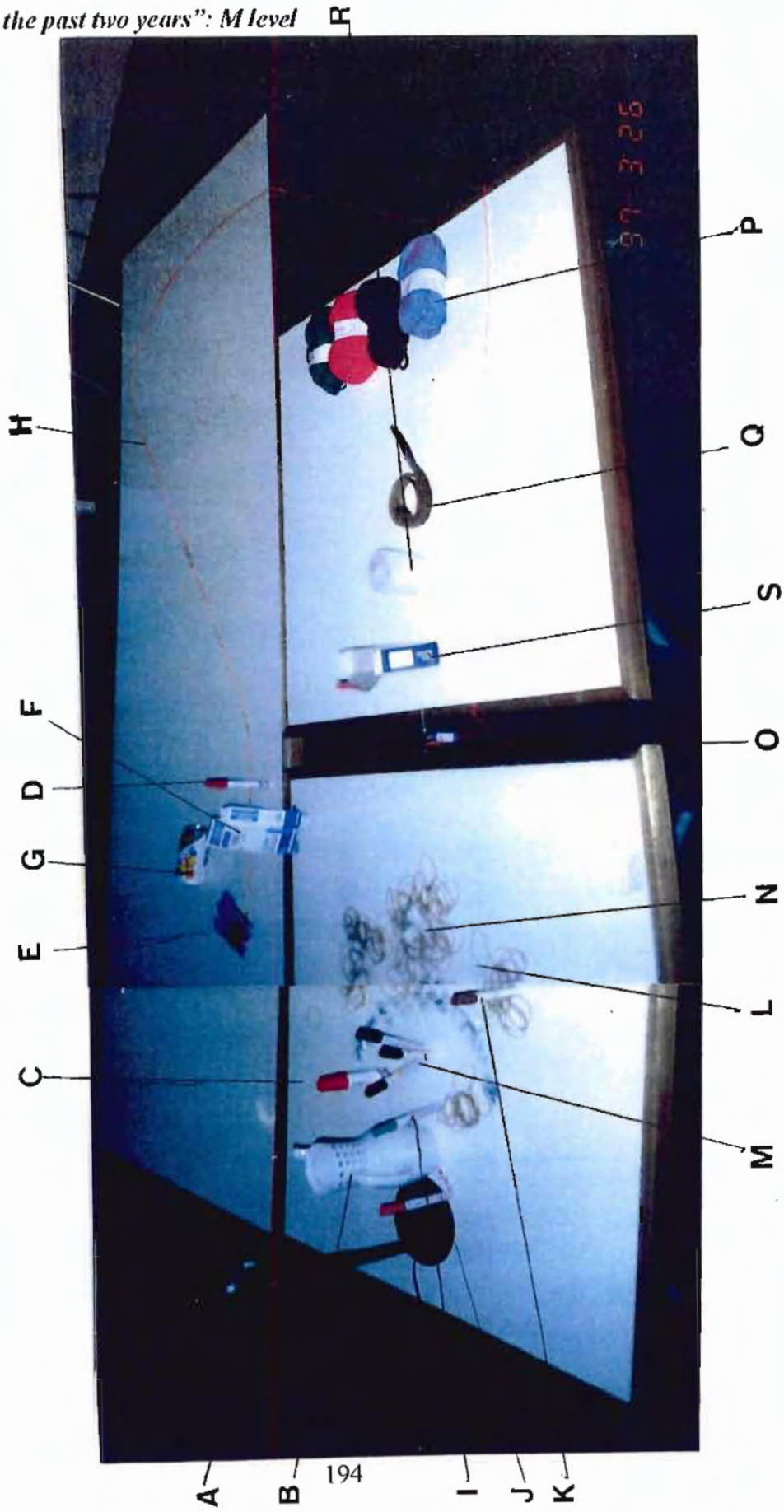
4.2 ***"How would you change your map if you were to improve the transformation, or make it more effective?"***

"There must be a mix of people from different cultures and races as directors: represented by the yellow chair (j). We need change.

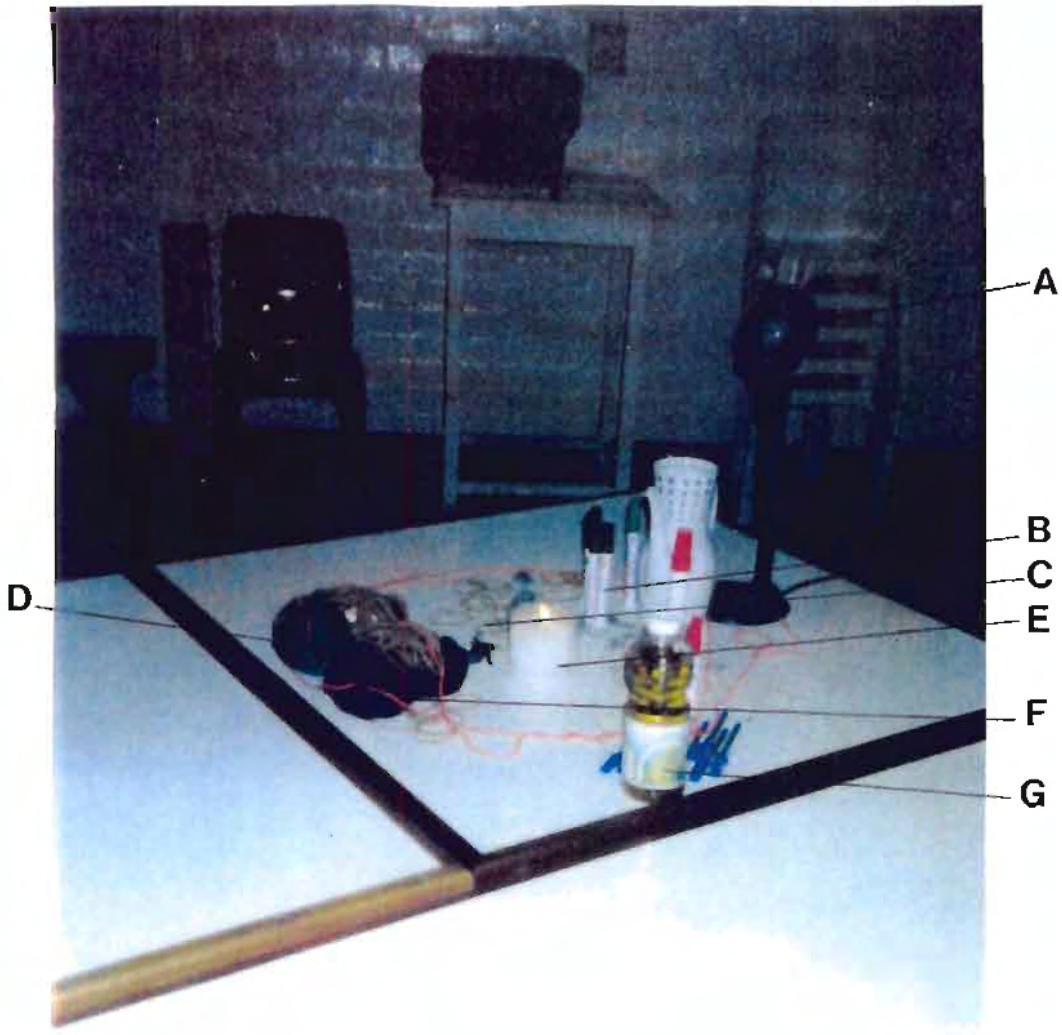
The workers and supervisors (f, g, h, and i) must all be together, with a closer link to HR. When we need to communicate what we need (f, g, h, and i), the message should go directly to both HR, and the directors. There should be a direct link from the workers and supervisors to the directors in situations when we are experiencing a problem and would like to communicate. There will then be two routes for communicating with the directors. In HR – now represented by black and red wool (e) – there should be black workers and women.

APPENDIX I

1.1 *"Make a representation of your understanding of the change process in XYZ over the past two years": M level*

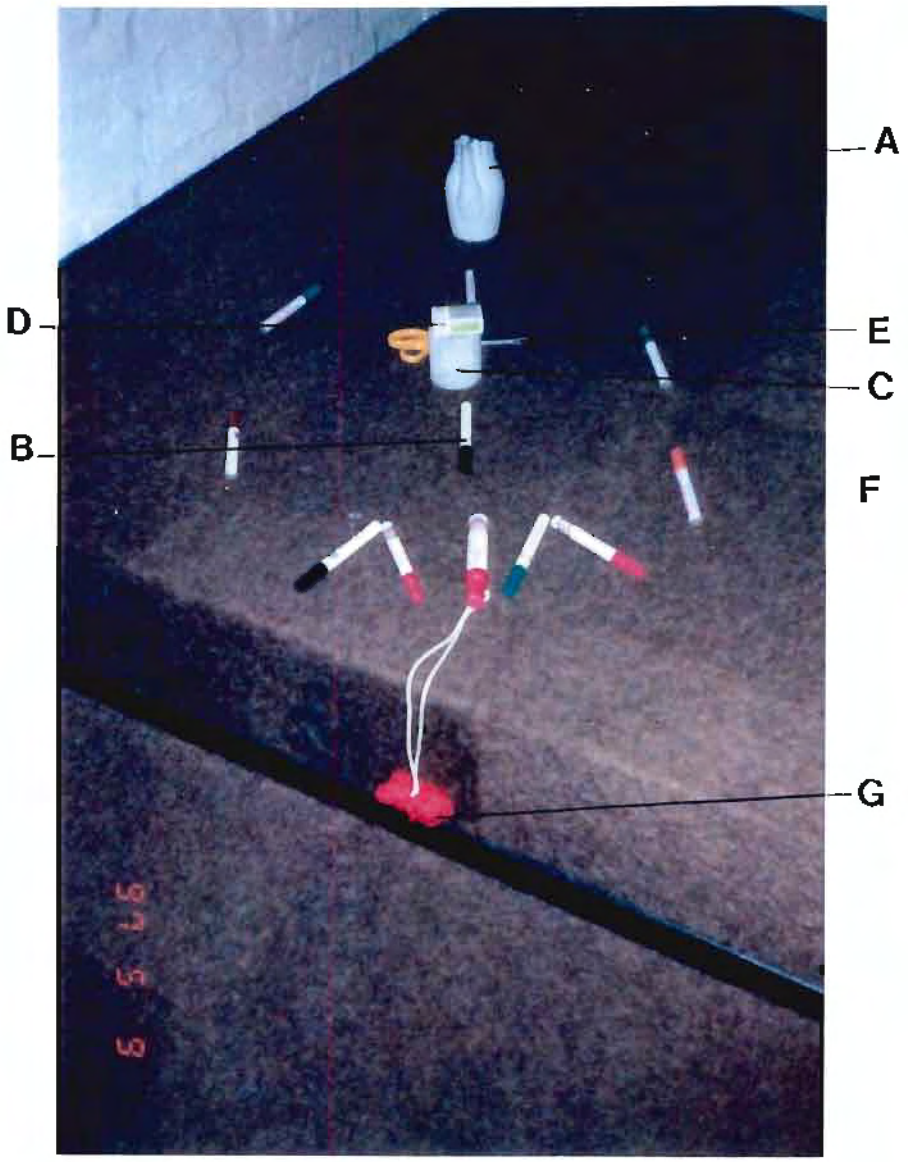


1.2 *"How would you change your map if you were to improve the transformation, or make it more effective?": M level*

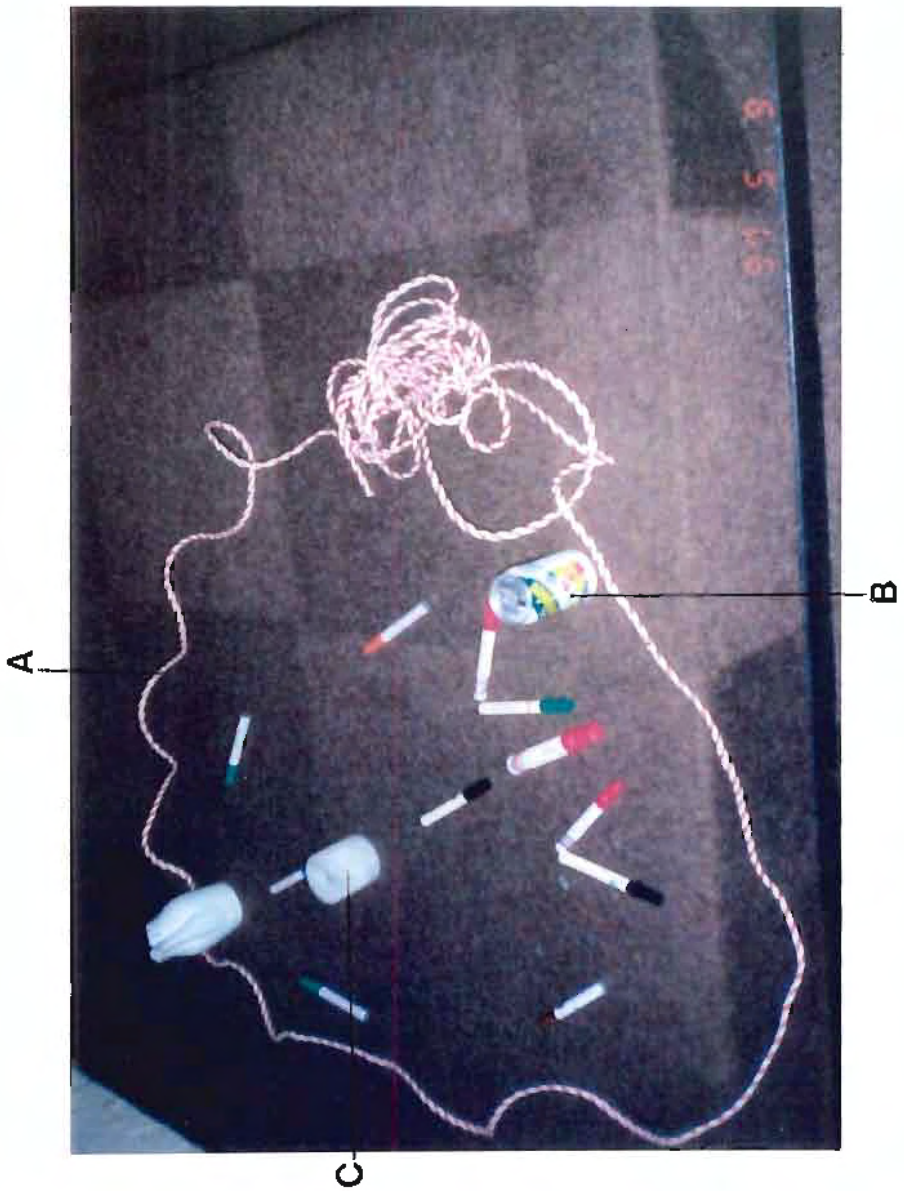


1.2 *"How would you change your map if you were to improve the transformation or make it more effective?": M level*

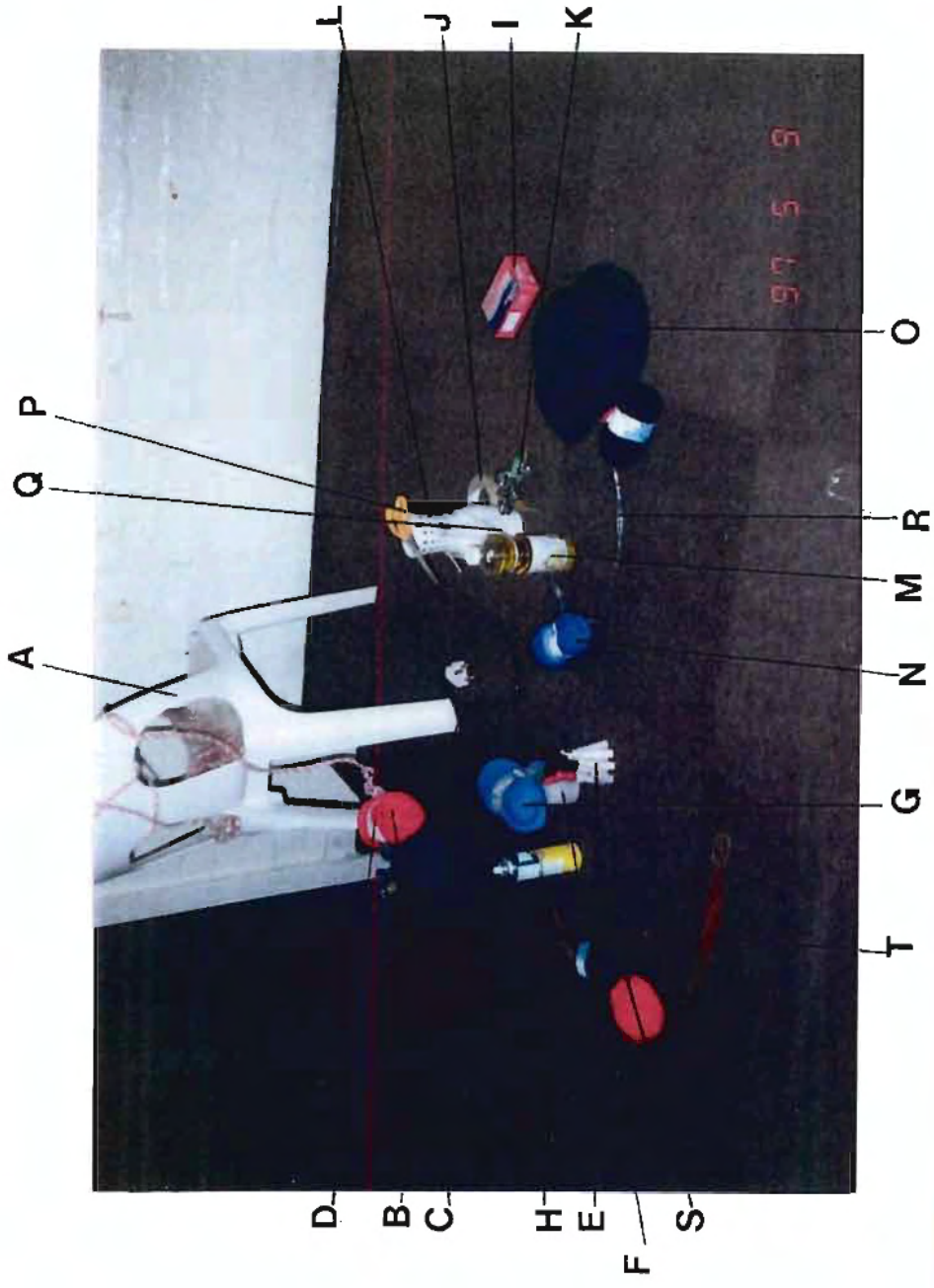
2.1 *"Make a representation of your understanding of the change process in XYZ over the past two years": C level*



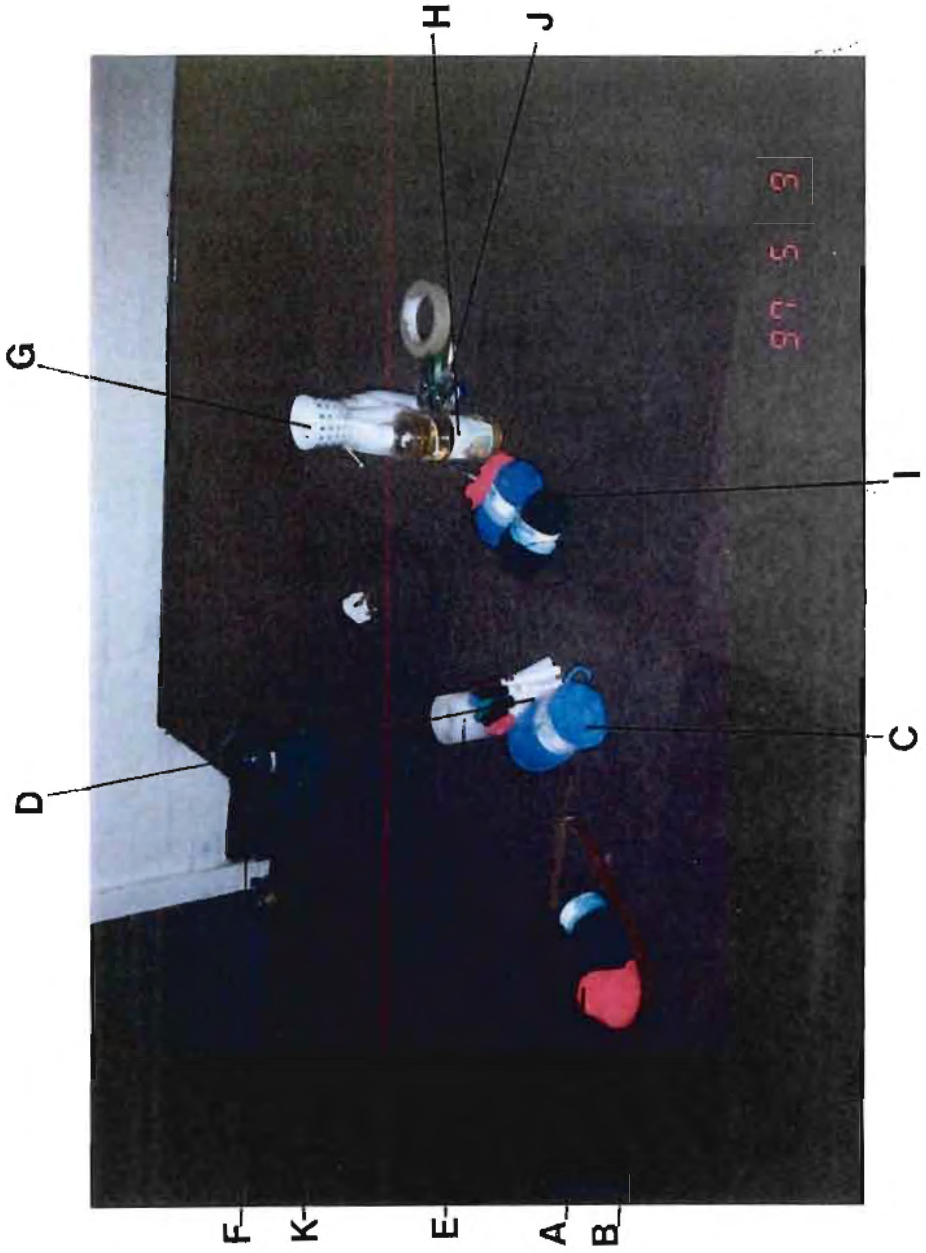
2.2 *"How would you change your map if you were to improve the transformation, or make it more effective?": C level*



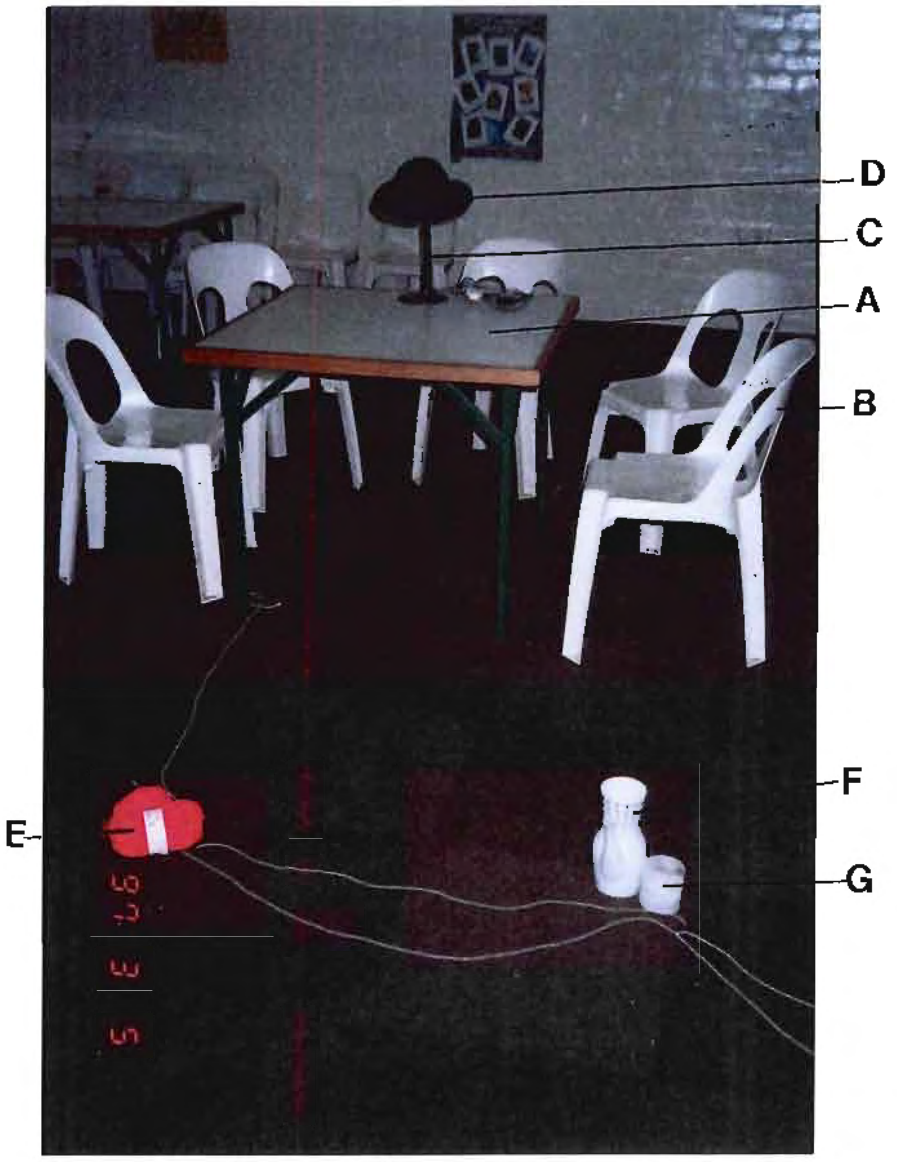
3.1 *"Make a representation of your understanding of the change process in XYZ over the past two years": B level*



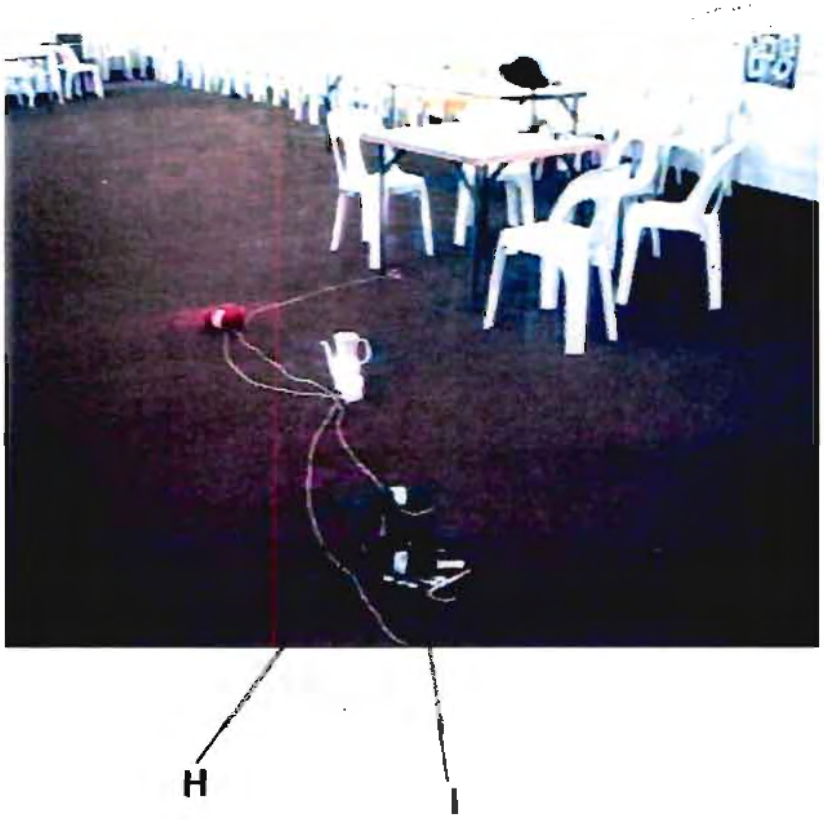
3.2 *"How would you change your map if you were to improve the transformation, or make it more effective?": B level*



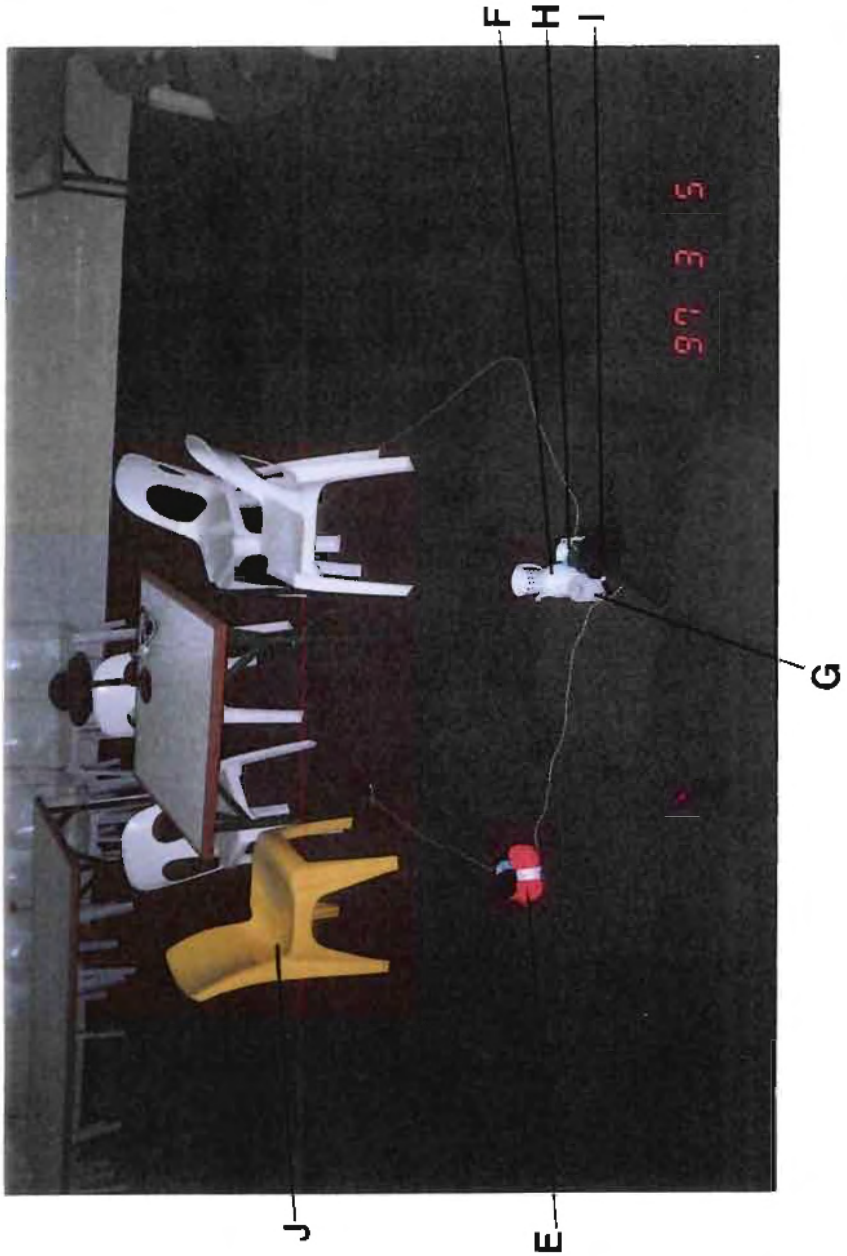
4.1 *"Make a representation of your understanding of the change process in XYZ over the past two years": U level*



4.1 ***"Make a representation of your understanding of the change process in XYZ over the past two years": U level***



4.2 *"How would you change your map if you were to improve the transformation, or make it more effective?": U level*



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