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9

Decision Making in Groups: Theory and Practice

COLIN EDEN AND FRAN ACKERMANN

INTRODUCTION

The purpose of this chapter is twofold: (i) to focus attention descriptively on some important aspects of decision making in teams – namely, the sense-making process, the nature of multiple perspectives and interpretations, the interdependency of problems that make up a difficult and messy situation, the nature of purposeful behaviour – goals systems, and perspectives on psychological and social negotiation; and (ii) to explore ways of translating these descriptions into prescriptions that might reduce the probability of decision failures.

The description of decision making and problem solving processes presented in the chapter links directly with some of the aspects of decision making that might decrease the probability of failures. Theories from psychology, social psychology, group processes, the nature of problems, and psychological and social negotiation are used as a basis for description.

The chapter introduces cognitive and causal mapping as a method for describing and managing decision situations including: sense making, multiple perspectives, and goals systems. The chapter also considers the use of causal mapping as a tool for facilitating negotiation in teams and so aiding the reaching of agreements about how to act. In addition the chapter discusses the role of Group Support Systems (GSS) and operational research in addressing aspects of decision failure. In particular the use of a GSS is argued to address delivering a balance between the potential benefits and potential dangers accrued from drawing multiple stakeholders into decision-making situations.

The chapter draws particularly upon the research of Nutt that led to his analysis of failed decisions (Nutt, 2002).

SENSE MAKING

An obvious and crucial aspect of group decision making is the process of people *changing their mind* – their way of making sense of the situation. As members of a group discuss, argue, and make claims about the nature of the situation and actions that should be taken, they seek to shift the points of view of others in the group. There are, of course, other important aspects of group decision making relating to the use of power, including social pressures, consolidating personal trading agreements, charisma, and personality. Each of these aspects is important in its own right, and the use of them affects the way in which a person thinks about the situation. Thus, it is appropriate to consider the way in which any one person uniquely makes sense of the situation they believe the group is facing.

A personal 'definition of the situation' (McHugh, 1968) relates to the psychological acts of both perception and construal. Perception is to do with what we see or don't see, and construal is about giving meaning to what we see. It is important to note that we do not perceive things by filtering out from the mass of data around about us, but rather from filtering in, by seeing the world through our own set of spectacles (Neisser, 1976). The set of spectacles is often referred to as our mental schema (Walsh, Henderson, and Deighton, 1988).

Cognitive psychology should, therefore, play a role in helping our understanding of decision-making groups. But, what sort of cognitive psychology? With what sort of focus? There are a number of important requirements for choosing a helpful theory of cognition that can inform group decision making and sense making. Most importantly the chosen theory of cognition should have practical implications for influencing the process of group decision making, and in particular making better decisions. We are also interested in decision making within an organizational setting where conversation is an important currency of organizational life. We regard the process of construal, giving meaning and making sense, as significant, and so we are interested in the processes of socially negotiating new meanings (Weick, 1995).

One body of cognitive psychology theory meets these requirements well. Personal Construct Theory, developed, explained, and used by George Kelly (Kelly, 1955) is undoubtedly helpful. Not only did Kelly develop and explain the theory but as a practitioner he made use of it. He used it by translating the theory, as best he could, into a technique he was able to use to understand how people construed their world. In essence Kelly was interested in how we made sense of the world *in order to act it*. He was also very interested in how that sense making changed. Therefore, he saw people as problem solvers (in his terms – 'scientists', experimenting and learning). He thought of people making sense of the world through the use of a system of constructs: these constructs enabled people to construct a definition of the situation they faced. It thus became important for him to learn about the constructs people used.

The technique he invented, called the *Repertory Grid* (Fransella and Bannister, 1977), was designed to elicit these constructs. Because he believed that we made sense of our world through contrast and similarity he reckoned that we would

reveal constructs by articulating a view of the differences and similarities across a triad of elements. The elements could be people, objects, or other descriptors. For example, we might ask a production manager what she thought about three different markets within which her products were sold (the elements). She might respond by stating that Japan and Hong Kong tended to send products back for the tiniest of faults, whereas Italy was very accepting of products. The response suggests a single construct that is: send products back for the tiniest of faults, in contrast to very accepting. Having established an acceptable number of constructs (typically about 12) he was able to understand the relationship between these constructs, as a system, by seeing how a person used them with respect to each of the elements. The grid, therefore, captured a matrix of how each construct was used in relation to each element. An analysis of this matrix would allow a depiction of the relationships between the constructs – as a construct *system* (Bannister and Fransella, 1971). How people change their mind, thus, can be understood as the process of the construct *system* changing – the relationship between constructs, and through elaboration of the system – losing and gaining constructs.

This very brief introduction to personal construct theory is designed to set out some important principles that can be used to understand and influence decision making and problem solving. These principles are: group decision making involves each member of the group changing their mind; each member of the group seeks to manage the meanings attributed to aspects of the situation; meanings are derived from each person's unique construct system; meanings change as the construct system is changed and elaborated; meanings derive from making sense of the situation through contrast and similarity; and seeking explanations for the situation and understanding why it matters. In essence personal construct theory simply reflects the notion that 'if men define situations as real, they are real in their consequences' (Thomas and Thomas, 1928).

Although the use of Repertory Grids (and the later introduction of *Implication Grids*, Hinkle, 1965) introduced an instrument for listing personal constructs, it was hardly naturalistic. As members of a group discuss, argue, and make claims that seek to persuade others towards a particular course of action they do so through the use of arguments constructed using natural language. Although these arguments are not necessarily full in their explication of explanations and consequences, they do give clues. In particular, the personal values, goals, or objectives that are driving the arguments may not be made explicit. At the simplest level this may be because there is not enough time to state them before a person is interrupted. More subtly, personal values may be in conflict with occupational values and so a person may not want to make clear their goals, or they might not be sufficiently aware of them. Nevertheless, the arguments presented map out, in part, contrasts and similarities, explanations and articulated outcomes, that can give clues to goals or values that are sometimes implicit, not stated, and at other times unknown. Thus, rather than use grids to explicate a theory of personal constructs, it is likely to be more effective to record the way a person makes sense of a situation by seeking to understand how they suggest acting and why they believe these actions might be appropriate. In other words, directly apply the theory.

Sense making, misunderstandings, different meanings

We have discussed above the way that construal is related to giving meaning to constructs and that meaning is derived from making sense of the world *in order to act it* – that is, it is action oriented. Figure 9.1 shows an example of ‘maps’ of how two managers construe the need for ‘increased motivation’ in their organization. In discussion they may quickly agree that increasing motivation is critical for the future of their organization. However, if they were to expand on this apparent agreement we would see two very different action oriented meanings. If we were to listen carefully to their view of the current situation, one would be talking of motivation as against laziness (a unique contrast), and the other, motivation rather than no energy – they perceive different ‘events’ implying apparently the same response. However, after further discussion we understand they have different objectives: one focuses on service and errors, the other on creativity and retention of staff. Also each sees different types of actions that they believe would increase motivation: one sees the work environment and overtime rates as drivers, and the other ‘softer’ drivers.

Of course, it is possible through conversation that they might reach some mutual understanding where each changes their views (meanings) by encompassing the views of the other. This would lead to an elaboration of each other’s construct system. In particular there is an important ‘dialectic between the individuality of reality and reality as a “social construction” (see particularly Berger and Luckmann, 1966) in which meanings are “socially sustained” and experienced “as social facts” (Silverman, 1970) and it is this dialectic which gives rise to the complicated notion of intersubjectivity’ (Eden, Jones, S., Sims, D., and Smithin, 1981: 40) and so encourages a negotiated meaning.

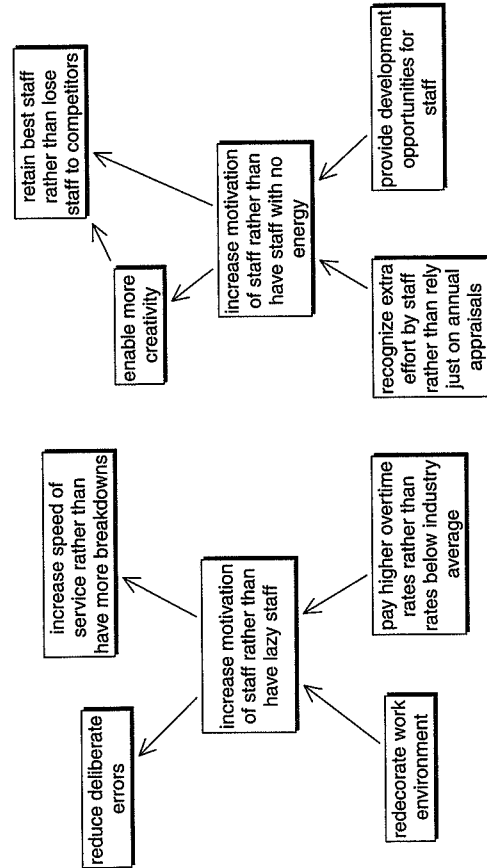


FIGURE 9.1 An example of different, action-oriented, meanings.

Another cause of misunderstanding is that a person might not be clear about what they think until they talk about it. As Huw Wheldon of the BBC said ‘How can I know what I think until I hear what I say?’ (quoted in David Attenborough (2002) *Life on the Air*, London: BBC Books, p. 216), and notably paraphrased by Weick as – ‘how do I know what I think until I see how I act’ (Weick, 1979). Seeking to persuade others can often enable a person to understand and develop their own views. Thus, misunderstandings arise because a person misunderstands themselves – their own thinking about an issue is muddled! So, a construct system is clarified, modified, and elaborated through the process of ‘thinking out loud’. The process is annoying for others leading to accusations of ‘you’re always changing your mind’ and ‘that isn’t what you said earlier’.

Contribution of operations research modelling: Qualitative models of a problem situation

Figure 9.1 introduced the idea of representing somebody making sense of their world by using a *causal map*. To the extent that the map represents somebody’s thinking, it may be called a *cognitive map*. By representing causality (the arrows), they indicate how someone might envisage changing their world, and with what intent. Thus, a ‘cognitive’ map seeks to represent the beliefs and values of a person. The person’s beliefs (causality: arrows) and constructs (nodes) are captured as a model of a *part* of the person’s construct system.

In sympathy with the personal construct theory the action orientation means that argumentation about issues is coded to reveal, or highlight, the implications for ‘managing and controlling the future’ through the way the issues are ‘anticipated’. Arrows (illustrating chains of argument) show the implied possible actions and possible outcomes as suggested by the ‘theories’ a person uses to explain the world as they see it. In building the map, the central questions guiding the coding of the map are ‘what are the implications of using the belief about the world as a basis for intervening in the world so as to protect or support values?’ and ‘what might explain or support the assertions?’ (see Appendix 1 for the full set of mapping guidelines).

Presented assertions, or ‘facts’, about the nature of the world are assumed to have significance for the person. Thus, rather than an assertion being simply a statement of ‘what is’, understanding a person’s construct system demands seeking to make sense of why the fact or assertion is presented. The map will show that assertions are taken to have consequences or implications. Thus, an assertion is elaborated by considering why the person is stating it – ‘what does the person expect someone to do as a result of knowing the assertion?’ For example, a person might assert that ‘helping the customer solve problems is one important aspect of getting the right relationship instead of always treating the customer to a sales pitch, as some of our less intelligent sales staff do’. Another example might be when a person makes an assertion such as ‘most of our customers are well qualified’. In each of these cases it becomes important to review the context of the assertion, within the holistic sense of the person’s construal, to discover, and so state in the map, the way in which this statement is regarded as significant. Clues derive from other contextual statements

such as those made above and others such as 'many of our salesmen can only discuss football – the last thing they might do is hold together a conversation about what's going on with the technology our customers deal with'. In each case the assertion implies consequences.

Perhaps the most interesting property of a cognitive map is the way in which it hints at, or expresses, a possible value system. Providing the map has been constructed properly, where means lead to valued ends and options for change lead to outcomes, then the top part of the map hierarchy might reveal the value *system* of the person. It is a system because it will usually be represented as a network of values – where each value informs others and is, in turn, informed by others. Thus, values will be defined both by the property of the words making up the construct and by the position of the construct within the hierarchy of values.

Constructing cognitive and causal maps of construal

We have implied above that the maps must always be written down artefacts. But, the principles of mapping can facilitate an understanding of how other people are making sense of situations by 'mapping in the head'. This process of mapping in the head allows a listener to understand better the way in which another person uniquely defines the situation.

We have been discussing the process of making sense as if we were only ever trying to understand how someone else makes sense of their world. Oftentimes we wish to try and help ourselves make sense of our own world and provide an opportunity for reflection. Constructing our own cognitive map, following the principle of 'how can I know what I think until I hear what I say?', can help us make sense of a situation as *we see it*. The formalities of causal mapping facilitate the construction of a cognitive map that helps develop an understanding of the situation we are facing. In doing so the map becomes a model – something that can be roughly analysed, because of its formal structure. This analysis provides a deeper understanding of the definition of the situation – at the simplest level the process of understanding the 'top' of the hierarchy as the best expression of values or goals is a form of analysis. The effectiveness of this analysis depends totally upon the creation of a map that follows the formality of option to outcome.

As we shall argue later, many failed decisions arise from an inadequate exploration and understanding of the goals we seek to attain, or the values that drive action. Because the principles of mapping explore meanings, personal values gradually emerge from the exploration of why we see the situation as problematic. The process of using a map for self reflection often leads us to 'finishing' with a problem rather than feeling a need to solve it (Eden, 1987). The map may help us understand that the situation we feel to be problematic does not in fact attack values that really matter to us, or the situation is more manageable than we had thought (see Bryson, Ackermann, Eden, and Finn, 2004: chapters 3–5 for examples of self reflection maps).

Figure 9.2 shows an example of developing thinking about a situation through mapping. The numbers indicate the order in which statements arose. Links with a –ve sign attached to them show how one assertion drives out the opposite of another

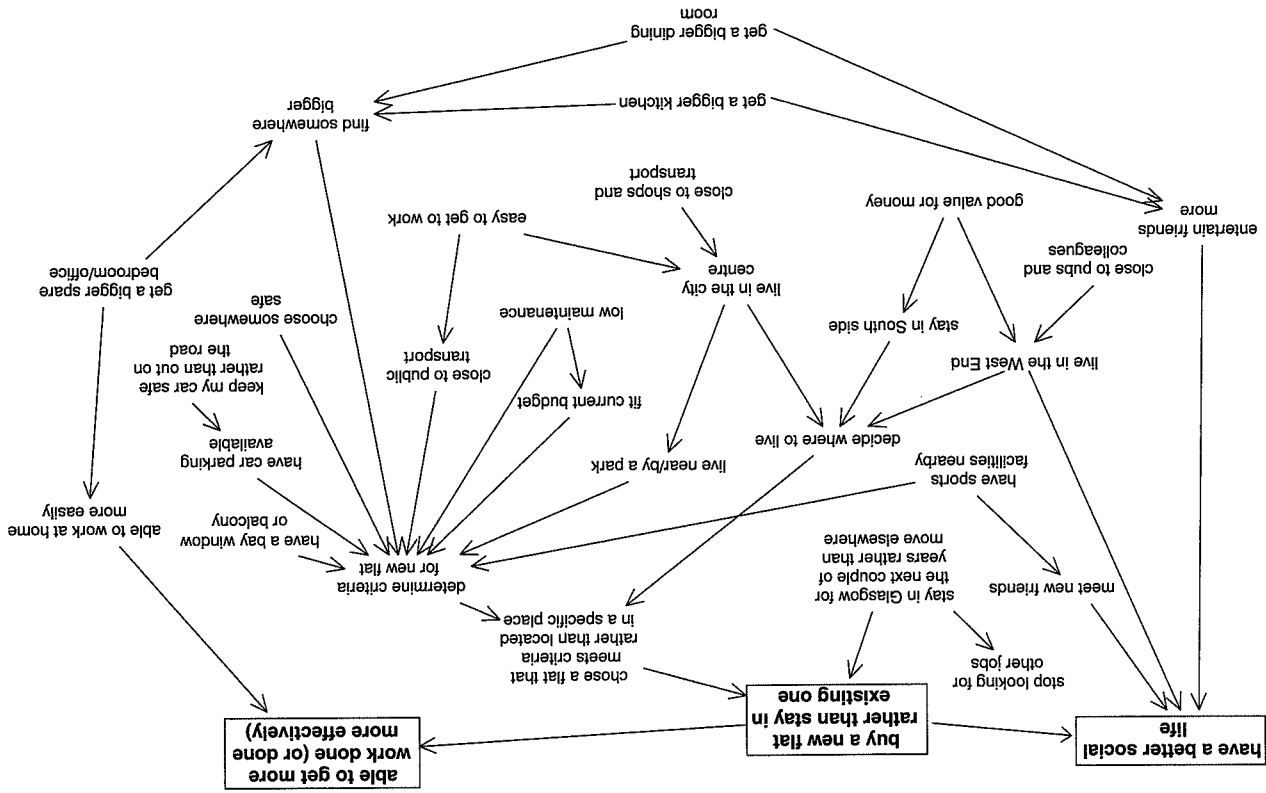


FIGURE 9.2 The development of self-reflective thinking about a decision situation. Reprinted from Visible Thinking, Bryson *et al.*, 2004

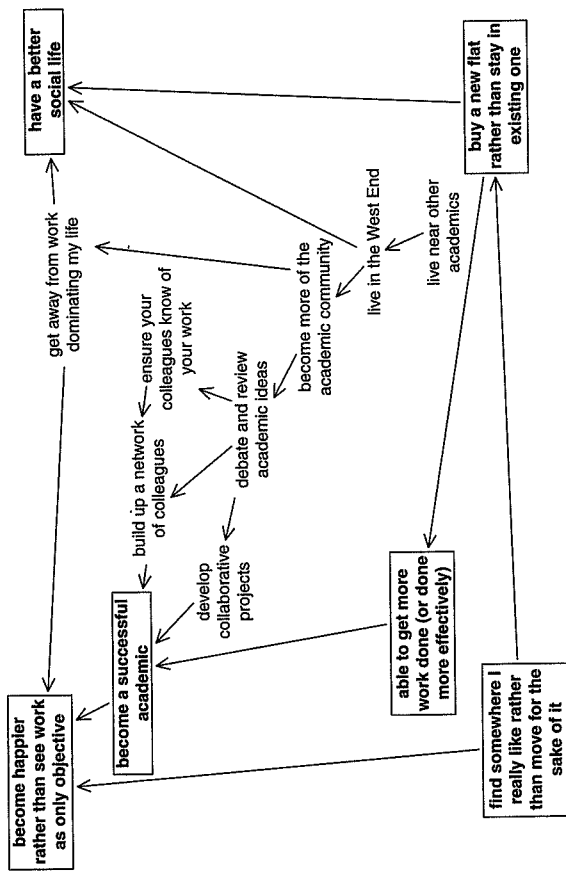


FIGURE 9.3 An example of mapping consequences of options to conflicting values.

Reprinted from Visible Thinking, Bryson *et al.*, 2004

assertion. Figure 9.3 shows how conflicting values become clearer and show why the situation is problematic for the person elaborating the map.

The process of self reflective mapping may indicate that the situation that concerns us is indeed too complex for simple solutions. Real decision-making situations that have important consequences are invariably complex situations. There are usually multiple and conflicting objectives. And there is no right answer, but rather, better answers. Recipes can rarely be used to determine the solution to problems. Difficult situations are riddled with personalities, politics, and power. So-called rational solutions are impossible to implement because the people involved in implementation are never as perfect as in an ideal world. In these circumstances, it is possible that we might wish to involve others in helping us to resolve the situation by offering their expertise, by offering alternative perspectives, by involving them so that they are more likely to satisfactorily implement a solution. In other words, group decision making becomes the appropriate way of addressing the problem situation.

In the remaining parts of this chapter we consider a number of important aspects of group decision making that build on this use of mapping:

- ◆ managing multiple perspectives: developing a group definition;
- ◆ gaining substantive outcomes from group mapping – the process outcomes and input to *negotiating* the definition of the situation;

- ◆ managing the complexity of decision situations by understanding structure: complexity derives from interdependent decision areas (clusters – busyness); and by goal *systems* (hierarchy);
- ◆ enabling politically feasible agreements: what is a group?;
- ◆ and negotiating agreements.

In the next section, we focus on the implications, and reasons for, seeking out multiple perspectives.

MULTIPLE PERSPECTIVES

Organization theorists realize that organizations do not have mechanisms separate from individuals to set goals, process information, or perceive the environment. People do these things. The distinctive feature of organizational-level information activity is sharing. A piece of data, a perception, a cognitive map, is shared among managers who constitute the interpretation system. Passing a startling observation among members, or discussing a puzzling development, enables managers to converge on an approximate interpretation. Managers may not fully agree about their perceptions (Starbuck 1976), but the thread of coherence among managers is what characterizes organizational interpretations. Reaching convergence among members characterizes the act of organizing (Weick, 1979).

The above notwithstanding, it is to state the obvious that members of a team have different perspectives on any apparently similar situation! Indeed the main purpose of having a team is to bring to bear different perspectives on any problem. Typically in a commercial organization, for example, we would expect the finance person to have a different view from the production person, from the marketing person, etc. We expect them to bring to the discussion different experiences and different expert knowledge, as well as different personal stances.

However, oftentimes we get upset by the complexity that arises from hearing views different from our own view. Consequently we close down discussion that might enable different perspectives to surface. And, of course, we close down discussion because we want our own view to prevail.

Multiple perspectives can provide a significant potential for ensuring that possible promising options are not missed, that beneficial outcomes can be realized, and undesirable outcomes protected against. But, at the cost of increased complexity and the surfacing of personally disagreeable views that might lead to decisions we do not approve of.

However, to further complexify the situation, it is not enough that one member sees an external signal in order for the organization to be able to take appropriate action. Organizational action requires a critical mass of agreement; therefore weak signals must first enter the conversation before they can be acted upon. Without the individual mental models of members in the organization having a degree of overlap strategic conversation is not possible, and the signal does not enter the 'collective consciousness'. At the end of this road lies fragmentation which leads to

paralysis due to lack of basic agreement on what things mean, and therefore what needs to be done.

Institutions can use the diversity in mental models of their members to extend their zone of proximal development, and in doing so see and perceive more. Differentiation in thinking increases the range of vision of the group.

If multiple perspectives are surfaced and discussed then a process of both social and psychological negotiation might occur. Two aspects of negotiation in a group are particularly important (Eden and Ackermann, 1998: 48–49): the creation of a new negotiated social order (NSO) where the relationships between team members change, and a new socially negotiated order (SNO) where the conversations and behaviours of team members lead to a new situation – aspects of the problem situation change as a result of agreements and actions that seek to change things. This negotiation *may* lead to a level of consensus that allows for coordination and cooperation in the implementation of a decision.

But, there is an important pathology in organizational cognition – Group Think. Group think is associated with the consequences of a group's need for cohesion, alignment of ideas, pressure towards uniformity, and so suppression of dissent. In contrast – differentiation allows for heterogeneity of opinions, airing views, and not closing too quickly.

Although Janis (1972; 1989) is the key writer about group think, Harrison (1987) usefully added to the dangers of group think by discussing the following failures: belief in group morality disregards ethical consequences, outsiders are stereotyped (for example, evil, weak, stupid), sense of invulnerability in the group, over rationalization that leads to ignoring warnings, a felt threat of being seen as disloyal silences people, doubts about group wisdom suppressed, assumptions that silence signifies agreement, and information held back to protect cohesion.

There is a significant dilemma here for organizations. There is a need to develop differentiation for perception and awareness, but also integration for organizational dissemination and action (Eden and Ackermann, 1998: 48). But while developing differentiation there is a danger of fragmentation, and while developing integration there is a danger of group think. Thus if a group is left to its own devices it may move to either extreme: fragmentation, and action paralysis, or group think, and boxed-in mental models resulting in poor perception.

For the manager, in amongst her team, there is a further dimension that matters. A manager would like to have high levels of ownership of the decision outcome. To gain ownership she needs to attend to what is known as 'procedural justice' (Korsgaard, Schweiger, and Sapienza, 1995; Kim and Mauborgne, 1995; Thibaut and Walker, 1975): providing team members with an opportunity to express their views and be listened to. Team members are significantly more likely to go along with the decision if they believe that the process of reaching it was fair and just. This means implementation is likely to be more effective. Thus attending to multiple perspectives opens up the problem and makes it less likely that important options are missed, demonstrates procedural justice and so increases the chance of effective implementation, decreases the chance of misunderstandings, but on the other hand significantly increases complexity. Opening up the issue means the group can address the problem of limiting the search (Nutt, 2002: 43). The

complexity from conflicting claims means there will need to be a process issue of reconciliation. Failure to reconcile claims – negotiation – leads to poor ownership and poor implementation (see Nutt, 2002: 24–25).

Developing a group problem definition

Most significantly the above considerations suggest a total lack of separation between process and content in seeking to surface multiple perspectives. Without addressing process issues it is unlikely that multiple perspectives will be made explicit. Thus, in developing a group problem definition attention must be paid to achieving both substantive and process outcomes – where process outcomes are an end in themselves but also significantly influence the extent to which substantive outcomes can be achieved.

Substantive Outcomes:

- ◆ Surface multiple perspectives: the issues (both positive and negative) that reflect current and future potential concerns of the group's participants with respect to the situation.
- ◆ Structure the resultant issues in a hierarchical structure by understanding how one issue might support, or be supported by another – building a group map – 'if you buy into a claim without understanding its motivating concerns, you can misdirect effort' (Nutt, 2002: 62).
- ◆ Elaborate the group map by building on the views of others and 'explaining yourself' through causality.
- ◆ Detect patterns within the resultant hierarchical group map to reveal emergent properties.
- ◆ Enabling a more 'creative' and shared outcome.

Process Outcomes:

- ◆ Address the realities of life – individuals have their own concerns/issues and will claim that these are the important ones for the group to address. These issues are a part of their individual perspectives on the situation. This attends to the need to 'understand claims' (Nutt, 2002: 42).
- ◆ Catharism – a release of anger, tension, and frustration – 'getting an opportunity to make your point' and so move on.
- ◆ 'Open up the problem and avoid edicts' (Nutt, 2002: xx). Encouraging divergence before a process of convergence begins.
- ◆ Listening – gain ownership of the issues from the entire group – as members are involved in the process and therefore more committed to the outcomes.
- ◆ An appreciation of 'fairness'.
- ◆ Shared understanding and joint learning.
- ◆ Self reflection.
- ◆ Developing relationships to enable continuing joint working.

(quick fix) (Nutt, 2002: 33). By seeing the different concerns and their context in one structured space participants are able to build on the views, adapt ideas, and as a group craft possible new solutions. This opening up of the situation facilitates *creativity*. In essence the members of the group are 'piggy backing' off one another (Shaw, 2003). In addition, the process supports negotiation towards an agreed decision as the 'device' of the causal map, with its inherent ability to act as a visual interactive model, allows changes to be made – as group members amend, adapt, and extend different ideas giving rise to decisions that contain elements of many of those involved rather than just one.

Finally, the process of explicating the relationships allows the group to move from a set of divergent perspectives to a more shared understanding. The process of not just surfacing the issue but also capturing the consequences of the issue and some of its explanatory text enables both added value in terms of managing the complexity and additional insight and learning. The process of linking issues or risks together also helps those participating to gain a better understanding of the whole picture rather than their own idiosyncratic part. As such not only is a better understanding derived from seeing the whole and thus a better outcome but a better appreciation of the organization's context is also elicited. Participants learn more about the full situation.

Contribution of operational research modelling: Introducing the contribution gained from using a Group Support System (GSS)

The use of a Group Support System (GSS) enables group participants to enter their claims/issues/concerns directly into a developing set of views about the situation through the use of an individual laptop computer that is a part of a computer network of other laptops that are the input device for other participants. As well as seeing their own contributions on their laptop, the system, using a data projector, shows all of the contributions on a public screen and does so without any reference to the proponent (see Figure 9.4).

There are three well established GSSs: *Group Systems* (Nunamaker, Dennis, Valacich, and Vogel, 1991) which organizes ideas, *Group Explorer* (Ackermann and Eden, 2001) which uses causal maps, and *Meetingworks* (Lewis, 1993; 2010) which evaluates options against multiple criteria. The data capture and structuring processes differ with some working off lists and categories and others adopting a more graphical form of representation such as the use of causal mapping. Each uses similar equipment, namely individual participant laptops, a computer as a 'server', a central computer with projector, and either a wireless or wired local area network.

The use of a GSS encourages divergence, and openness in contribution. However, in addition the systems enable the group to move between the periods of divergence supported by the anonymous contributions, and periods of convergence where the interconnections between contributions are discussed, amendments made, and further elaboration captured – the beginnings of a group problem definition. This helps manage the two different pressures mentioned above – the anonymity facility manages the conformity or social pressures, and the convergence stage through its discursive focus facilitates the shared development of views.

DEVELOPING A GROUP DEFINITION: SUBSTANTIVE OUTCOMES FROM GROUP MAPPING

Group mapping can be seen as similar to brainstorming in seeking to surface contributions from all those attending. However, group mapping used for group decision making has a number of important differences from brainstorming. To begin with the focus is on surfacing issues and concerns – usually those activities or events that are potentially attacking or supporting aspirations – rather than on creativity as an aim in its own right. The aim is to surface current wisdom and experience rather than 'off-the-wall' ideas.

Starting with issues enables group participants to put on the table the events, activities, and concerns that they expect will demand their attention and time and will have an impact on dealing with the situation as they see it (the realities of organizational life). This not only gets at what is seen to be important – as these issues are the focus of attention – but also allows group participants to experience some relief as they bring them out into the open and can begin to explore and understand them (another important difference from brainstorming). Until these are openly presented and discussed, attention on the rest of the decision-making processes will be clouded by their continual presence, as group participants seek to find ways of making coherent links between their day-to-day concerns and the future. Realistic group decision making thus starts with issue surfacing.

Group mapping encompasses not only the surfacing of issues, but also assumptions, concerns, facts, assertions, and constraints along with their relationships. This enables the material to be structured by reflecting causality (a key difference from traditional brainstorming). As we discussed above, structuring through causal mapping gives meaning to each statement by setting it within a context: why it matters (consequences), and what needs to be done to change it (explanations). Instead of interpreting the statement by reference to a dictionary, meaning is determined by action and purpose. Encouraging participants to avoid arguing over the precision of the words and concentrate instead on the action context of a statement helps with the development of a shared understanding. It provides some clarity in terms of next steps – answering the 'so what?' question – and so further *elaborates the map*.

The process of detecting how issues impact upon one another is found by most participants to be an activity that they can easily relate to – this is because we all use causality in order to make sense of our world. Group mapping thus aims to release deep knowledge and wisdom to get beyond the apparently similar descriptions of situations and into the subtle, but important, differences of what has to be done and why. The process raises alternative formulations and therefore opens up new options and new understandings.

Causal mapping provides a structure to the merging of perspectives and avoids the danger of reducing the complexity by focusing on a small number of considerations. Group maps comprising in excess of 100 issues (claims) can represent effectively a merging of the views of many people.

The network's ability to help groups become more creative by not having to close down avenues of thought avoids the dangers of a limited search and no innovation

group memory – a continuously created set of minutes that are produced by the group rather than by a single individual.

Figure 9.5 illustrates, through a real example, the initial collecting of views as they are scattered across the public screen. In this case the group were invited to 'dump' views before suggesting causal links. Figure 9.6 shows the first stage of transition to a cause map. Although the figure shows a very complicated set of links that could be displayed with fewer crossing arrows, the group participants are able to work with the map's apparent messiness because the map grew gradually through their own interaction with it. The group subsequently, and gradually, 'tidy up' the display.

Needless to say, much of the above can be attained using a non-computer supported GSS. The maps can be created through using 'post-its', 'hexagons', 'ovals', or 'sno-cards' (see Bryson, Ackermann, Eden, and Finn, 1995; Eden and Ackermann, 1998; Hodgson, 1994; Nutt and Backoff, 1992) to capture the different views. These can then be linked with hand drawn arrows (see Figure 9.7). Whilst this way of working reduces the demand on resources, anonymity of views is more difficult to achieve – although providing identical pens does help. Manual methods also make the transition from a set of individual views to a group held view difficult as editing is tedious and changing arrows messy.

THE PROCESS OUTCOMES AND INPUT TO NEGOTIATING THE DEFINITION OF THE SITUATION

In the previous section we considered the substantive outcomes from group mapping. We acknowledged that the development of substantive content is influenced by the designed process, and similarly the group decision making success is influenced by process outcomes. Content management and process management are integrally related (Eden, 1990). In this section we focus on some of the important process issues in group decision making.

Ensuring 'procedural justice'

Adopting a procedurally just process is expected to increase the likelihood of an increase in ownership of the outcomes and subsequently implementation of the outcomes that might occur.

Procedural justice focuses on the 3 Es of (i) clear *explanations* of the decision-making processes, (ii) setting realistic *expectations*, and (iii) ensuring *engagement* (Kim and Mauborgne, 1995). Clear explanations and the setting of expectations encompass not only what will occur and what are the objectives but also who will be involved and why.

Managing explanations and expectations is relevant during the meeting and also at the beginning of the meeting when the rules of engagement are made clear. However, establishing and communicating realistic expectations prior to getting participants together is also important (Eden and Ackermann, 1998: 55). The process of providing clear expectations and explanations are a part of well established facilitation practices (Ackermann, 1996; Phillips and Phillips, 1993).

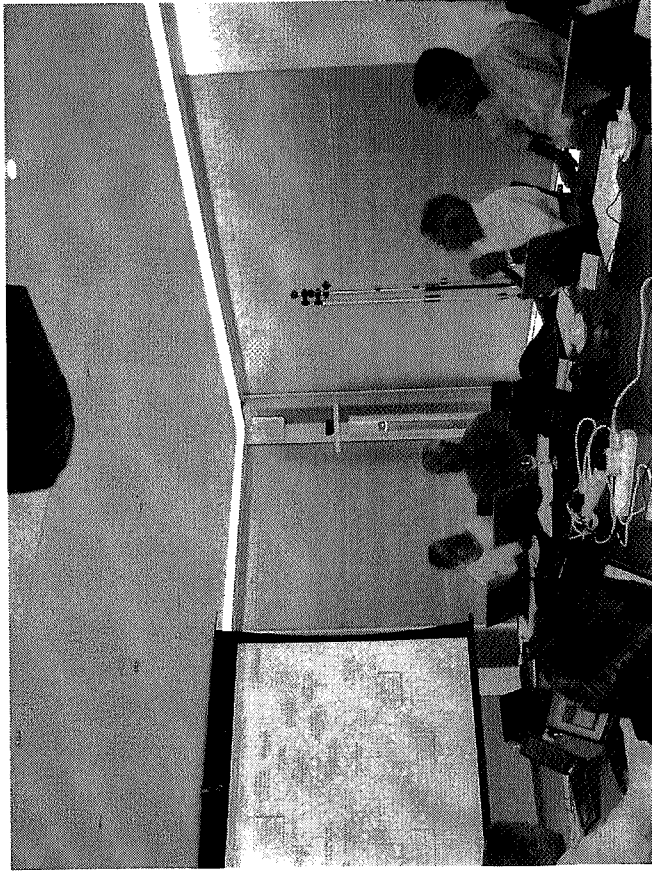


FIGURE 9.4 A Group Support System in use showing participants with networked laptops, and public screen displaying their developing causal map.

However, developing a group problem definition depends upon being able to get a group together. Later in this chapter we consider the issues in choosing group membership, but here we consider the issues of getting a group 'around the table'. Intended participants may not wish to be involved due to, for example, time constraints. For many the call to 'yet another meeting' leads to excuses for not attending. Finding more productive ways of managing meetings can set a climate where there is a higher likelihood of attendance. The well proven productivity gains that are possible through the use of a GSS can be an important incentive to group decision making and to enlarging the group size. A GSS allows group participants to 'speak' simultaneously. The additional air time gained allows quieter members to contribute to defining the situation. It also enables each participant to more carefully craft their point of view – expressing it in a way that more thoughtfully reflects their concerns. A GSS, in effect, creates a 'safe space' (Nutt, 2002: 148) that enables increased creativity as well as more openness without the potential for social punishments arising from alternative views being expressed.

The use of a GSS enables the group causal map to become the group definition of the situation. The developing map can be in continual transition because the GSS facilities allow continuous editing of both statements and arrows as the meeting progresses. In addition, the use of a computer-based system creates a developing

and Helmer, 1963; Van de Ven and Delbecq, 1974) and *Brainwriting* (Buzan & Buzan, 1993) (also see von Oech, 1982).

These processes however can often be lengthy and do not lead to a particularly integrated and well understood representation.

*The contribution from group support:
Facilitation and/or Group Support System (GSS)*

One of the major gains from using a GSS is not only the ability to allow those involved to be able to speak 'simultaneously' but also anonymously. As such participants can surface anything that they consider an issue or risk without being concerned by conformity pressures (Jessup and Valacich, 1993). Anonymity reduces the tendency towards conformity. Anonymity reinforces the provision of a 'safe space' in which participants are able to risk expressing views that they might judge to be 'out-on-a-limb'. In addition, although group participants might assert that they can 'guess' which of them contributed particular statements, our experience suggests that these guesses are often wrong and that participants can therefore be more open in their views. Consequently, not only is there likely to be a greater range of views presented but also there will be less need for participants to feel concerned about the need to defend their views. The GSS reduces the likelihood of decisions being 'failure prone because defensiveness is stirred up by the problem' (Nutt, 2002: 122).

Whether dysfunctional pressures on group participants exist or are just perceived to exist is of no concern – they have the same effect of a reduction in engagement. Moreover, not only does directly entering the contributions into the GSS help surface a wide range of views but also viewing a wide range of perspectives on a public screen facilitates psychological and social negotiation. Separating the proponent from the contribution and allowing a claim to be viewed in its own right rather than 'claims being offered according to their proponents' leverage' (Nutt, 2002: 25) helps build a more comprehensive and robust understanding.

As the contributions – claims – from group participants are made and viewed, new views – often the amalgam of existing views – are created by participants. This gives rise to streams of argument that are 'owned' by more than one member of the group as they are a combined product. This process of amalgamation and 'piggy-backing' helps reduce the likelihood of falling into the trap where 'pressure goads you into selecting among competing claims instead of finding concerns suggesting a claim all could agree to' (Nutt, p. 76).

The use of natural language as the basis of modelling facilitates a positive role for equivocality. Equivocality in this sense means the provision of sufficient degrees of 'fuzziness' to encourage negotiation. The fuzziness allows for gentle shifts in thinking and positions that are imperceptible to others (and sometimes to the participant themselves). This transitional process is more likely when the modelling process is visually interactive and so the publicly displayed causal map becomes a 'transitional object' (de Geus, 1988; Winnicott, 1953).

The map projected on a public screen allows participants to have time to 'mentally pause' rather than feeling pressured to respond emotionally to face-to-face and

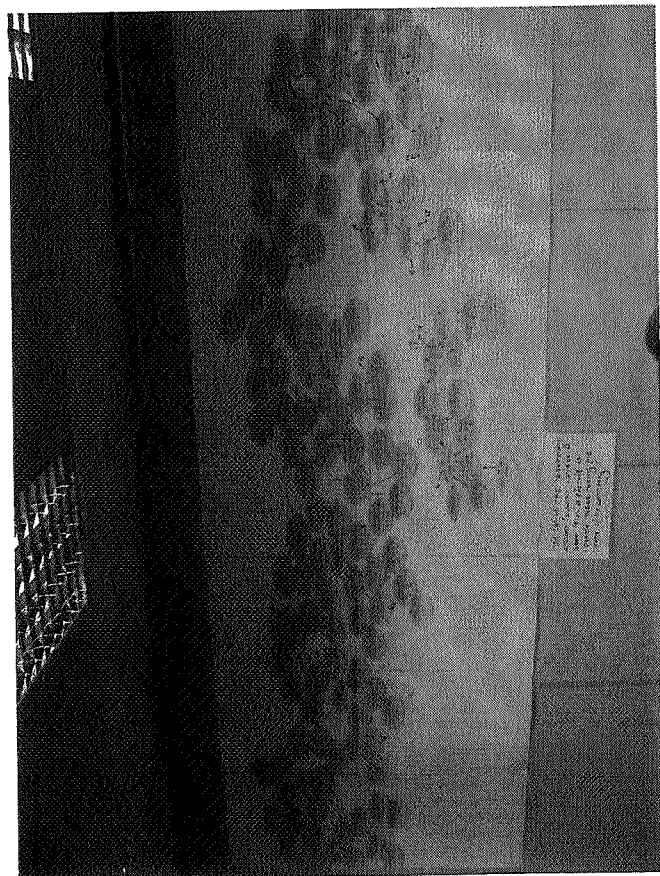


FIGURE 9.7 Using a technology free 'Group Support System'.

The significance of engagement

However, the third 'E' – that of engagement – is a significant consideration in the provision of group support through good facilitation and, when possible, the use of a Group Support System.

Engagement depends, in part, on the ability to express views that are thought to be important for others to consider. One of the well established inhibitors to raising issues, claims, and counterclaims are concerns about the consequences of conformity pressures. These pressures are encapsulated in the theories of Risky Shift (Stoner, 1968), Group Think (Janis, 1989), and the Abilene Paradox (Harvey, 1988). All describe situations where the 'decision makers are silent about their concerns' (Nutt, 2002: 25). Engagement and procedural justice also demand ensuring that those attending get listened to effectively rather than only one or two members dominating the air space. Providing a means for allowing all to speak simultaneously ensuring contributions can be heard and captured ensures this demand is met.

There are a number of different facilitation methods for reducing the likelihood of these behavioural problems. One well used method is the Nominal Group Technique (Delbecq, Van de Ven, and Gustafson, 1975) where each member contributes their views independently of one another and then considers the whole before contributing further. Other facilitation methods include the *Delphi technique* (Dalkey

verbal communication. This avoids the 'knee jerk' – often poorly considered – response being made public. For example, a particular perspective being put forward by one participant flies in the face of the views of another. However, because there is less pressure to respond immediately the member who disagrees is able to listen more to the contribution, and as the mapping process reveals the context, appreciate in more depth the contribution and its value. As a result, it might be that the potential antagonist is either persuaded or at least sees merit in the views of the other member. In addition, by not contradicting or arguing publicly the member is able to change their mind imperceptibly to the rest of the group and thus avoid the issue of being stuck defending a position that they may no longer subscribe to. They are thus able to listen better. This reduces the likelihood of group members responding physiologically with a solely emotional rather than cognitive response and therefore being caught in the position of having to defend (or back down from) a view that, after hearing more of the discussion, they no longer wish to hold.

The brief vignette (Figure 9.8) exemplifies the role of a GSS in tackling the process issues discussed above.

A sticky problem faced the newly appointed Chief Executive... The organization he was managing was a new merged composite of two previous organizations. However, as with many mergers the combined Top Management Team (TMT) was proving to be unmanageable – a consequence of including TMT members from both organizations. It was simply too big to work! This situation was not helped by the fact that members were geographically spread around the country, and that some TMT members disliked to varying degrees other members. Each meeting was a battlefield. He needed to reduce the size – but how could he make this decision in a manner that would be supported by the other members?

He was aware that many of the other TMT members felt the same, that there was a shared sense of frustration but that no-one wanted to raise the issue for fear of causing offence, being penalized, or ridiculed. He needed a way to involve his TMT that allowed the issues to be surfaced but not publicly. One late afternoon, whilst talking with a friend over a beer, he mentioned the situation. His friend suggested he use a Group Support System which allowed members to anonymously state their concerns but would also through using a public screen provide the means of viewing the various contributions. This way the issues could be 'put on the table' and discussed more openly. This sounded ideal.

The Chief Exec set about arranging for a meeting with the TMT to be held using the GSS (on a neutral site). The session would start with anonymous gathering of views before focussing on how the different contributions supported/influenced one another. A more comprehensive and owned picture would emerge. The process would switch between periods of time spent generating material anonymously and periods of time working together on structuring – helping to weave the different views together and develop a sense of shared understanding. A full and frank (well as much as was possible) discussion could be held.

FIGURE 9.8 Anonymity to the rescue! – a vignette.

Another way of surfacing different claims and appreciating different viewpoints comes from using 'role-think' (Eden and Ackermann, 1998: 133). Here group members may be separated into subgroups and asked to consider the possible perspectives emerging from the point of view of a stakeholder different from themselves. For example, when considering some of the options open to a police force, senior decision makers took on the role of 'disenfranchised youth', 'vulnerable elderly community', and 'local politicians'.

Figure 9.9 shows an example of the police beginning to 'role-think' the issues the police should address through the eyes of the elderly.

Group definition of the situation and options for resolving it gradually develop when, although there is not an expectation of agreement, there is likely to be more agreement about the nature of the situation, with each participant having elaborated their own views (constructs). In this way 'trans-subjective knowledge' is created (Ward, 1920).

As we acknowledged earlier, paying attention to multiple perspectives is expected to increase an awareness of the complexity of the situation. This complexity can be debilitating for the group (Eden *et al.*, 1981):

[T]he need to take account of intersubjectivity seems overwhelming. It is also clear that the deliberate attempt that it involves to address complexity can appear both to a consultant and members of teams to be a debilitating process, the outcome of which can be potentially destructive to a team. Most particularly an awareness of complexity can sap the desire or felt capacity to act. The world is complicated enough, it may be argued, without seeking to make even more of the complexity explicit and, thus, even more of the difficulties of acting effectively in the world apparent. This is particularly so when whatever one does can be simulated to have both good and bad consequences for somebody in the team. Encouraging members of a team to listen both carefully and analytically to each other is inevitably consuming of both time and energy. (p. 43)

Increasing complexity, if encouraged, must be managed. If it can be managed then it will more likely be encouraged. In the next two sections we address two powerful ways of managing, rather than reducing, complexity: through analysis of the structure of the map and so generating overviews without losing richness, and through categorization of the map content.

Using the mapping hierarchy that implies options seeking to address decision areas which in turn supports goals (purpose) (see Figure 9.10) suggests a categorization of decision areas (a variety of 'clustered' views of the situation, and of goals or purpose and direction).

In the next two sections we are not just seeking to manage complexity for its own sake, but also enabling a structure for reaching agreements: ideally seeking to resolve each of the interacting decision areas and doing so with a goal orientation.

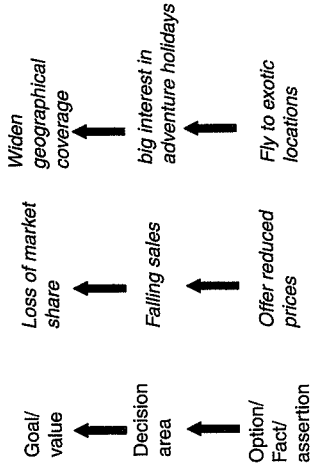


FIGURE 9.10 The structure of options, decision areas, and goals.

MANAGING THE COMPLEXITY OF DECISION SITUATIONS BY UNDERSTANDING STRUCTURE: COMPLEXITY DERIVES FROM INTERDEPENDENT DECISION AREAS

Complexity and the ability to address it, rather than pretend it does not exist, is an important component for decision making. Cognitive complexity is seen as one way of addressing complex situations. But what do we mean by complex situations? The sorts of situations of interest to us in this chapter are those where the word 'problem' is an inadequate descriptor. Issues that are complex are made up of many problems. Some have referred to these issues as 'wicked problems' (Rittel and Webber, 1973) and 'messy' problems (Ackoff, 1981), and others call them a problematic (Ozbekhan, 1974). Wicked problems are a network of interacting and interconnected decision areas (Friend and Hickling, 1987).

But how do we identify these interconnected decision areas? The easiest and perhaps most common way of doing this is to collect statements and organize them in to thematic headings. So, for example, in a commercial organization we might use the well established thematic headings of finance, operations, human resource management, etc., and allocate each statement to one of these headings. However, by doing so, we ignore the action orientation implied by the way in which people make statements in order to persuade others to act in particular ways. In causal mapping this is reflected through the linkage between statements – the arrows. There is no a priori reason why the links between claims and proposed actions should be thematic. Indeed, there is a reasonable expectation that messy problems involve implications across many themes.

The network of linked statements will have structural properties – clusters – where statements are tightly linked to each other and yet relatively isolated from other tightly linked statements. In the extreme these clusters may be 'islands', implying that within the situation there are a series of independent problems. In such an extreme case each problem can be dealt with as if they were separate entities, having no implications for one another. However, because this is not a typical situation, at the very least, attention to multiple perspectives will have generated.

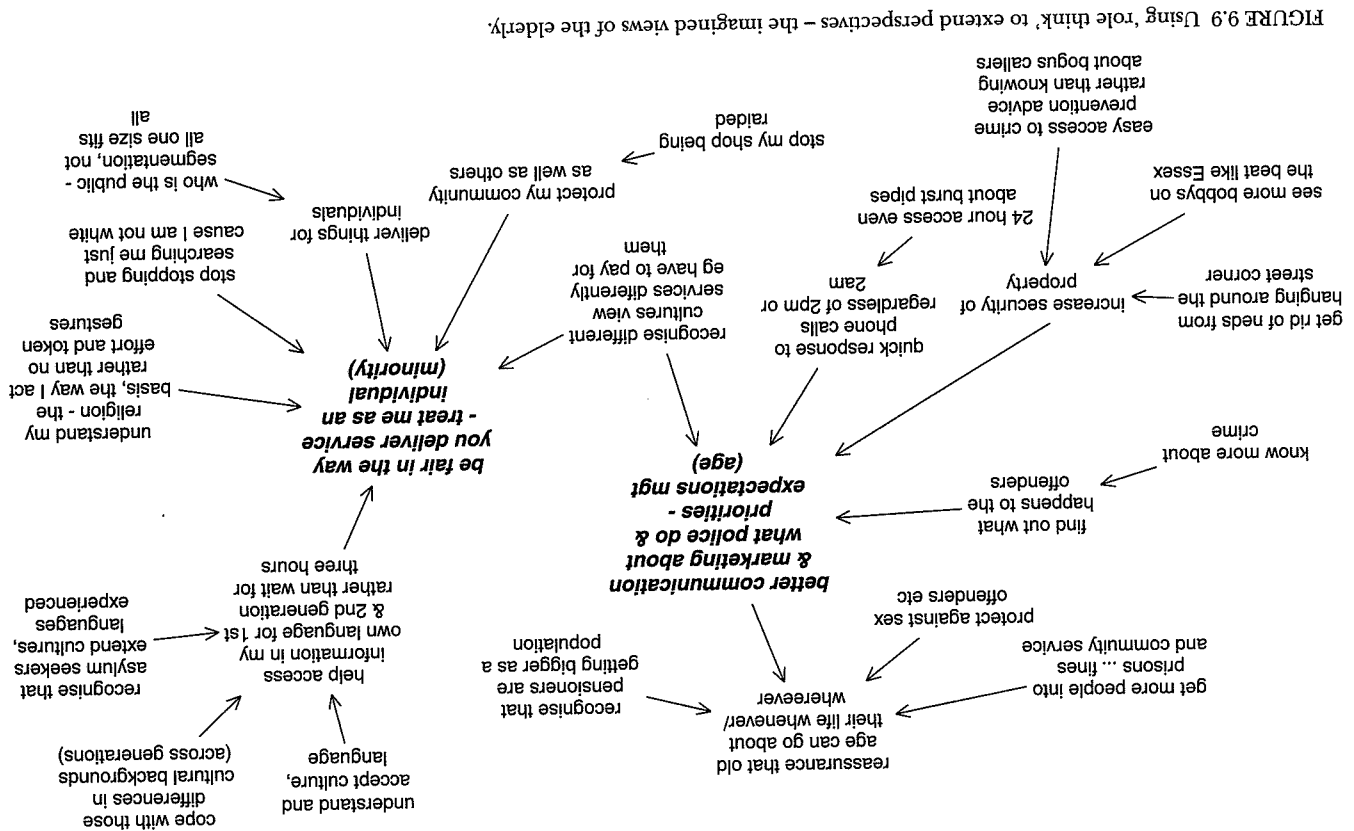


FIGURE 9.9 Using 'role think' to extend perspectives – the imagined views of the elderly.

intersubjectivity and so interdependence. Nevertheless, in order to help manage complexity, and the potentially debilitating nature of it, identifying interacting clusters is likely to be helpful to the group. It is difficult to attend to the requirement that 'best practice calls for a comparison of competing ideas to select the one that comes closest to providing the hoped for results' (Nutt, 2002: 58) without seeking to manage complexity.

Thus, identifying clusters is, in itself, problematic because there are many ways of doing so. Using a simple, and visually attractive, way of doing so, rather than a more statistically 'accurate but opaque' method, can avoid arguments within the group about what the clusters should be rather than addressing the substantive situation. As groups gradually identify a group definition of the situation, using a causal map, they easily and naturally identify with 'busy' parts of the map – some statements have many links with other statements.

Interacting decision areas: 'busyness' and an overview

The mapping process not only facilitates examination of the issues (claims) but also how they impact upon one another. The map provides a structure which is amenable to analysis. Thus, those issues that are 'central' or 'busy' (Bryson *et al.*, 2004; Eden, 2004) gain significance in terms of their importance as the numerous relationships either linking into or out of them suggest that paying attention to the central statements and the statements linked to them is likely to be important in resolving at least one aspect of the situation.

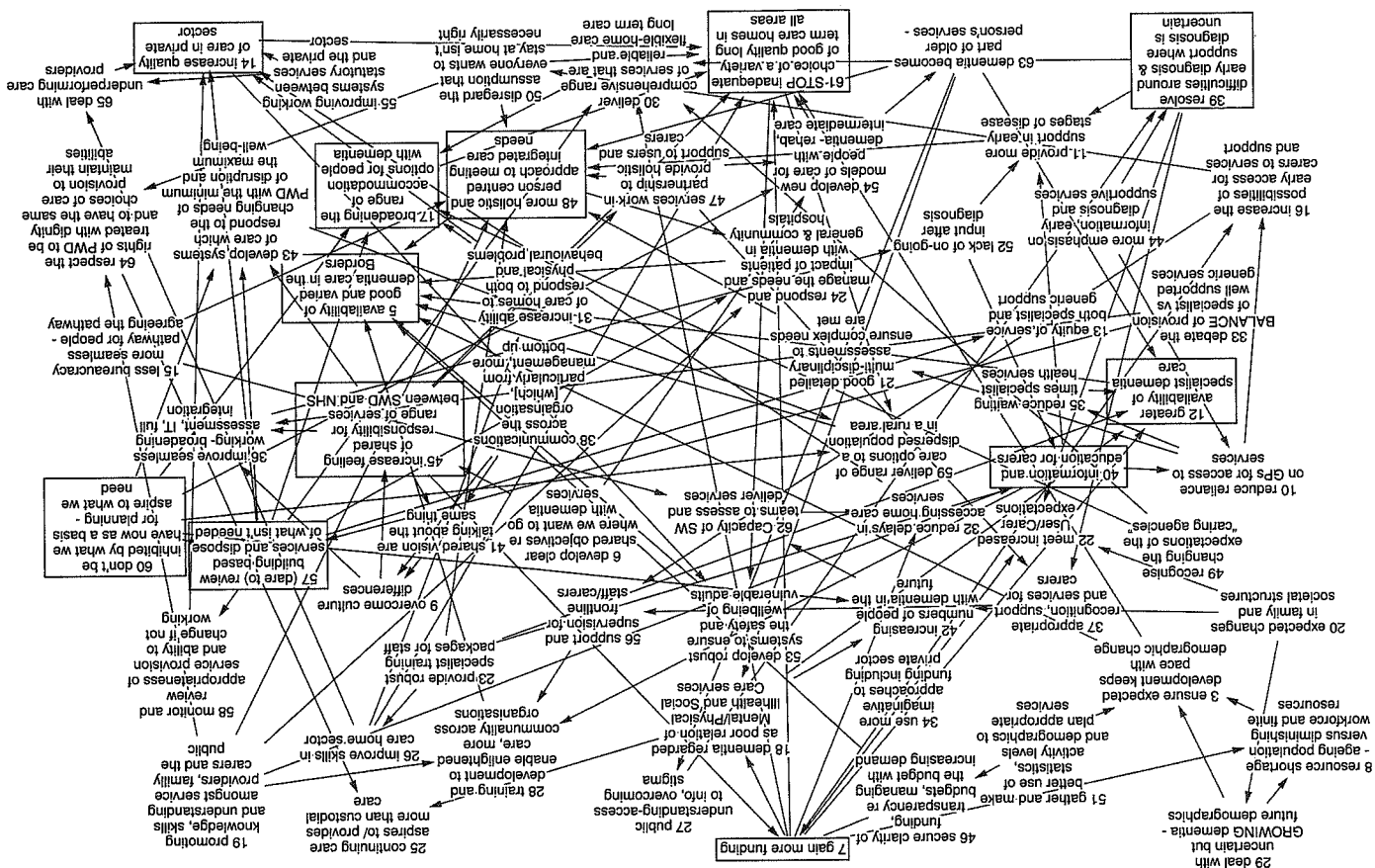
Nevertheless, it is difficult to identify a theoretically robust body of argument about why busyness should correlate with importance. Indeed, a single isolated statement (minimum busyness) may describe the most important part of the situation. And it may be most important simply because nobody in the group has been able to elaborate its explanations and consequences! However, as we shall see below, at least a crude form of cluster analysis would identify this isolated statement as one of many problems making up the definition of the situation.

Figure 9.11 shows how, in a real example, identifying a range of busy statements can provide an easy and early indication of the situation described as a system of interdependent problems. Focusing attention, temporarily, on the busy statements and the network of interconnections between them provides an initial overview of the defined complex situation. Thus, Figure 9.12, illustrates this overview of the more complex problem definition shown in Figure 9.11. In this overview, the links between the busy statements represent a path of causality, a sequence of arguments, existing between the busy statements.

Interacting decision areas: problem clusters and an overview

The notion of interacting decision areas was noted earlier: 'the "problem" to be solved was in fact a whole series of "nested" problems, each alternative solution to a problem at one level leading to a new set of problems at the next level' (Cyert, Simon, and Trow, 1956: 247).

FIGURE 9.11 Identifying the relatively 'busy' statements in the causal map.



Using busy statements as a way of indicating possible interdependent problems is an intuitively attractive way of establishing the nesting of problems. However, simply working with the visually attractive 'busy' statements is to ignore other statements that are beyond one level of explanation in consequence. The identification of clusters of statements, where each cluster is small enough to ensure that the group is not overwhelmed by debilitating complexity, provides for an alternative way of identifying interacting problems. Inevitably, each cluster is highly likely to encompass at least one busy statement. But, importantly, the labelling of the cluster will be derived from the total content of the cluster, rather than simply from the busy statements. The interdependence of these clusters derives from the links ('bridges') between them.

The process of a group identifying and labelling clusters is an important part of the group participants listening to one another. By asking the group to suggest clusters, each participant will listen to others through the process of reading statements other than those contributed by themselves. Nevertheless, as we suggested above, there is a danger that the group argues unproductively about the clusters rather than the substance of the situation. But, the process of identifying an overview is also a crucial part of defining the situation.

Dynamic interactions: the significance of vicious, virtuous, and self-correcting cycles

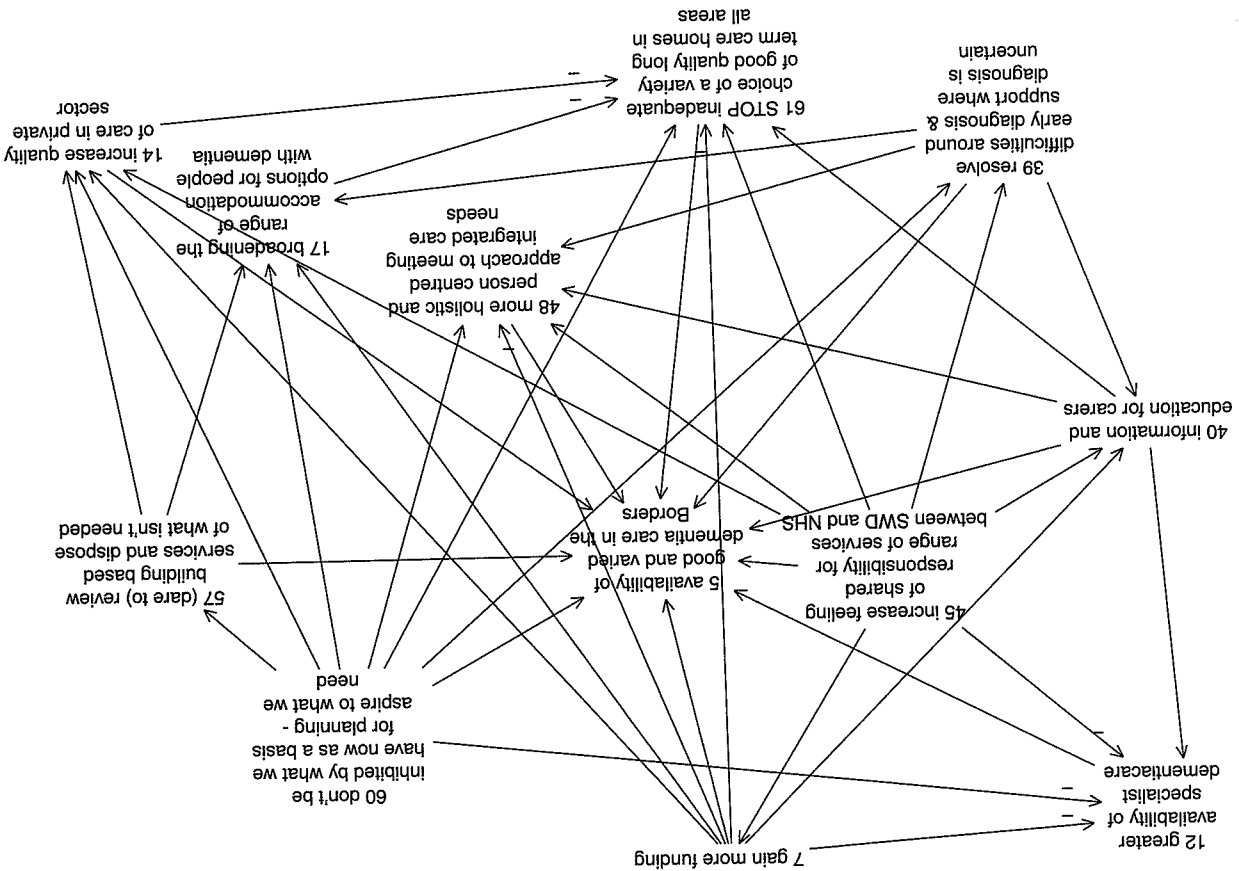
Recognizing the interdependence of problems leads to the possibility of problems being connected so that they feed off each other. Looking at the network's structure will reveal whether there are self-sustaining feedback cycles where potentially vicious or virtuous dynamic behaviour might be a significant description of part of the problem. The complexity of a situation is typically increased considerably when there are dynamic behaviours in the situation, and whilst these might not be understood, they are felt. Identifying and understanding the cycles, when they exist, can make a significant contribution to managing complexity and the situation.

Sometimes one group participant will seek to persuade others that a vicious or virtuous cycle exists. However, more typically the group begins to realize the existence of a self-sustaining situation through the merging of the beliefs of a number of participants. The identification of a feedback loop in this way does not necessarily imply the group participants can agree about whether the self-sustaining nature of the feedback is vicious or virtuous. Viciousness or virtuousness is a point of view, whereas the existence of self-sustaining feedback may be agreed by all.

The existence of feedback is likely to be of significance for the group. Two possibilities for feedback exist: positive or self-sustaining feedback – either as a vicious cycle or virtuous cycle; and negative or self-correcting feedback – where any action taken results in a tendency for the situation to return to its original state. Feedback is of significance because it represents the potential for dynamics in the situation – changes over time.

Figure 9.12 shows a real example of a group considering how to react to increasing demands on the police. The figure shows 10 feedback loops that represent

FIGURE 9.12 An overview of the issue map shown in Figure 9.11 based on link paths between 'busy' statements.



understand without the support from the computer simulation model. There is reasonable evidence that human beings find it very difficult to grasp the implications of dynamic behaviour (Sterman, 1989), and it is for this reason that the formal quantitative modelling may be particularly helpful. Such models can be constructed using a group model building approach, where participants are extensively involved in specifying the nature of the simulation model. By using this approach group participants have a greater ownership and understanding of the output of the simulation model and are more likely to pay attention to its conclusions. The construction of such a model, however, can be very time consuming and is open to criticism. This is related to the need to estimate in quantitative terms the nature of many subjective beliefs represented by the causal arrows.

This approach to understanding the nature of feedback is called system dynamics simulation modelling (Coyle, 1996; Forrester, 1961; Richardson and Pugh, 1981; Sterman, 2000), and it has been used with great success in a variety of fields.

MANAGING THE COMPLEXITY OF DECISION SITUATIONS BY UNDERSTANDING STRUCTURE: GOAL SYSTEMS (HIERARCHY)

Determining the goals and clarifying direction addresses one of the key 'traps' that result in failed decisions. Nutt's studies show that groups often have ambiguous directions that lead to problems which occur when 'directions were either misleading, assumed but never agreed to, or unknown' (Nutt, 2002: 31).

However, goals do not stand alone; they support and interact with one another – as a system.

Understanding and developing direction

Negotiating an agreed goals system implies not only identifying the goals but also the means by which they support one another. The goals system can usefully be depicted using a causal diagram/map. One of the benefits from representing the goals in this manner is that those involved in both the direction setting and implementation are able to understand the synergistic effects of meeting any single goal.

Agreeing a goals system is not a simple activity because of the reasons identified above in relation to capturing multiple perspectives – there will be differing views about what outcomes are desired. There are likely to be a range of different and possibly conflicting goals manifested and espoused across group participants. Disagreement about goals and the means of achieving goals are an important source of conflict (Schwenk, 1984) (although the role of conflict appears to vary between for-profit and not-for-profit organizations, with not-for-profit groups valuing conflict (Schwenk, 1990)).

However, whilst the need to discuss desired outcomes, purpose, or goals is obvious, there is little clarity regarding what actually constitutes a goal. Not only is there a multitude of terms including, but not limited to, goals, aspirations, objectives, intentions, values, purposes, etc., but also little agreement about what each of these

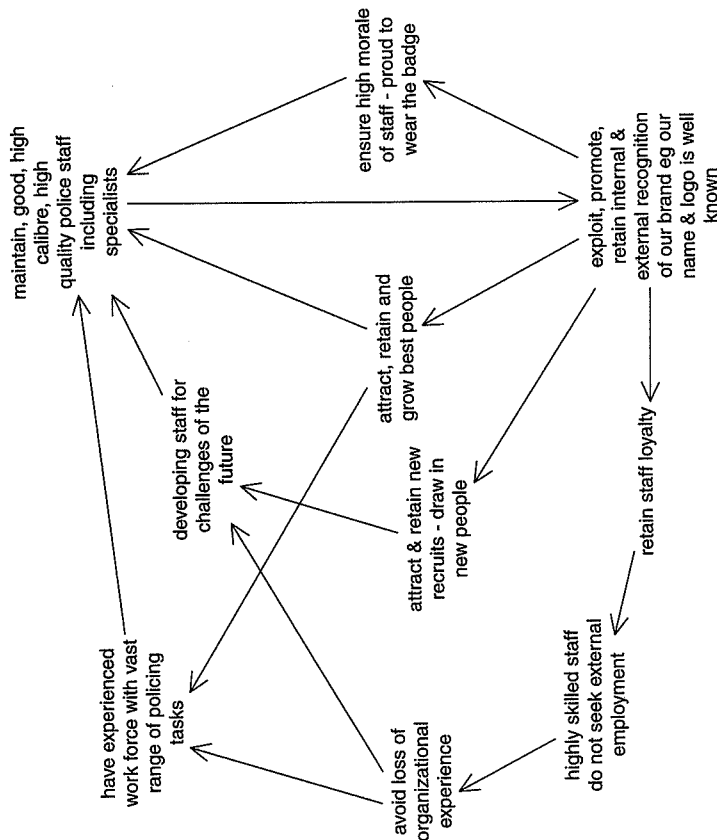


FIGURE 9.13 Feedback – a real example of a group considering how to react to increasing demands on the police.

virtuous self-sustaining cycles. These loops were not obvious or easily apparent to the group. Notably they realized, from the summary map (Figure 9.12), that the causal link from 'maintain high quality staff' to 'recognition of the brand' drives all of the loops. This realization, of course, became obvious to the group after they had noticed it!

In complicated messy situations the identification and realization of feedback can be difficult. Even though a causal map, as opposed to other representations, will be more likely to capture feedback, it may not be identified. As we have seen, the causal map which represents multiple perspectives is likely to be complex. Identifying feedback through visual inspection is often impossible.

The contribution of operations research modelling

The existence of feedback loops implies a dynamic. These dynamics can be modelled quantitatively by using simulation modelling techniques. The behaviour of these dynamics can often be counterintuitive, and such behaviour is difficult to

terms mean. Goals may usefully be considered as desired outcomes that are 'good in their own right' (so much so that they are hardly seen as optional by the person stating it). These 'goals' may be an expression of personal values, and personal values may be expressed as if they should be goals of the group. Sometimes expressions of goals of the group coincide with personal values. Very often goals are not explicitly known until the issues are explored and the goals, and negative goals, emerge from a reflective understanding of the issues a person or group see themselves as facing. But what must also be taken into account is that when a team is facing a messy problem they are often seeking to protect themselves from a bad outcome that is 'bad in its own right' – a 'negative goal'. In other words, regardless of the other goals that might support it or be supported by it, the single goal is a matter of concern in its own right.

Constraints are often stated as if they were goals, but they are not good (or bad) outcomes, rather they are subordinate to all the goals and have consequences that constrain actions, the achievement of goals, and the resolution of issues. For example: 'attaining minimum levels of shareholder return' may act as a constraint on management behaviour, rather than act as a goal (even though shareholders would wish to see it expressed as a goal).

Whilst most argue for the importance of goal identification or direction setting, there is less clarity in terms of how to determine them, how to gain agreement for them, and how link them. Typically it is presupposed that goals are known rather than discovered, the implication being that any member of a decision-making group should be able to state, at the outset of decision making, what goals are being tackled by a problem situation (classically Kepner and Tregoe, 1965, but also many other more recent instruction texts in decision making). Also, the notion that problem situations might arise because of a fear of negative outcomes – outcomes that would rarely be expressed if someone were asked for their goals – is not considered. These views imply that goal discovery does not follow from developing an understanding of the decision situation. And yet, as Nutt's research reinforces (following Wildavsky, 1979), it is a common experience that 'many decision makers see a direction as a solution because they do not know what they want until they see what they can get' (Nutt, 2002: 121). Goals (and negative goals), therefore, are often emergent and become formulated, clarified, and negotiated, as discussion about the situation, encompassing multiple perspectives, is undertaken.

The contribution from operations research modelling and a Group Support System

Goals may more usefully be discovered through firstly defining the situation – identifying the interdependent problems and so opening up the problem. The failure to reconcile claims can often lead to a failure to discover goals – in particular negative goals. Exploring what the consequences of each of the problems are helps generate a set of goals (and negative goals) that are grounded in the organization's reality. In the same way, exploring the consequences of resolving problems helps discover positive goals. This process of 'laddering up' avoids settling on a solution too early

and attends to the demand that 'decision makers must uncover and reconcile the concerns and considerations of people whose support they need to be successful' (Nutt, 2002: 29). Linking the process of goal identification to problem surfacing makes intuitive sense to managers as they focus much of their time on the myriad problems facing them, and by so doing they are implicitly identifying goals that are under attack. A manager will more easily articulate the problems she is facing rather than talk of goals. 'Being clear about expected results is set aside in the rush to find a remedy and also sidetracks direction setting' (Nutt, 2002: 32).

Starting with surfacing the issues (and their impacts upon one another) and laddering up to consequences helps to develop an *emergent goals system*. The process works most naturally by starting with what is taken to be a high priority problem or issue and asking 'what would happen if nothing was done about this issue' and/or 'what would happen if something was done about it' (see Ackermann, Eden, with Brown, 2005: 80 for further discussion of this process). The answers might be further problems as well as goals or negative goals. The process therefore enables a chain of argument linking issues to goals to be elicited – allowing those involved to elicit and consider the unfolding argument. In addition, the process emphasizes the need to explore the many consequences that might emerge from each issue rather than focusing purely on the most obvious/important/critical one. The resultant network then reveals each problem having a range of outcomes which branch out potentially further to more problems before supporting a set of goals which weaves the different branches together – as a system of interacting problems and goals.

Alongside goals, the process can also identify negative goals. These are ramifications that emerge typically from doing nothing about a particular issue and are seen as bad outcomes. To illustrate this point along with the laddering up process Figure 9.13 shows how the issues presented in Nutt (2002: 201) reveal a map of alternative consequences and interacting problems. As can be seen from the Figure the issue 'huge investment in urban transit systems' leads to 'introduce mass transit' which in turn results in 'reduce pollution and noise' finally culminating in not contributing to 'degrade downtown areas'. The negative link (minus sign at the head of the arrow) represents the fact that 'reducing noise and pollution' has a negative effect on 'degrading downtown areas'. The example also shows how 'reduce energy dependence' contributes towards the not-goal of 'reduce our dependence on foreign oil'. Not-goals are used to highlight those objectives that are at best peripherally within the sphere of control of the organization – they suggest that this goal is 'not my goal, and I am not prepared to be accountable for attaining it, but I am prepared to make a contribution towards it'. Finally following up from the chain 'huge investment in urban transit systems' leads to 'introduce mass transit' results in a further goal of 'provide people with access to downtown jobs and services'.

As these examples show, one important contributor derives from an acknowledged realization of multiple goals or criteria. Within the field of operations research there have been developed a series of techniques for helping groups address multiple criteria: multiple criteria decision analysis or modelling, using on some occasions software support – *VISA: visual interactive sensitivity analysis* (MCDA and MCDM) (Belton, Ackermann, and Shepherd, 1997), analytical hierarchy process (AHP) (Saaty, 1980; Vargas, 1990); Strategic Choice (Friend and Hickling, 1987);

Decision Conferencing using a type of GSS called *HiView* (Phillips, 1987; Andersen and Rohrbach, 1983). These can be combined with the mapping process by using the emergent goals system and options created by the group as the basis for multiple criteria analysis (Belton *et al.*, 1997).

Much of this process of considering the consequences and detecting the emergent goals system contributes to a shared understanding both of the ramifications and ultimate potential goals, negative goals, and not-goals.

The conversation about a messy problem also takes the form of exploring the options that are proposed for the resolution of the problems. This 'laddering down' extends the hierarchy further and enables options to be linked to decision areas and subsequently to goals. This hierarchy is similar to that suggested by Nutt when he suggests using 'a laddering technique to create a hierarchy of objectives and interpret it to find the most appropriate objectives to follow. This technique helps address two difficulties: i) people who become fixated on a particular objective and ii) arranging a large number of objectives, uncovered by a group process, to reveal their relationships' (Nutt, 2002: 126–127). In Figure 9.14 above, statements 5 and 11 represent initial options although it is likely that there are considerably more available.

ENABLING POLITICALLY FEASIBLE AGREEMENTS: WHAT IS A GROUP?

Involving many group participants meets, (i) the need to tap into a range of different areas of expertise and perspectives, and (ii) the importance of gaining ownership for the outcome(s) among all those who can influence the implementation of agreements. Therefore include everyone who has an informed view and everyone who is potentially affected by the possible outcomes! But, we do not know in advance what will be decided, so we do not know who will be affected, and we do not know in advance what the definition of the situation is, and so who can offer an informed view – after all 'decision makers must uncover and reconcile the concerns and considerations of people whose support they need to be successful' (Nutt, 2002: 29). And, in addition, this approach is likely to lead to the involvement of too many people.

For the above reasons the membership of any group considering a decision situation becomes critical. As we argued earlier, there will always be a tension between keeping it small to reduce complexity and enlarging it to include many participants and their perspectives. Those who are affected are stakeholders, and stakeholders are those who 'focus their attention on events that have meaning for them' (Nutt, 2002: 78).

In noting the above two considerations – increasing the scope and contribution rate, along with gaining ownership and commitment – there is the inevitable consequence that the resultant groups become large and therefore more difficult to manage. In particular one counterproductive consequence can be that the decision-making process becomes fragmented with some members feeling isolated (this may or may not be the case), subgroups forming, and side conversations emerging. Each

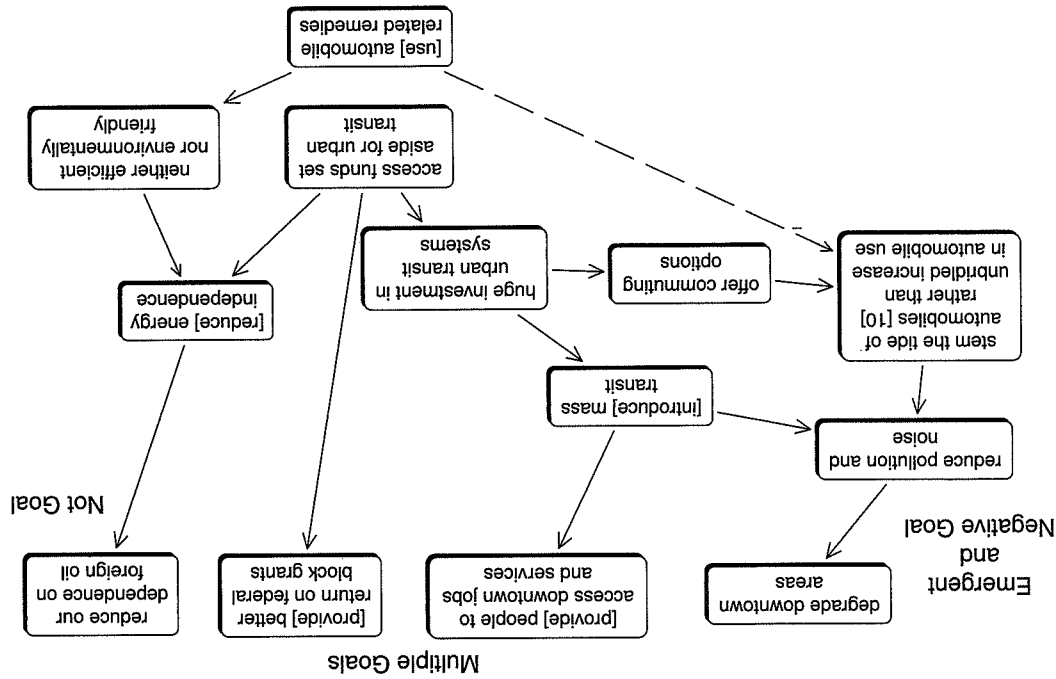


FIGURE 9.14 Laddering up from issues – multiple goals, negative goals, and not-goals. Assertions taken from Nutt (2002: 201)

of these may work against some of the benefits of being involved. For example, if air-time (the chance to be able to contribute) is traded off against gaining support to ensure group ownership, the benefits from involving members will not be achieved.

Following from the issues raised above, determining which bodies of expertise (wisdom, expertise, or knowledge) to tap into initially appears to be a relatively straightforward task. The choice of which knowledge or discipline areas are necessary to include in the process might not be universally agreed by all (for political as well as intellectual or time paucity reasons). Even if there is agreement over which areas, there is still the question of specifically who from the different constituencies/areas should represent the views. This difficulty arises because of the varying personalities and power bases brought to the decision-making arena.

Thus, some clear and agreed rationale needs to be found for helping decide who should be around the table.

Beyond gaining expertise, perspectives, gaining ownership for the outcomes is designed to attend to the need to ensure that there is commitment (and understanding) regarding the decision outcome. This is because 'there is nothing more difficult than to achieve a new order of things with no support from those who will not benefit from the new order, and only lukewarm support from those who will' Machiavelli, *The Prince* (1514). This quote from Machiavelli is echoed by Nutt (2002) who notes: 'persuasion is dependent upon the indifference of stakeholders and has little success when people have something to lose' (Nutt, 2002: 99). As such decision makers need to pay attention to understanding who will benefit and who is likely to lose from the decision. And so, whilst it is important to ensure that the resulting decision is analytically sound, it is also important to pay attention to those who might support or sabotage the outcome. Therefore, some appreciation of who is going to take notice and why (what is the basis of their interest) is fundamental to ensuring an outcome that has a reasonable chance of being implemented.

How to decide who to involve?

Who decides who is to decide who shall be involved? It is likely to be those who define a situation as urgent, interesting, and maybe strategic – recognizing that some situations are tedious but require immediate attention. The extent of 'pain' is an important determinant – an attack on personal and/or organizational values – highlighting issues of real concern and working to distract from other duties. The formation of decision-making groups often follows as a coalition of interests come together where there appears to all in the group, at that time, to be a common perspective. However, the group can be very fragile – each of the participants sits within other teams of powerful actors, each with a stake in the outcome of other problem situations. These stakeholders have a social life within which each situation is one, often small, part of the conversations that affect the dynamics of each problem definition. Usually, in addition, there are other key actors who influence the formation of the initial group who will decide group membership. They will have some ownership of the initial problem definition and are likely to wish to protect it.

Thus, there are a number of different ways this initial group might consider who it is necessary to involve. Firstly, they may consider carefully who is likely to be

interested in the decision-making topic and who has the power to influence, positively or negatively, the desired outcomes. Thinking carefully about all of the variety of different stakeholders that are either interested and/or powerful helps prioritize who might be involved (Ackermann and Eden, 2010).

In the identification of a set of stakeholders, there will always be a question about the level of disaggregation of stakeholders. When considering the stakeholders it is usually the case that negotiations involve someone, or at least a negotiating party, rather than a reified entity. Of course, in some instances, the negotiation will take place with a categorized mass of people (as with categories of consumers), but often the stakeholders who can most powerfully and deliberately influence the outcomes of the decision are specific individuals and groups. This suggests the use of a grid with the two dimensions of power and interest.

The grid, with the stakeholders categorized, then reveals insights into who to involve. Those that are both very powerful and interested make up a powerful first set to consider. In addition, those that are powerful and potentially positive could be considered as potential supporters and so may be involved at some stage to increase their interest and support. Likewise those that are very interested and supportive might be considered to see if there are ways of increasing their power base to support the decision outcome.

Another way to consider who to involve is to look at those being considered and review the list below of potential roles for group participants. This might give a deeper understanding of who should attend.

- ◆ Anticipated Loser. Nutt (2002: 142) also reflects on the need to be aware of those that are potentially winners or losers as these will enter the fray).
- ◆ Anticipated Winner.
- ◆ Genuine Cynic (often a senior and powerful person who has 'been through this sort of thing before, and nothing comes of it'). Where these individuals can be persuaded of the legitimacy and efficacy of the outcome they can become powerful advocates
- ◆ Opinion Former (when this person expresses a view in the organization it tends to be followed by many others without their investigating the validity of the view. They might, for example, assert that the strategy making is a 'good thing' and so influence many others in the organization to think positively about it).
- ◆ Ideas Generator. This person stimulates creativity, often thinking at a tangent and providing new viewpoints.
- ◆ Saboteur (this person often overlaps with the anticipated loser).
- ◆ Sit back and 'wait and see' before jumping (this person often literally sits at the back in group sessions and does not become involved. They might overlap with a genuine cynic).

Two further roles suggested by Nutt (2002) include:

- ◆ Insiders.
- ◆ Sceptics (who could be seen as a cynic).

A more 'sophisticated' way of considering group participant roles follows from studies by Belbin (1981) that suggest eight roles – where a participant may adopt a repertoire of several roles. In evaluating the roles, the chosen participants may form the ideal circumstance where all roles are covered. In addition, as we suggested above, personality influences the choice of group participants. Research using the Myers-Brigg type indicator (MBTI) suggests that, for example, more creativity arises from people with the MBT of 'intuitive-feeling-perception' (Nutt, 2002: 150).

Dealing with those not involved

'Whose interests are being served and whose are neglected will always pose an ethical issue' (Nutt, 2002: 200). Earlier we discussed the role of 'role think' as one way of understanding the perspectives of others and so how they might support or sabotage agreements. More instrumentally, an understanding of the perspectives of those not involved permits stakeholder management – the deliberate formation of coalitions and the manipulation of the power base and interests of these others to support agreements. Without an understanding of the perspectives of others there is little likelihood of effective manipulation.

NEGOTIATING AGREEMENTS

We stated at the beginning of this chapter that

an obvious and crucial aspect of group decision-making is the process of people *changing their mind* – their way of making sense of the situation. As members of a group discuss, argue, and make claims about the nature of the situation and actions that should be taken, they seek to shift the points of view of others in the group. There are, of course, other important aspects of group decision making relating to the use of power including: social pressures, consolidating personal trading agreements, charisma and personality. Each of these aspects is important in its own right, and the use of them affects the way in which a person thinks about the situation.

Negotiating agreements that will be implemented depends upon gaining at least a minimum level of ownership of the agreement – indeed it cannot be regarded as an agreement unless there is some degree of ownership. The essence of reaching agreement is recognizing that agreement occurs through a process of psychological and social negotiation and that full consensus is rare.

Reaching agreement requires a process to do so. Thus, any analysis technique that is intended to ensure rational decision making must only be seen as one particular lens on the world – a contribution to an informed process. A number of such techniques have been referred to in this chapter: causal mapping, multiple criteria decision analysis, and system dynamics simulation modelling. In addition this

chapter has made reference to the role of the Group Support System to aid the process of decision making, or reaching agreement.

The technique of causal mapping does not lead to a recommended decision, however it does focus attention on causality and words and arrows. For many the process of seeing a public view that shows evidence that a particular participant has been listened to facilitates involvement and ownership. For others a picture in the form of words connected by arrows can be puzzling. The purpose of the causal map in group decision making is primarily to link multiple perspectives and provide a structure that can explore the consequence of options for goals.

The technique of multiple criteria decision analysis focuses attention on evaluating the impact of options on each of several goals. The technique assumes that criteria can be differentially weighted and that it is appropriate to multiply differential impacts by the differentially weighted goals and then add the products together in order to determine the best option. The main contribution of such an exercise is to promote an informed discussion, however many believe that it suggests a decision outcome. Unfortunately, such a rational process will often leave participants unable to argue with the recommended outcome, and so a false consensus arises. In such circumstances successful implementation is unlikely.

The technique of system dynamics simulation modelling seeks to protect a group from making a decision that will not work over the long term. The technique demands that the participants are able to reach agreement about the nature of causal beliefs: their quantitative impact on one another. Such agreements are often not easy to reach and the simulation model cannot be run without this quantification. Nevertheless, as with the other techniques above, by looking at decision consequences through the lens of feedback dynamics, long-term consequences can usefully inform discussion. In the 1970s modellers constructed a system dynamics computer simulation that was expected to address the *limits to growth* of the world (Meadows and Meadows, 1972). Many argued that this was an overambitious and preposterous activity; however, its significance was to promote an informed debate about the assumptions built into the model, and those who argued for its inadequacy to express their reasons. In recent times, system dynamics modellers have promoted the process of group model building (GMB) (Andersen, Richardson and Vennix, 1997; Vennix, 1996) and the view that the process of model building is as important, or more important, than the model itself.

This chapter has argued that the potential for better decision making is more likely to be realized through the use of a system that supports process: a Group Support System. However, it is important to realize that such systems are not widespread across organizations and make significant, and extensive, demands on facilitators (Eden, Ackermann, Bryson, Richardson, Andersen and Finn, 2009). There is never likely to be an oversupply of experienced facilitators able to use sophisticated Group Support Systems. However, in recent years, the newly developing field of collaborative engineering (Briggs, de Vreede, and Numamaker, 2003) is seeking to create a set of simple group support episodes that can be put together to make a sensible group support process for a particular situation. The use of a portfolio of episodes (known as 'ThinkLets' (Briggs *et al.*, 2003) creates a script that reduces the need for an experienced facilitator.

APPENDIX: CREATING A HELPFUL MAP?

There are some useful formalities (rules) that enable the creation of a map that can communicate purposefulness (goals), options, and meanings. The formalities also, of course, derive from considerations of personal construct theory.

- ◆ The direction of an arrow should indicate the direction of causality and influence: means to ends, options/actions to outcomes.
- ◆ One person's means can be another person's ends:
 - ◆ For example: A → B might be what one person thinks, while another person may think B → A is correct.
 - ◆ For example: 'turning things around means we have to win every battle in the next 5 years' may be coded with 'winning every battle' as the desired outcome from 'turning things around', or alternatively 'winning every battle' is required in order to 'turn things around', depending on the desired ends of the interviewee.
 - ◆ But, bear in mind some 'objective' truths might be subject to debate.
 - ◆ For example: 'putting more policemen on the beat will reduce crime' may be an objective truth to one person; nevertheless, another person might argue the objective truth is that more crime leads to more policemen on the beat.
 - ◆ Sometimes A → B can be treated as so consensual that it need not be debated e.g. 'obvious' arithmetical relationships.
 - ◆ For example: More sales causes more sales revenue.
 - ◆ Means to ends are most difficult to judge when considering a hierarchy of criteria – that is, values and goals:
 - ◆ For example: is 'be unhappy and upset much of the time' more disastrous than 'crawl into my shell and give up'? That is, does 'be unhappy' lead to 'into shell' or vice versa? This can only be judged by the person being mapped, or at least this choice must be open to consideration.
 - ◆ It sometimes helps to work with a hierarchy of goals, such as 'objectives' lead to 'goals', which lead to 'ideals or values'. So objectives are shorter term and more easily measurable; whereas goals are expressive of desirable longer term outcomes; whereas ideals or values are unlikely ever to be attained but guide purposeful behaviour.
 - ◆ Avoid mapping time sequences which are not causal relationships (as this will produce flow diagrams or process maps that are not amenable to the same sort of analysis or meaning as cause maps).

Getting linking right: Avoiding duplicate and double headed arrows

- ◆ Ensure that the map does not contain duplication of links
 - ◆ For example where the map shows A → B → C → D along with A → C and C → D and A → D – ensure that the latter three links show different causal chains (through additional material).

- ◆ Avoid double headed arrows as these are implicit feedback loops suggesting either:
 - ◆ Muddled thinking that can be resolved by determining means and ends
 - ◆ A legitimate feedback loop consisting of additional statements that might provide more intervention options.

We shall utilize these formalities throughout this chapter with respect to the entire example maps presented.

NOTE

1. Based upon the Ackoff and Emery typology in *On Purposeful Systems* Wiley (1972); see also discussion on 'values' in Eden *et al.* (1979) *Thinking in Organisations* Macmillan.

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Part IV

FACTORS AND CONSIDERATIONS THAT IMPINGE ON DECISION MAKING

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