

## **The Cognitive Models of Change Leaders**

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### **Abstract**

The models, schemas, recipes and mantras, which leaders of change bring to the projects they manage, are relatively little understood. Here the nature of these structures is explored from the perspective of mental model theory. The positive potential of simplified representations of business problems is contrasted with the negative value of certain long-cherished and counterproductive recipes for action. It is suggested that many managers, when initially questioned about the nature of the cognitive structures they bring to their work, tend to make excessive claims for the stability and internal consistency of their personal repertoire of available material. The popular distinction between tacit models, as “undiscussable and indescribable” phenomena (Argyris and Schön 1996), is compared with a more dialogic view of managers as men and women subject to frequent changes of stance as they engage with significant colleagues. Simple links between personality types or cognitive style and mental models in use are challenged and it is suggested that a leader’s repertoire of models and heuristics is often extended well beyond the zones of comfort that may be inferred from personality theory. Management and cognitive competences are advocated as potential limiters of models in use and facilitators of change. Classification of the mental models of leaders is attempted in order to illustrate the value that individual models may have as narrational, ego-defensive, processual and discursive material. The depth, superficiality and motivation behind certain models are discussed, as is the question of how easily leaders of change can adapt these different types of structure as a result of the feedback they get from the success or failure of their projects. This paper forms part of an ongoing study of senior managers who are leading organizational change in the public and private sectors.

**Key words: mental model theory, managers, organisational change, leaders**

### **Mental Model Theory**

Early attempts to categorise the styles and strategies of change leaders (McGregor 1960, Likert 1961, Reddin 1970, Tannenbaum and Schmidt 1973, Ouchi 1981) often failed to differentiate between the thinking these managers employ, the attitudes that underpin their actions and the types of intervention they prefer. Similarly, psychometric assessment of these traits has often depended upon a mixture of such elements to provide profiles of each manager’s preferred style (Briggs-Myers 1987, Avolio and Bass 1999). Instead, cognitively orientated management theory (Daniels.1999, Sparrow 1999, Maule and Hodgkinson 2002, Hodgkinson and Sparrow 2002) has explored the thinking processes that executives draw upon to formulate, implement and sustain the innovations they introduce. Sometimes the research focus has been upon how change leaders make sense of their situations and translate thinking into action (Weick 1995, Baumard 1999), while others have aimed to improve the competence of such managers as change leaders and decision makers

(Katzenbach 1997, Senge 1999). This paper has adopted the former more theoretical and diagnostic approach.

Naïve or folk theories have been used by cognitive psychologists to help explain bias in memory, reminiscence and day-to-day problem solving, but prominent in areas concerned with behaviour in novel problem-solving situations has been the concept of mental models. It is easy to see the resonance between mental model theory and leadership theory in its application to business. First, model theory proposes that rationality is often bounded by constraints such as time, limited data, the restricted cognitive capacity of most people and their emotional states (Daniels 1999). It suggests that everyone has a need to construct representations of the problems and the contexts that they have to face. These constructions may often develop as simplified and highly idiosyncratic frameworks. A mental model may represent a possibility – for example, a sudden rise in resistance to change, and may assume, quite incorrectly, a relevance for all contexts in which that possibility may occur (Johnson-Laird, P. and Byrne, R. 2000). However, it is asserted by several management writers that such mental representations, even though approximate, incomplete and lacking contextual focus, offer useful heuristics to assist in initial sense making, communicating with other key players and decision-making (Mintzberg 1973).

According to each manager's perception of success or failure these models may be preserved or adapted for new problems and contexts. Vigilant monitoring to detect and correct errors is advocated optimistically by Argyris (1999) if such personal learning in the form of model refinement is to continue. Reger and Palmer (1996) point out that failure to revise their assumptions in time to tackle new problems and new contexts is common among strategic planners in business. However, while reviewing experimental and field work on how people use such cognitive models Eysenck and Keane (2000) argue that preservation and adaptation processes are not fully understood, nor has there been an adequate examination of how mental models in general are created in the first place.

### **Simplified representations of reality**

The term “mental model” has been used synonymously, in research into management and leadership, with a number of other epistemological artefacts (such as cognitive maps, schemata, theories of action, management heuristics, individual and collective recipes, etc.). All are to a greater or lesser extent simplified representations of work and organizational realities (Walsh 1995, Hodgkinson and Sparrow 2002). Simplification is a dimension along which we can postulate that individual structures can be positioned. At the more sophisticated extreme we might expect to find, for example, personal, thoughtful and elaborated theories of leadership, strategic models for future action and diagnostic frameworks to help criticise organizational theories that managers recognise to be in use in their own and other enterprises. In the middle ground could be located more simple perceptions, for example, of causal connections between actions by a change leader and the outcomes to be expected together with images of desirable futures and their means of achievement. Here we may also find interpretations of past successes and failures.

At the least complex end of the scale might be found personal articulations of company missions and individual goals together with some clear steps that will be necessary to achieve them. In some cases these simple representations may be built largely around a personal or collective mantra. The spread of such models in use among leaders of change along dimensions such as simplicity and depth of informational support remains a question.

However, the view that many managers, even some who are regarded as successful, have become non-reflecting men and women, who depend largely upon simple recipes and organizational wisdoms, has found support with many academic and popular writers (Csikszentmihalyi and Csikszentmihalyi 1988, Senge 1999, Argyris 1999, Hodgkinson and Sparrow 2002). Over time a combination of contextual and personal factors such as anxiety about their own position, information overload and time pressures may well cause many executives to prefer simple, safe and easily applicable models in order to make sense of the problems that beset them. However, popular belief has it that senior managers will necessarily employ more cognitively complex models in their strategic planning and decision-making. Meanwhile, junior executives, according to this perspective, will be acting more intuitively as they respond to bottom-up demands for quick decisions and solutions to problems.

The latter condition would seem to require versatile heuristics or rules of thumb, simple diagnostic frameworks, clear associations of action and outcome and unambiguous personal objectives. This point of view suggests that as they advance to more senior positions executives will need to construct more sophisticated and strategically focussed models. However, a very different view of senior management emerges from the work of Clarke and Mackaness (2001). Senior managers in their study employed models that were no more complex than those of their juniors, indeed some could be explained more simply. The mental models of the top echelon appeared more conceptual and less anchored in hard data. Overall it seems that relatively little is known about the changes to the dominant mental models of managers, if indeed they do change, as managers advance to top positions; how mature models are discarded and new ones internalised. The perspective from organisational psychology suggests that many more personal and contextual factors than seniority alone are needed to account for shifts in the richness or simplicity of the cognitive structures that executives bring to their work

Naturally such models do not operate in isolation. They are to be seen as decision-making aids which operate alongside and in conjunction with the more rational, time-consuming and sometimes more linear processes of problem-solving (Maule and Hodgkinson 2002). However, such rational-logical activities are themselves rarely undertaken in ideal conditions. Stewart (1967) described the fragmentation of decision making in senior management positions. Decision processes become fragmented and time gaps separate essential steps. Iterations between the stages occur as data is gathered, problems are repackaged, diagnoses suggested, ideas generated, action plans are created, etc.. Key players, like chief executives, manpower resource experts, consultants, representatives of staff, etc. may not be available at appropriate moments. Isenberg (1984) shows how managers can by-pass the more rigorous phases of decision-making when facing entangled or ambiguous problems. Once again

mental models may be needed to provide sense-making shortcuts with which, for example, to diagnose new and unexpected developments, or to choose between solutions that may seem equally justified from data that is available. They may also assist in constructing criteria to evaluate progress at difficult moments in the decision-making process.

### **Positive and negative models**

Popular management writers, business educators and consultants who have adopted mental models as an analytical tool have made much of both the positive and negative aspects of these phenomena (Argyris 1976, 1996, Senge 1990, 1999). Longstanding models, they have argued, can easily become dated, excessively cherished, and inevitably counterproductive ways of thinking about contemporary problems. Such persistent models held by individuals or work groups are illustrated in management jargon as “yesterday’s models” (Argyris and Schön 1996, Senge 1999, Hodgkinson and Sparrow, 2002). Datedness in this literature is used mainly to describe obsolete mental maps about the nature and workings of enterprises, markets and business environments. Other criticisms of long held models and the theories of leaders focus upon the irrelevance of these models to new company objectives and their unsuitability to internal and external contexts. Nevertheless, several commentators believe that the fluctuating popularity of many of the models and ideas in use among senior managers can be attributed to fashions driven by a management theory industry (Micklethwait and Wooldridge, 1997).

However, many long-standing models and recipes for change management are still on offer from business schools, consultants, trainers and popular writers. In spite of an allegation that established mental models tend to limit thinking and acting, many seem to function as valuable operating frameworks for busy executives. However, such mental models, and especially tacit ones, are seen by some business educators in a Lewinian way as potential impedimenta to the achievement of new goals. As conservative and unchallenged ways of thinking they are to be uncovered and to be adapted or replaced by more focussed and instrumental ways of theorising (Senge 1990, Argyris 1996, Cunliffe 2002.). “New blood” HRM initiatives may be seen as an extension of this thinking in which managers and staff with dated or non-progressive models of thinking, and who have failed to reshape their own “practical theories” (Cunliffe 2001, 2002), are replaced by staff whose ideas are much more in tune with current goals and collective organizational knowledge.

A different view is taken by some model theorists who suggest that the real problem lies in the structural nature of the mental models we develop and how they relate to the complexity of the problems we face (Johnson-Laird and Byrne 2000). As problems increase in complexity so does the number of models needed to solve them. They hypothesise that a single model application, especially where that model is elaborate will, when applied to complex problems, tend to result in poor outcomes. This has some resonance with the popular accusation levelled at business consultancy that it is an activity underpinned by simple recipes that are being applied to complex and intractable problems. Instead, an ideal cognitive structure should equip with a wide range of simple, yet practical ideas, with which to tackle a variety of problems and contingencies.

### **The consistency of each manager's thinking**

How well the old and the new, the progressive and the defensive, the simple and the complex lie alongside each other is a debated theme. Cognitive dissonance theorists will argue for a natural process of dissonance reduction between conflicting models of change leadership. Alternatively, processes of selective attention and perception can be used to explain apparent consistencies within the thinking of individual managers. Political theorists (Pettigrew 1990), writers about impression management (Hass 1981, Rosenfeld et al., 1995) and more clinically orientated authors (Douglas 1997) emphasize a need to have followers perceive their leaders as consistent over time and in word and deed. In a study of resistance to change in the retail industry Ogbunna and Harris (1998) have suggested that, even where new practices have been adopted, some managers and staff, in a search for internal consistency, will assert that new models are merely the old ones re-invented and that they can easily "re-cycle" their long held ideas to fit the new language.

These findings suggest that when we examine the narratives of change champions there is a danger of underestimating the gaps between their own competing models and the distance that separates their own models from those in use by other stakeholders in the change programme. It seems that the narrations of managers, like persons in many other occupations when asked about how they implement or react to change, contain excessive claims for internal consistency of thinking and action. In fact the idea of an inevitable congruence between competing mental models is seriously challenged by Bakhtin (1981), Billig (1996, 1991). As a cognitive psychologist with a background in attitude research Billig in particular, argues that for many people, attitudes are unfinished and incomplete cognitive structures and frequently contain substantial internal inconsistencies. While Hass (1981) suggests that managers who are concerned with their reputation and the impressions they make will shift their attitudes within "their (internal) latitude of acceptance" (Sherif and Holland 1961), Billig sees it as natural that most people will be in dialogue with themselves and with close others as part of a constant process of attitude formulation.

The implication here is that in many change leaders, especially those exposed to a wide range of narratives from colleagues, employees and customers, their cognitive structures are likely to consist of fragmented, and sometimes conflicting ideas about the best way to navigate an organization through a major change project. Some are likely to be ephemeral ideas, depending on the most recent "exposure" to the suggestions of others. These cognitive structures are about how best to plan, involve staff, communicate most effectively, choose and manage interventions, evaluate success, etc. Some input-outcome models about these themes will lack ideas about practical implementation, while others may be represented as clear-cut recipes but with uncertainty about appropriate contexts. Change leaders dependent upon forming alliances and achieving compromise with opponents may also possess both supportive and critical stances on the same model for change (Allan and Burrige 1991). However, this does not preclude a manager from having at any one time a favourite set or amalgam of preferred theories and recipes for change and a preferred stance upon each model.

The inference from Billig's ideas about cognitive repression (Billig 1999) is that managers may have developed a skill by which for a short time at least they may repress competing models. This repression may be facilitated by a strong organizational paradigm of just what behaviour a good change leader should exhibit in particular situations. Dissonance between belief and behaviour, if it exists at all, may lie in the degree to which actions undertaken in previous and current change projects are substantially out of gear with that manager's belief about what should have been done. It seems most likely to appear at those rare and often brief moments of reflection, during project evaluation, training and appraisal, that are available to managers.

### **Open and tacit models**

Classification of mental models and other cognitive structures about leadership has been influenced strongly by distinctions between espoused theory and theory in use (Schön 1994, Argyris and Schön 1996). Such a distinction between open and talked about thinking and what are often tacit models in action has an initial validity in that it matches a popular view of business executives and politicians as people who promise one action yet deliver another. Explicit knowledge and "claimed theory" often in the form of sincere aspiration, may be expected to provide support for the narratives that change leaders must provide in meetings, presentations and evaluations of projects in hand (Gardner 1995, Starbuck 1982, Shotter 1993, Cunliffe 2001). Where hard data is limited, the inclusion of part of a theory, model, mental map, recipe, etc. is likely to be convincing (Wilkins and Thompson 1991).

Persuasive narratives will be needed in everyday discourse with colleagues and followers, coping with surprises, failure, etc. and in constructing a personal reputation as a leader. Tacit cognitive structures too may be seen to support the busy professional or business executive (Polanyi 1967). Intuitive decision-making has been shown to rely upon recipes, models and part theories, which many managers rarely, if ever, articulate. According to Walsh (1995) much management decision-making should be regarded as bottom-up processing in which many executives must respond quickly to urgent problems without the time for reflection or the scanning of their espoused theory. Researching the diagnostic skills of doctors, Patel (1999) described their tacit knowledge and the models they contain as largely procedural frameworks, which were rarely articulated. In fact such tacit material may not yet have been abstracted from a number of well-learned medical routines (Eraut 2000). Patel argued that this tacit material is essentially different material from more elaborate espoused or publicly "talked about" models because of its simplicity and its dependence upon earlier learned structures. This tacit material could only be inferred from a doctor's behaviour and would be most in use with routine medical problems. Sternberg and King proffer much the same notions about tacit knowledge in studies of medical practitioners, salesmen, managers and teachers.

According to Argyris (1999) managers may operate defensive routines to reduce risk to their reputations or to protect themselves when in difficult or stressful contexts. Tacit, subtle and private theories of action and personal goals and organizational objectives can be observed at work although they do not readily surface in their everyday discourse with colleagues. Indeed this corpus of knowledge is sustained by

avoiding systematic enquiry such as appraisal, 360° feedback, psychometric testing, reflection, etc. Billig (1999) argues that in many settings people learn to repress recipes or frameworks which have been recently in use and which may be pertinent to work in hand. Presumably such repression occurs in the business environment as a result of disapproval by senior management, pressure by subordinates, etc. Recent enquiry into corporate fraud and misconduct by executives has revealed a similar denial process (Punch, 1996). Tacit models may also be associated with the construction of a personal identity or the achievement of career ambitions but even here they remain unstated and so are free from attack. According to Argyris and Schön (1996) such knowledge is usually “indescribable and undiscussable”. Tacit models are indescribable because many managers are unaware of the thinking that underpins certain actions and undiscussable in that there is a local consensus to remain silent about how certain problems are tackled.

According to a body of writers in the field of management training, the development of innovators in business will not succeed until their tacit models are made explicit and thus, amenable to change. The ideal learner appears to be Argyris' Model II management thinker noted for his or her competence in reflection and evaluation. However, the notion of a tacit core of conservative, unchanging mental models matched by an outer layer of narrated and eminently adaptable recipes for success as a business person is seriously challenged by neuroscientists like Damasio (2000). He distinguishes between a “core self” which is less accessible but constantly subject to new experiences, and a more artificially preserved self he describes as an autobiographical phenomenon. Drawing upon Dennett (1993) and Damasio (2000), and from the perspective of autobiography and the novel, Lodge (2002) offers a similar view of men and women seeking self control and self-definition through controlling and elaborating the stories they pass on to others.

### **A non-approachable corpus of models**

Just how unknown are these tacit models to an experienced manager who is in dialogue with colleagues who, according to emotional intelligence theorists, is empathetic and possesses a high order of social skill (Goleman, 1998)? Polanyi (1967) points out that, whatever the circumstances, it is normal for people to know much more than they can say. Much of this implicit knowledge amongst managers and professional workers (Schön 1996, Eraut 2000) has been absorbed either from experience or instruction without any awareness of the adoption of the new sets of ideas. Eraut goes further to suggest that many routines or recipes in use may not have been conceptualised as mental models or recipes for action. Accordingly, experienced managers are said to often find difficulty in recalling events or experiences, which were instrumental in the formation of both the tacit, and the explicit models they employ.

In fact the case for tacit mental models or private agendas, which are largely unknown to the manager concerned, is argued strongly from several viewpoints. Cognitive psychologists like Shotton (1993) and Cunliffe (2001) see a need to get into the inner consciousness of people if we are to enable them to reconstruct and adapt these structures. Cunliffe, in particular, regards most forms of reflection as little more than providing patterns of simplistic rationalization. A deeper analysis is called for

in the form of reflexivity, by exposing contradictions, doubts and complications in each manager's thinking. It seems that little personal development in anything other than technical and procedural competences is feasible until such individuals are aware of the tacit ideas, which have been blocking out alternatives and opportunities for discussion. From this perspective modern management consultants can be seen as diagnostic clinicians working with clients in need of psychotherapy within support groups. Occupational psychology too may have contributed to this essentially clinical stance on the need to explore the unawareness of managers through the popular use of facilitating devices like Mouton and Blake's Managerial Grid, 16PF, OPQ, FIRO-B, Myers-Briggs, etc.

This tradition of an unconscious or non-approachable corpus of ideas, feelings and models has a long tradition of renowned proponents (Freud, 1973). Besides the well-known methodological problems attributed to these early workers, a major conceptual reason for challenging the position is that, in all but pathological cases, mental life, if that means mental models, ideas, heuristics, etc. must essentially have some degree of consciousness. In emphasising this view, Grayling (2002) prefers to distinguish between ideas at the centre of attention, that is "occurrent states" and "dispositional states" which are not but could become so. Such a classification matches well with Billig's suggestion that a manager is able to push aside firmly espoused theory or models in use and quickly forget that he or she has done so. For Billig the repression is of short duration until, we may presume, opportunities for implementation of the original ideas have returned.

Cunliffe (2002) attributes this repression process to dialogue with colleagues, staff, customers and stakeholders when she describes managers as "rhetorical beings" often arguing with themselves and others as they are shifted in their thinking about leadership by significant people in their organizations and by unfolding events. Presumably such "shifting" or change of stance may be expected across claimed theory and more tacit structures. Whether these shifts are relatively minor changes of stance within narrow latitudes of acceptance or whether dialogue with colleagues regularly bring about major changes of thinking is not clear.



### **Collective and Organizational Models**

Just as individual cognitive structures exist at various levels of open-ness and tacit-ness so do collective models about management and leadership (Baumard 1999). Explicit collective models may be seen, for example, where managers display “approved” styles of management while other non-company models of leadership are eschewed. More prosaic examples of explicit collective knowledge can be found in company visions, internal exhortations, organizational agendas, and norms and standards of customer care (Spender 1998). Within some organizations there may exist a tacit core of models for action in the enterprise (Starbuck 1983). This may include powerful models relating to, for example, managerial control, communication and decision-making. Such requirements for compliance are often not talked about, although newcomers will be expected to conform immediately. Tradition or established modes of working can act as potent yet undiscussed influences upon even senior executives.

Such influences we can expect, according to Nicholson and West (1988) in their study of role transitions, will be mediated by the social motivation of each new manager. Most likely to adopt the collective ideas of their immediate department or work group will be those executives who have a strong need for social approval from the close members of their team. Schein (1985) suggests that certain internal transitions will tend to accentuate the informal socialisation of a newly appointed executive. In his view internally promoted personnel who have received little formal development, will be particularly liable to absorb locally practised models for action. Personal confidence, a sense of internal locus of control (Rotter (1966) and prior experience of other modes of working may provide a greater level of resistance to collective models in use. However, by no means all knowledge about collective wisdoms is absorbed through day to day socialisation (Nonaka 1991) since more confident executives may feel able to appropriate those models and recipes they feel combine well with their existing explicit thinking and any reflections of tacit thinking that they can generate. Top management initiatives such as the creation of a company mission, the appointment of external consultants, the creation of widely read critical reports, the use of executive appraisal and energetic use of management development programmes are features of the business environment with which a senior manager responsible for leading change must engage. How many collective models can be adopted in full or in part? What existing ideas can be retained and reworked?

### **Cognitive inertia**

In some organizations dominant coalitions will have provided clear sets of models, theory, mental maps, recipes and means-goals for a recently appointed change leader. Over time such explicit guidance for action may become dysfunctional if the models involved have come to lag behind political and environmental conditions. The term “cognitive inertia” has been used to illustrate such a lack of adaptation to once successful collective models and continuing commitment to failing courses of action. Turnover in top management positions (Virany, Tushman and Romanelli, 1992) and the creation of heterogeneity in top teams (Milliken and Lant 1994) have been seen as effective ways of updating collective management models and breaking up the stagnation of company thinking. However, just how quickly and deeply these new

formats are absorbed by senior managers and how much of the old messages from former dominant coalitions is retained as tacit collective theory, is less well known.

Upper echelon theory (Hambrick and Mason 1984) suggests that in many large and medium sized enterprises such dominant coalitions create a cognitive base from which individual executives may draw to augment, rework or elaborate their own thinking. Ideas may have been imported directly from competitors or delivered by new appointees and consultant organizations. Such a cognitive base will, of course, vary in focus and content from company to company. However, it may well contain collective mental maps about the nature of the industry or activity within which the enterprise exists. Impressions about relationships with customers, suppliers, competitors and other key agencies are often contained in these maps. Besides these representations of the local business world, it seems likely that the cognitive base will include models of corporate ambition, means-outcome associations, strategic plans and a wealth of recipes for good management. Here we should also expect to find strong prescriptions for product or service quality, means-end models for quality and ideas about organizational structures. ***However, clear-cut and easily recognisable norms for effective change leadership may be less evident elements within this cognitive base.***

Studies of large organizations in particular have suggested that a plethora of contrasting models about leading change may exist at any one time. Considerable disagreement may exist in upper echelons about stylistic features of leadership such as, for example, tough and tender-mindedness, the significance of transformational and transactional management and the respective merits of theory X and Y. In fact collective theory about what makes effective leadership and change management may be confused, incomplete and unintelligible. However, where attempts have been made to standardise the thinking of senior teams through external consultancy or the pre-eminence of a key or “star” executive we might expect to find a much clearer, if sometimes limiting, set of collective wisdoms about the nature of effective leadership.

### **“Placebo thinking”**

While some collective wisdoms about how to act as a senior manager may be seen to influence managers` behaviour, certain explicit and tacit collective models have been described as merely placebo thinking (Baumard 1999). Placebo material has been illustrated variously as “just talk”, “will suffice”, “it’ll do” narratives. Presumably these structures are mental models in use or those heard often informally which reveal in the speaker a commitment to action which offends no-one and which is independent of context and the specific needs of the enterprise and its staff. Placebo models offer little real help as heuristics or diagnostic frameworks and are often low on ideas for implementation yet enjoy organization-wide acceptance. They can take the form of simple slogans or mantras such as “in this company we take care of our employees” or “we favour management by walking about”, “leaders need to understand the minds of their staff”, etc. All are received wisdoms that form part of the management discourse of popular business magazines, publications by business gurus and the conversations of businessmen and women. None contains a tested means-end connection and contextual focus is missing. All seem relatively benign

and comforting and comply with broad social values of warmth, goodwill and conflict avoidance.

Even less sophisticated are the cognitive structures that emerge from the material of office and management gossip about the enterprise, its leadership and its future, of rumours about impending threat, organizational story telling and departmental humour. Baumard (1999) talks of individual managers seeking a local rather than organizational coherence as they build a boundary around themselves. The term “cognitive fuzz” has been used to describe material that individuals use to construct unofficial boundaries or simple models for organizational differentiation with phrases like “we are engineering people”. Such simple typological and predictive models act as protective devices, often invented by sub-groups of managers to strengthen group identity and create local zones of personal liberty. Humour, organizational stories and rumour have been seen by several authors (Brown 1995) as similar devices with which managers and staff may sustain themselves in the face of forthcoming changes.

These may contain half-digested or simplistic models that can be put to use to fend off new recipes on offer from a top echelon team. They may have considerable value as conversational blockers such as - “of course, you know, it certainly won’t work here”. Through the simple models these stories contain, company members receive reminders about how they should think and behave. Some will confirm formal and informal rules and the consequences of compliance or deviation (Brown 1995). Subtle behavioural messages may also be seen at a linguistic and symbolic level in job and organizational titles, as with “associates” (BHS, IKEA, Wal-mart), “crew” (McDonalds) “cast” (Disney) and police “service” rather than “force” (London Metropolitan Police).

### **Employing favourite and less preferred models**

For the complex problem solving to be found in many senior management posts we might expect that several relevant mental models or schema need to be held in readiness (Eysenck and Keane 2000). Given such a state of conscious and tacit readiness, the label of repression may seem an overstatement of what could be no more than a prioritising process in which business leaders use one set of models to analyse a problem, another for constructing a suitable narration for a specific audience while holding in reserve others as means of handling and deflecting challenges (Allan and Burrige, 1991, Gardner, 1995). Thus while certain preferred knowledge or means-end associations come into use to deal with a leadership problem at any one moment, other, secondary models may be in use to help block or argue against counter-proposals from colleagues, staff, etc. Indeed, a single argument or simple model which is used on one occasion to promote the use of teams to develop new organizational goals, may on another, by highlighting the impossibility of carrying out much needed prior team training, be used in the rhetoric of individualism. This picture of change leaders with a library of mental models, each of which may be prioritised or demoted according to a leader’s perception of his or her power base, personal competence and the receptivity of followers has a strong face validity.

However, from the perspective of identity theory we might expect that many change leaders will have developed a favourite cluster of openly espoused models and less

conscious frameworks in frequent use. This, presumably, is how they like to be known, described and evaluated by colleagues. Such central models may be drawn from periods of work experience and from occupational training. Certain occupational groups have been shown to be associated with different learning and thinking styles, data dependencies and associated mental models. For example, comparisons of managers in engineering with those in marketing, personnel or finance, for example, may be expected to reveal different styles and cognitive structures. Over time the models in use may be subject to adaptation.

Cimino (1999) has shown that as doctors become more sophisticated they become able to switch models in use even where the switching may require relegating well used frameworks in favour of ideas less central to their disciplinary preferences. More experienced doctors seem more able to move back and forth between simple heuristics or “rule of thumb” checks and more rational/logical decision models for diagnosis and prescriptive action. Might we expect to find a similar maturation in the use of mental models and in this dualistic process of problem solving in senior managers who are involved in the introduction of changes to their organization? Or in the absence of continuous learning might we find in some managers nearing retirement, the development of the cognitive type that Fiske and Taylor (1991) have labelled “cognitive miser”? In leadership terms this describes a person who is dependent largely upon one favourite set of models and who has little interest in extending his or her library of ideas for problem diagnosis, narration or implementing action.

Less preferred mental frameworks, too, may have a functional value to an individual executive. They may provide material that can assist in, for example, empathising with colleagues, understanding the tactics of competitors and preparing a narration, which will be perceived as having a balanced point of view. From an evolutionary and survival perspective the ability to run through the assumed perspectives of others may have considerable tactical value, especially where those models are very different. Poorly formed, ill-conceived and only partially understood recipes for action may also have some value as blockers, providing some convenient, if unsustainable, devices with which to reject rival proposals. Placebo or common sense models (Baumard 1999) that will suffice for virtually any situation may be needed especially on symbolic occasions when all that is needed is a reiteration of a popular piece of management discourse.

### **Personality and models in use**

Specific personality traits have been linked with a manager’s willingness to take on board feedback that is critical of models in use. Narcissism in particular has been regarded as a commonly found trait among senior managers, which can act as a double-edged sword. According to Gladwell (2002) narcissistic leaders, while showing success in moving up the echelons of management, tend to make excessive claims of success and eschew discussion of any shortcomings to their ideas. It seems that the narcissistic manager will be ready to present his or her models for action whenever a gap occurs within the thinking of the top management team but will create some form of insulation, through unavailability or organizational remoteness, to avoid any form of deep reflection about project failures.

Narcissism in the leadership of change appears to be associated with the confident espousal of recipes for action, diagnostic frameworks, etc. which are quickly believed and assume disproportionate importance with colleagues. Anxiety and depression are two further mental states that have been linked with distinctive responses to business problems. Anxiety has been associated with the tendency to spend excessive time and attention on the most threatening features of a business problem. Even mildly depressed individuals may tend towards a general pessimism about prospects of achieving a solution. In mental model theory, anxious leaders while narrating with confidence their espoused theories have a distinctively negative approach to sense making and problem diagnosis while depressed managers carry at both explicit and tacit levels a number of negative associations between action and outcome.

In general, personality theory, while accepting that many cognitive frameworks about leadership can be finely tuned through training and education, regards such alterations as surface adaptation. Organizational mantras, recipes and checklists, can be brought up to date through short courses, management “away days”, consultant coaching, etc. but several personality psychologists would have us expect that, at a deeper level, models that make emotional or social demands will remain less moveable. Leadership or change models that carry a high risk of failure, potential loss of reputation, threat of personal stress or career disadvantage are likely to be avoided by certain personality types. Furthermore, it is suggested that “hard” and “soft” approaches to leadership are related to certain personality types. A hard approach may differ from a soft approach in, for example, degree of control, participation and risk avoidance. However, so-called soft interventions such as organizational development (OD) may be seen to have their hard exponents. Similar anomalies may be found in practices involving process engineering and other tough formulae for leading organizational change. So the viewpoint from this branch of individual psychology is that personal preferences such as, for example, tough-mindedness rather than softer approaches, clarity and structure rather than open-ness and ambiguity, and defensiveness rather than open-ness, are stable structures that may limit the ability of change leaders to internalise new strategies. It seems from this perspective that while experience may well enable an executive to increase his or her repertoire of interventions, filters at a deeper level will control what new prescriptions are to be applied and the manner of their implementation.

Such simple conceptions of a link between clear-cut personality traits and espoused models are seriously questioned by occupational psychologists such as Apter (1989), who argue that such traits are often balanced by contrasting characteristics, for example that assertiveness may be balanced by tender-minded qualities. Apter's position has, of course, led him to doubt the predictive qualities of personality testing in general, but it also suggests the cognitive structures associated with specific personality traits may, like Billig's discursive conception of attitude, contain a variety of mental models. This position suggests that personality theory merely provides a restrictive and simplistic picture of the cognitive life of managers. Indeed, if as many writers suggest, change leaders are frequently pressed into demonstrating dramatic changes in their managerial behaviour (Johnes and Davies 1999) then it seems likely that *these executives will carry a repertoire of models for action which will extend*

*well beyond those that seem to fit their natural disposition.* Indeed, concerns with the control of feedback, maintenance of reputation etc. are unlikely to be limited to narcissistic personalities and those with anxiety or neurotic traits. The insecurities of managerial work make it likely that most leaders of change, not merely those lacking certain desirable personality traits, will from time to time experience serious doubts about their ability to employ the interventions they choose or have imposed upon them. They may regard certain change models as particularly risky, containing problematic elements and difficult to control.

### **Managerial competences as mediators of available mental models**

The competence movement has attempted an atomistic examination of the role of managers and business leaders. This has included a behavioural approach (Boyatzis 1982), an essentially cognitive perspective (Schroder 1989, Hodgkinson and Sparrow 2002), and a more job centred analysis by the Management Charter Initiative (MCI). More idiosyncratic research by individual enterprises has striven to identify the key competences necessary for successful management within specific company environments.

The MCI offers the least sophisticated of these approaches culminating in a collection of generalised statements about the basic elements of management at different organizational levels. While these findings fail to recognise the local understanding that most managers need, they have provided simple frameworks with which many executives have come to evaluate themselves and have others appraise them. Whatever the shortcomings of this classificatory process, this approach has enabled many managers to gain insight into their relative successes and failures within a series of given roles. This process has been facilitated by an increasing use of reflective processes such as coaching, counselling, questionnaire feedback, etc. However, some questions remain about the cognitive significance of self-perceived competences. We do not know the extent to which managers with an enhanced sense of their interpersonal, operational and informational competences use this awareness to adopt, reject and internalise mental models that have been on offer within their training and development through experience. Can we show that executives tend to employ change models which best fit their own competence profiles and avoid those that pose a serious threat? For example, can we expect that while most people agree that extensive communication should precede changes at work, those change leaders who fear that they and their close colleagues lack the competences needed to control the repercussions, will avoid such action? Similarly, where collective models of openness in employee relations form part of everyday management discourse, yet backstage and clandestine models are in use, to what extent can we attribute this discrepancy to low levels of confidence in their own competence amongst the managers involved?

### **Cognitive Competences**

While research into the cognitive competences of managers has been a relatively new development, the idea of managers having “cognitive limits” to their thinking has a long history. Early ideas about IQ and verbal and non-verbal intelligence, and complex problem solving as selection and promotion criteria for management posts have long been incorporated into the repertoire of assessment centres. Underpinning

this application of psychometrics has been a vision of so-called intelligence as a critical enabling trait, rather than one associated with particular kinds of thinking about being a manager. Less enduring have been vaguer concepts like the Peter Principle (Peter and Hull 1970) that suggested that every manager has a built-in limit for organizational progress with a state of general incompetence appearing when that limit has been passed.

Several studies have highlighted the importance of concept formation, that is the ability to learn from recurrent patterns of activity within a company, to construct accurate mental models and to form cause and effect associations between managerial action and later outcomes (Cockerill 1989, Schroder, 1989). Such a competence can be seen as an important sense-making aid to managers at any level faced with recurrent problems. Even more significant, we may conclude, have been a group of ideas about the flexibility of thinking that some managers appear to demonstrate. Conceptual flexibility has been proposed, that is the ability to hold different, even competing models or action plans in mind simultaneously, while evaluating the potential of each one. Cognitive flexibility, it is said, enables many managers to move back and forth quickly between intuitive and much more explicit rational, databased forms of logical thinking.

The intuitive extreme of this competence has been described by Csikszentmihalyi and Csikszentmihalyi (1988) as “competent mindlessness” or knowing when to “go with the flow”. This refers to conditions when managers operate without apparent conscious recourse to rule based or rational models of problem solving. Such a controlled “mindlessness” has been linked variously with business environments typified by time management pressures, work and information overload, excessive uncertainty, requirement for rapid or unexpected decisions and the absence of explicit clues (Burke and Miller 1999, Hodgkinson and Sparrow 2002). It is suggested that these competences illuminate the processes by which managers construct, adapt, prioritise and discard the mental models they acquire. Serial shifting has been proposed (Gurwitsch 1966) as a process by which managers move quickly from idea to idea, singling out for attention a particular aspect of the recipe in focus or quickly creating a powerful model from what had been hitherto a vague idea. A combination of generative processes, by which existing models for action are retrieved, and an exploratory process, which innovates and evaluates existing mental structures, is proposed by Finke and Bettle (1996) as a key ingredient of creative intuitive thinking. Such abilities that enable individuals to constantly evaluate, rebuild and replace mental models through the help of metaphors, mental models, internal and external dialogue, etc. is likely to be a valuable asset where new understandings of business problems are needed.

### **A Classification of Mental Models and their Susceptibility to Modification**

While we can infer from mental model theory that a repertoire of simple representations or models is likely to be an important decision-making aid to most change leaders, the relevance of such models has been extended by writers who have explored the nature of consciousness from a more social and interpersonal perspective (Dennett 1993, Damasio 2000); According to these authors, tactical plans are formulated in the form of problem solving models designed for self-definition, self-

control and the development of social and personal identities. To accommodate the range of purposes that these mental structures may fulfil, six hypothetical categories are proposed here to describe the ideas that senior managers may employ. First, and perhaps the largest category, contains what may be called the *multi-purpose models* which include the mantras, recipes, mental models and maps which form the core of change leaders' thinking; they may serve any purpose; together, they underpin the personal strategies of these individuals.

The remaining categories contain cognitive structures that serve more specific purposes. Second are the *narrational models* that provide the building blocks with which leaders construct the presentations they give to staff, colleagues, their bosses and the other important people around them. At a personal level they offer recipes for personal change and identity building. Certain narrational models, as we have seen, can function as defensive counters against the ideas of opponents, and competitors. However, a third category of *ego-defensive formulae and recipes* may be seen to offer psychological defence against risking personal failure and the avoidance of certain behaviours within a leadership role. A fourth category of *analytical frameworks* is proposed. These models can be used to understand business problems as they occur, make sense of feedback and evaluate degrees of success. Fifth is a group of *processual models* that cover the way each manager sets about decision-making and problem-solving; linear forms may be preferred to unstructured ones; heuristic-supported decision-making preferred to data-based rational-empirical approaches. Last are the *placebo models* which include, for example, less useable ideas, platitudes about change, often fanciful slogans about management, idealistic aspiration, etc. that may be shared frequently with colleagues, but which are rarely, if ever, implemented. They have been absorbed from management discourse, informal conversations, humour and organizational stories often about traditions within the company.

### **Cognitive depth or superficiality in the thinking of managers**

Regarding the cognitive depth and completeness of these mental representations that senior managers hold in readiness, little empirical evidence exists. As in everyday decision-making, models may vary in depth of understanding, richness and consistency of informational support, degree of linkage with other ideas and level of anchorage in actual events and organizational contexts. Educational psychologists have suggested that, as a result of the large range of learning processes available to professional people, *deep structures* may be distinguished from those that can be termed merely *superficial frameworks* (Entwistle and Tait 1990, Biggs 1993, Gordon and Delus 2002, Waugh 2002). Deep structures are models or representations that are characterised by a fuller and often personal understanding of the concepts and processes involved. They are, it seems, in a management context, likely to be connected through logical association with other sets of ideas emerging from sources such as educational or consultant led learning. As the result of personal control in the learning process involved, deep mental representations may also be characterised by a critical and dialogic stance.

That is to say the leader concerned is able from time to time to stand back and think out for himself or herself the relevance and validity of the model concerned. By contrast, superficial frameworks are built up as a result of a lighter and externally



driven learning process. These structures may owe much to adopted schemas or recipes, memorised from short training courses or inferred from project plans and linear timetables. The element of thinking through for one-self is less strong, although a superficial framework may be constructed in a sufficiently generalised way so as to link well with other models in use. The extent to which collective and organizational models that have been quickly adopted by new managers can be categorised as largely superficial structures, is unknown. Essentially they have been developed through a learning process that occurred as a manager struggled to cope with organizational problems. Little time had been available for internal or external dialogue. A third and important category of model building through learning has at its heart the determination to excel (Waugh 2002). Managers who operate *these individually motivated models* will have used some form of systematic search to acquire the best available recipes; time may have been allocated to reflection and care taken in the best use of feedback from recipes in use: when these managers change their personal goals they also reflect about the quality of models they have in use. Each of these categories of mental modelling may in turn be examined in terms of their completeness and their dialogic quality.

### **Hypotheses about the Flexibility of Cognitive Structures**

#### **(1) The stability of narrational and processual models**

Conventional wisdom has it that those who work in unstable environments or across a variety of business units need cognitive structures that are dynamic and subject to review: that they must reflect about progress, review their own capacities, adapt existing models, build new ones, review decisions taken and obtain feedback from presentations they have given. However, drawing from identity theorists and writers on consciousness it is suggested here that it is in narrational and ego-defensive models, especially those elements related to self protection, self control and social identity, that among mature managers, the smallest change is likely to occur. Similarly it is proposed that cherished processual models, associated with preferred modes of decision-making and dependent upon particular management competences, will show less change. *Accordingly it may be expected that managers whose models in use are predominantly narrational and processual will be perceived as consistent and sometimes more conservative players within their organization.* They may retain these stable structures over time, through different jobs and across different organizations.

## **(2) The greater flexibility of diagnostic models**

By contrast it could be expected that diagnostic and sense making frameworks will be more susceptible to change as managers experience episodes of success and failure in the introduction of organizational change. *Accordingly, those managers in whose work diagnostic thinking and problem analysis form an important part will be likely to be seen by colleagues as developing and changing players within the management team.* Nevertheless it is important to note that executives in any organization may easily delude themselves into believing that a change has occurred in their thinking when, in reality, they have re-invented or recycled existing ideas (Ogbunna and Harris 1998). Placebo material may be expected to change quickly as managers enter new social contexts.

## **(3) The problem of over-elaborated and complex mental models**

At first sight it may seem that those executives, who through careful review have adopted deeper cognitive structures and those with what has been termed individually motivated models, will show the greater flexibility in their thinking as problems and contexts change. After all these are the managers we might expect to have developed a thoughtful and critical stance regarding their personal strategies and approach to problem-solving. However, the picture regarding deeper cognitive structures that are well anchored in information and experience is far from clear. While such structures may be characterised by a high level of awareness, *over-elaborated and dominant models or recipes for action are likely to become problematic and difficult to adapt or replace with competing ideas. Similarly, long cherished superficial models characterised with little self-awareness or dialogic content, but supported by defensive habits such as avoidance of comprehensive feedback from colleagues and followers will tend to be enduring and hard to change.*

While mental model theory suggests that distinctive types of models may be associated respectively with rigidity or flexibility, it is important not to lose sight of the importance of the cognitive competences that business people must employ as they review, marshal and deploy their ideas. *Dialogic skills (Billig 1991,1996), both internally and in conversations with colleagues and competence in reflection and reflectivity (Shotter 1993, Cunliffe 2002) are likely to be significant in the management of feedback. Cognitive empathy will enable some recipients of feedback to sense the undiscussed attitudes, emotional reactions and tacit models of their followers.* In combination with cognitive flexibility, these competences should, in theory, enable executives to detach themselves from long-cherished yet dysfunctional ideas and to construct more refined frameworks for action.

## **Mental model theory for coaches and mentors**

In helping men and women who hold senior positions in their organizations to re-examine their goals and action plans for the future it is sometimes necessary to discover the simple representations, frameworks and heuristics they already have in place. Busy executives often depend upon these simple cognitive structures to make sense of their world, diagnose their problems, choose a course of action and tell their colleagues and followers about why they did what they did. While managers in general can talk easily to colleagues, professional helpers and researchers about their

narrational and espoused models, other equally important sets of ideas are not so readily available.

Mental model theory has it that such theories, often learned implicitly through experience, have never been articulated or even recognised by their owners as models that they employ. To observers, such tacit theories in use may only be apparent through inference from the actions these managers carry out. Consequently, strong skills are often needed by professional helpers and researchers to assist these executives to reflect about the actions they have taken, to recognise the theories in use they never knew they employed and, where appropriate, to recognise the cognitive inertia that leads to today's problems being tackled by yesterday's thinking (Hodgkinson and Sparrow 2002). This paper has emphasised the view that instead of regarding senior managers as people operating with a repertoire of complete, consistent and well-integrated ideas linked to their personalities about how they should lead their enterprise, we should see their cognitive structures are often fragmented with frequently conflicting ideas about how to pull their staff along with them, how best to sell ideas and to manage the interventions they have planned.

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