

The Structure of Strategic Thinking: a lexical and content analysis

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ABSTRACT *This exploratory study reveals aspects of the structure of strategic thinking by managers involved in a complex multistage simulated strategy making task. Their written impressions of the task permit a study of the language of strategy. The words 'direction', 'goal' and 'strategy' are selected as prototypical indicators of strategic purpose. Through content analysis, a preliminary assessment is made of the occurrence of the prototype words to indicate the form of managerial thinking about the idea of strategic purpose. Subsequent analysis reveals actors and actions associated with the strategy prototypes through lexical co-occurrence of nouns and verbs.*

Introduction

Of the themes which characterise empirical research on strategy formulation as sense making, the cognitive approach directs attention specifically to the decision maker as the primary unit of analysis. Here however, the scope of current understanding is relatively limited. While the cognitive limits of human decision makers form the framework of the thinking process, we know relatively little about what the decision maker actually thinks about. Interpreting how strategists subjectively construe their external and organisational environment is important but largely unexplored.

The idea that strategy formation may be conceptualised as a 'pattern in a stream of decisions' with both deliberate and emergent elements has been proposed by Mintzberg & Waters (1985) as a descriptive characterisation of the strategy process. According to this view, decision makers are actors; responding to an evolutionary and unfolding pattern of activities over time. A series of important studies (Allison, 1971; Pettigrew, 1973, 1985; Mintzberg, 1978; Mintzberg & Waters, 1982; Hickson *et al.*, 1985; Hickson *et al.*, 1986; Romanelli & Tushman, 1986; Johnson, 1987; Calori & Atamer, 1990; Cray *et al.*, 1991) demonstrates the origins of such patterns. These and others (Gersick, 1991; Kanter *et al.*, 1992; Tushman & Romanelli, 1985) provide an understanding of the macro dimensions of strategy, referring to changes and transformations by groups and organisations. Although they inform the sociopsychological perspective on strategy process, they largely overlook a focus on the cognitive level of strategy formation. It is the thinking processes of the strategist which requires further investigation.

Here we adopt the view of strategist as sense-maker, one who creates and acts with an interpretation of his or her corporate surroundings. In organisa-

tions the dynamics of events that surround people's daily lives are described by Csikszentmihalyi (1990) as the 'flow'. People give meaning to events occurring inside and outside of their organisation by noticing cues in their environment and extracting and interpreting signals from the 'flow' to make sense of their organisational world. Events are given meaning by references to ideas, values, beliefs and past experiences held in knowledge structures (Weick, 1995). A special kind of sense making occurs when events in the 'flow' become ambiguous and uncertain. Events are no longer interpretable. When events in the flow no longer make sense, people engage in sense making in order to manage the interruption (Weick, 1995). Strategy formulation is essentially the making of sense under conditions of uncertainty and ambiguity.

Recent theoretical and methodological developments from cognitive science suggest that knowledge about events in the world are contained in individual mental models and that part of this knowledge is made explicit through symbolic communication (Johnson-Laird, 1983, 1993). This development presents an opportunity for strategy research to capture and explain, at least partially, the content of a manager's knowledge structure. It is accomplished by viewing strategy forming processes as individual and organisational sense making activities (Weick, 1979, 1995; Daft & Weick, 1984; Meindl *et al.*, 1994) which can be investigated through the natural language of strategy makers (Daft & Wiginton, 1979; Daft, 1980) within the framework of the strategy processes (Van de Ven, 1992).

The purpose of this study is to add detail to current characterisations of strategic thinking. Here the unit of analysis is the strategic decision maker and a series of questions are asked about the structure of this person's thinking about strategic purpose. We ask, what sense do managers make of their organisational situation when they think about strategy? What are the characteristics of the language they use to convey meaning resulting from their strategic thinking? More specifically, what, in the strategist's mind, are the entities and activities associated with strategic purpose? Are these referents external or internal to the company? What co-occurrence exists between entities and activities? Here an exploratory investigation is conducted of the natural language of strategic sense-makers, recorded in written unstructured journal form during a complex and demanding simulation of strategic management. This research setting provides data for content and lexical analysis.

Sense Making in the Strategy Process

Sense making is integral with human thought. Human thought is conceptualised as a network of concepts located in hierarchically interconnected categories (Johnson-Laird, 1983). Meaning is constructed by perceiving the world through symbols and constructing a mental model of it comprising such categories which are represented by prototypes (Smith & Medin, 1981; Murphy & Medin, 1985; Hampton & Dubois, 1993). Communicating with others is accomplished by mapping mental models into symbols to communicate meaning. Sense making is accomplished when the individual maps words into models and models into words (Johnson-Laird, 1993).

Sense making involves the social construction of reality from the point of view of an actor (Berger & Luckmann, 1966). Meaning is derived from the sense making process through symbolic interaction (Garfinkle, 1967) and from natural language in which conversations are structured (Cicourel, 1972; Shotter, 1993). In the literature of corporate strategy, social construction of reality has been inferred from normative and descriptive theory, both of which offer complementary and sometimes competing explanations about strategic thinking in the sense making process.

Strategic sense making is a process of enactment (Weick, 1979; Stubbart, 1989). Empirical evidence shows that managerial thought about strategy is characterised by bounded rationality (Simon, 1957), limited information processing (Miller, 1956), paradoxical thinking (Smircich & Stubbart, 1985; Gioia & Sims, 1986) and the use of metaphor to create and communicate meaning (Morgan, 1986). It is also evident that many factors impinge on sense making in organisations. Corner, Kinicki & Keats (1994) show that managerial sense making involves parallel information processing and it is guided by personal schema influenced by functional roles of decision makers (Melone, 1994), organisational frames of references of ideological assumptions (Shrivastava *et al.*, 1987), organisational culture (Harris, 1994) and broadly based industry culture (Phillips, 1994). Interpersonal interaction also influences sense making. For example, it is influenced by group dialogue concerning organisational and environmental events (Boland *et al.*, 1994), influence processes during strategic change (Gioia *et al.*, 1994) and construing key events during organisational change (Isabella, 1990).

At a broader organisational level sense making has been shown to be an integral part of strategy process. Fiol (1994) for example, reports consensus around diverse interaction of organisational events. Links in repetitive cycles of scanning, interpretation, action to construe environmental and organisational contingencies and organisational outcomes have also been revealed (Dutton & Duncan, 1987; Thomas *et al.*, 1993). Causal attribution to discriminate between strategic issues (Dutton *et al.*, 1989) and decision maker's beliefs regarding strategy situations, which are shaped by the structural context in which managerial positions are embedded in the organisation (Franwick *et al.*, 1994) have also been reported. Soderlund & Vilgon (1993) have also demonstrated that sense making involves recognition of interconnection of causal links between variables in the decision maker's environment.

An argument has also been made that knowledge structures are not static but dynamic entities, modified by experience and preceding managerial action. As Mintzberg (1990, p. 154) points out, '... real learning takes place at the interface of thought and action, as actors reflect on what they have done'. In other words, sense making about strategy combines intentions with realisation. If this is the case, both strategic thought and strategic action need to be considered when conceptualising strategic knowledge.

Although these studies, among others, have added to our understanding about the macro level dynamics in the strategy process, they shed little empirical light on the micro dynamics of strategic thinking. Here the process of sense making by a strategist involves searching for, recognising, interpreting and assigning meaning, from existing knowledge structures, to patterns of information from external and internal sources of direction.

The sense which executives make of a strategy making situation has been

explored descriptively in a number of studies aimed at mapping strategic thought. Among these studies, Hall (1984), for example, delineated the strategic thought processes which, he argues, accounts for the demise of the old *Saturday Evening Post*. Using a mapping process derived from the work of Axlerod (1976), Huff & Schwenk (1990), mapped the strategic thinking of Chrysler Motor Company over the period 1970–1984. Data for this study was derived from published speeches by executives in *Wall Street Transcript*. Similarly, Narayanan & Fahey (1990) provide an account of the decline of Admiral Television through the mapping of concepts and cause–effect relationships derived from annual reports. Annual letters to shareholders were employed by Barr *et al.* (1992) to map causal relationships contrasting the strategic thinking of two North American railroad companies in the years 1949–1973.

These studies of strategic thinking have relied on published text and therefore carry acknowledged potential for bias, thus threatening the validity of inferences about actual patterns of thought by the strategists involved. Scholarly confidence about the nature of strategic thinking and sense making would be enhanced with reference to data drawn directly from a strategist. The study by Cossette & Audet (1992) provides such a benefit. In their investigation these researchers constructed a cognitive map of what the proprietor of a small business ‘... considered important as an owner/manager of a small business, how to manage it efficiently’ (1992, p. 332). While offering the advantage of mapping directly from a transcript of interview, the external validity of inferences are threatened by absence of reference to the thinking of other strategists.

While the studies of cognitive maps offer insight into the sense which executives make of their work of strategy formulation, research to date has been limited by restrictions on access to sense making data. The research on published text assumes that what is written for public purposes is the same as what strategists think. This might not be true. Cossette & Audet (1992) provide one of the very few studies which does listen to the words of the strategist as he (the subject in Cossette & Audet’s (1992) research was a man) makes sense of his strategic purpose. Although great benefit has been derived from the development of mapping techniques, limitations in the research on cognitive mapping of strategic thinking mean that there are very few generalisations which can be made about the sense making process.

Such deficiencies in empirical research do not necessarily prevent speculation about the content of strategic thinking. The thinking of senior managers has long been of interest to scholars. The work of Ohmae (1982), Sims & Gioia (1986), Huff (1990), Dixit & Nalebuff (1991) and Hendry *et al.* (1993) indicates the breadth of this interest. Within the field of strategic management itself, a great body of literature exists on schools of thought.

Mintzberg’s (1990) comprehensive account of the scholarly themes which underlie thinking about strategic management offers a framework from which it is possible to anticipate how strategists might make sense of their problem of formulating strategic purpose and direction. He identifies ten current schools of thought. Each of these can be regarded as a point of view about how strategy is and should be formulated. Each brings with it a set of relevant variables, and considerations which can be regarded as premises

Table 1. Representative vocabulary associated with Mintzberg's (1990) schools of strategic thought

School of strategic thought	Vocabulary of the school (Mintzberg, 1990)	
Design	distinctive competence competitive advantage strengths	opportunities weaknesses threats formulation implementation
Planning	programming budgeting scheduling	
Positioning	generic strategy strategic group industry and competitive analysis	portfolio experience curve
Entrepreneurial Cognitive	vision map frame concept attainment reframe	mental set bounded rationality cognitive style
Learning	incrementalism emergent strategy sense making revitalisation	intrapreneurship strategic candidate champion
Political	power coalition political games	collective strategy
Cultural	myth culture ideology	
Environmental	selection environmental dynamism	complexity niche
Configurational	configuration archetype stage life cycle	quantum change strategic revolution

which guide strategic thinking. Table 1 displays a summary of Mintzberg's (1990) ten schools of strategic thought.

If one was to attempt to anticipate how an executive would make sense of their strategy formulation task it should be possible to derive from Mintzberg's framework some guides to the language which a strategist might employ. Table 1 represents a tentative hypothesis; it lists Mintzberg's (1990) vocabulary which, he argues, is consistent with thinking processes which lie within each of the ten schools of thought. The testable proposition which is offered as a consequence, is that managers make sense of their task of strategy formulation within one or more of the schools of thought identified in Table 1. It must be kept in mind, however, that Mintzberg offers a framework which contains schools of *theoretical* thought. In investigating the proposition advanced here, the expectation is that strategists will think like theoreticians when they make sense of their task of strategy formulation. But it is not an unreasonable expectation: Priem (1994) reports that, mana-

gerial judgement about key cause–effect relationships is more strongly influenced by normative contingency theory and environment–organisation fit, than by managerial experience or the quality of an organisation’s strategy making process.

Study Method

Participants in the Investigation

Senior executives participating in five executive MBA programs were required to compete in a strategic management simulation held in the latter stages of their course. In three of the simulations participants were Australian senior or middle level executives from a wide range of industries. In the remaining two simulations the managers were European, North American, Asian and Indian executives from a multinational services organisation with operations in Australia, Asia, the Pacific and India.

In the first class scheduled for the simulation, executives were informed that company groups would be formed comprising four or five members each. Class members were appointed to the role of team leader or Chief Executive (CEO), selected at random and they, in turn, recruited other team members taking turns at selection. Briefing for the simulation was restricted to explaining to the participants the pedagogical objectives and the administrative procedures of the simulation. The briefing informed the students that the exercise was realistic and competitive with a time frame for decisions which would place considerable demands on their business acumen. Each CEO received several copies of the players manual (Hinton & Smith, 1985).

Strategic Management Simulation

The simulation was conducted over a period of either three or four days, with two or three 1 hour decision periods each day. Competitive market conditions were simulated through 5 or 8 year trading periods depending on the time available in the MBA course. The cycle of activities associated with decision making started with the delivery of the results from the previous trading period and ended with company decisions being handed to the game administrator. Decisions were due at specified times and late decisions were heavily penalised.

These conditions created a situation of high commercial uncertainty, vigorous competition and a sense of urgency where decisions needed to be made using limited information, ambiguous organisational structure and limited knowledge of the game. The exercise was intended to test the skills of the students as strategists under difficult conditions; there was insufficient time to allow students to refer to bodies of theory for guidance, and this was intentional.

Data Collection

A total of 90 students participated in the simulation. Students were required to maintain a personal journal for the duration of the simulation. In this they were asked to make a record of their thoughts, impressions and reflections

Table 2. Data structure of journals from five strategic management simulations

Simulation	A	B	C	D	E	Total
Number of decision periods	5	6	6	6	8	
Number of journals completed	13	23	21	17	16	90
Number of sentences in journals	1260	4521	3920	2926	3185	15,812

on the process in which they were involved. Instructions were deliberately broad with no particular requirement of content and no specific structure. The purpose of the journal was to encourage students to use natural language to bring together their own thoughts in whichever way they considered a reflection of their thinking process. Students were assured of the confidentiality of their journals. Journals were transcribed verbatim for analysis (see Table 2).

Key Words

Three key words were adopted to signify that the writer of a journal was referring to the management of strategy. These key words were: 'direction', 'goal' and 'strategy'. Content and lexical analysis was conducted on text appearing in journals close to these key words. Sentences containing these words were truncated 25 characters before and after a key word using a key words in context (KWIC) subroutine (Textpack, 1995). The 25 character interval was selected since it is consistent with the commonly accepted criterion in lexical analysis that words with associated meaning are likely to occur in close proximity to each other (Spence & Owens, 1990; Weber, 1990).

Special Knowledge Dictionary

Nouns and verbs are two units of text most frequently used in exploratory content analysis (Carley, 1993). These units, which occurred within 25 characters of the key words, were used to construct a dictionary of special knowledge about direction, goals and strategy.

The purpose of the study restricted the use of general dictionaries such as Harvard IV-4 (Dunphy *et al.*, 1989) and other special dictionaries, such as the Affective Lexicon (Clare *et al.*, 1987) which are more suited to a search for well defined constructs in textual data. Carley (1988) recommends the development of a special dictionary where research objectives are relatively focused as is true in the present study. Special knowledge dictionaries are a useful means to capture the expert knowledge structure of a well defined population. In this context a dictionary was required which categorised nouns and verbs associated with the selected key words.

A special knowledge dictionary was developed from nouns and verbs appearing within 25 characters either side of one of the key words, namely *direction*. The selection of this key word and subsequent categorisation of nouns and verbs was based on three assumptions:

Assumption 1—The words 'direction', 'goal' and 'strategy' are prototypes for a category of knowledge about strategic purpose used to categorise activities and entities associated with strategy.



Assumption 2—Nouns and verbs located adjacent to the prototype words form categories of entities and categories of activities respectively, as part of the category of knowledge about strategic purpose.

Assumption 3—Categories of entities and categories of activities located adjacent to the prototype words are more salient in explaining the meaning of the category of knowledge about strategic purpose than words more distant from prototype words in journal text.

Recognising the difficulties of generalising in developing rules of categorisation (Weber, 1990), the present task was conducted as follows. First, a decision was taken to develop a classification system based on the occurrence of nouns and verbs adjacent to one of the three prototype words. The key word chosen was *direction*. Categorisation of nouns and verbs could have been conducted using any or all of the three prototype words.

Second, nouns were classified into categories of entities to identify objects, subjects and events associated with direction. Verbs were categorised as activities to detect different classes of action, characteristic of direction. The classification was accomplished in two steps. A preliminary scan of the data was made to provide seed words for establishing categories. Other nouns and verbs were added to the initial categories based on their similarities to the seed words. Wordnet 1.5 (1993) was used to check for the meaning of words in different contexts. Words which were deemed prototypical (Smith & Medin, 1981; Kelly *et al.*, 1986) of a classification was used to name the categories.

A dictionary of direction was constructed from the 219 nouns and 241 verbs which co-occurred within 25 characters before or after the word *direction* in the journal text. Description of the five categories of entities and five classes of activities which comprises the dictionary of direction and their incidence in the journal text are shown in Table 3. A list of nouns and verbs which comprise the elements of the categories is shown in Appendices 1 and 2.

Limitations of the Study

This study of sense making among strategists offers insight into the ways in which the formulation of strategy is construed. But some important limitations in the inferences which can be made from this exploratory research need to be acknowledged. Further research developments are proposed to accommodate some of the limitations and expand the explanatory net of this line of investigation.

First, the essence of sense making lies in the individual person as the unit of analysis. As observed above, the focus of sense making is on the cognitive processes by which a person develops an interpretation of the reality in which they exist. In this study a large number of individuals were asked to reflect on their thinking processes. Each person wrote a journal which they offered as a conscious expression of their interpretation of events, actions and thoughts as they participated in the formulation of strategy for their firm.

Table 3. Dictionary of *direction*: categories of entities and activities

Entity labels	Entity category descriptions	Activity labels	Activity category descriptions
Analytic entities	Object, subjects that are engaged in analysis or contain information as a result of analysis	Formation activities	Action initiated to form, shape, organise, create, change or alter the identity or content of an entity
Collective entities	Formal and informal entities in which individuals are acting together	Operating activities	Action to direct, manoeuvre, work, engage, implement or complete something
States of being	Descriptions of emotion and mood states	Influence activities	Acts that have influence or effect that determine, shape, influence or cause an outcome
Influence entities	Individuals and collectives having power to influence another	Change activities	Acts of movement and change of position
Environment entities	Objects, subjects and events located in the external surroundings of the organisation	Exchange activities	Action to transfer, exchange, reassign, replace or substitute something with something else

Each journal is then a data-rich representation of sense made of the situation by the individual manager. However, the research method adopted in this study dissipates some of this richness in the interests of revealing generalised patterns. Aggregation of data across simulation participants has no doubt contributed to a loss of detail. Each manager would have enacted a unique managerial and strategic environment and the journals would have, to a degree, reflected this uniqueness. What remained after aggregation was a generalised impression of how managers think about strategy. To be true to the idea of sense making, this investigation should be complemented by further study of individual journals.

Second, the strategic management simulation took place over an extended period of time, typically lasting a number of days. In this exploratory investigation data from all time periods were collapsed into one data set. There is no doubt that the experience of events would have varied for all managers over the duration of the simulation. Commercial circumstances would themselves have altered from one decision period to the next, each shift prompting a manager to once again make sense of the new circumstances. The overall pattern of results which are a representation of strategic thinking will not be a representation of changes of strategic thinking over time. Further research is required to study patterns of change in such sense making.

Third, and most obviously, the investigation focused entirely on the responses by managers to simulated business conditions. The available parameters of the activity would also have restricted the range of strategic

Table 4. Incidence of entities co-occurring with strategy prototypes

Entity category	Strategic purpose prototype			Totals
	Direction	Goal	Strategy	
Analytic	83	53	102	238
	78.3	53.6	106.1	35.7%
	4.7	-0.6	-4.1	
Collective	62	52	127	241
	79.2	54.3	107.5	36.2%
	-17.2	-2.3	19.5	
State of being	34	27	37	98
	32.2	22.1	43.7	14.7%
	1.8	4.9	-6.7	
Influence	33	14	20	67
	22.0	15.1	29.9	10.1%
	11.0	-1.1	-9.9	
Environment	7	4	11	22
	7.2	5.0	9.8	3.3%
	-0.2	-1.0	1.2	
Totals	219	150	297	666
	32.9%	22.5%	44.6%	100.0%

Pearson Chi-square = 19.22 (df = 8) $p < 0.05$.

Note: Cell values are count, expected value, residual.

responses which could have been considered. The journals would therefore contain a bias towards the artificialities of the simulated conditions, rather than a reflection on the reality of strategy formulation under business conditions. This limitation can only be addressed through a replication of the study based on data from the journals of strategic managers working with real commercial issues.

Fourth, the exploratory analysis was conducted here using, for convenience, a dictionary for the word 'direction'. It is possible that a combined dictionary incorporating the other two prototype words, 'goal' and 'strategy', might yield a more extensive lexicon which extends understanding of sense making further. This possibility awaits further research.

Results and Analysis

Table 4 records the incidence of categories of entities in co-occurrence with each of the three strategic purpose prototypes. It indicates that Collective Entities comprise the most commonly co-occurring nouns; 241 such Entities co-occurred with the words *direction*, *goal* and *strategy*, these forming 36.2% of the total. Closely following in order of incidence, Analytic Entities comprised 35.7% of co-occurrences of nouns with strategic purpose prototypes. The other categories of entity much less frequently. Co-occurrence of entities was not uniform across the three strategic purpose prototypes. A total of 44.6% of nouns co-occurred with the prototype word *strategy*. Next in order of frequency, as shown in Table 4, is the association between entities and *direction* (32.9%), followed by co-occurrence with *goal* (22.5%).

Table 5. Incidence of activities co-occurring with strategy prototypes

Activity category	Strategic purpose prototype			Totals
	Direction	Goal	Strategy	
Formation	77	79	163	319
	98.8	64.8	155.4	41.0%
	-21.8	14.2	7.6	
Operating	43	33	85	161
	49.9	32.7	78.4	20.7%
	-6.9	0.3	6.6	
Influence	28	10	36	74
	22.9	15.0	36.0	9.5%
	5.1	-5.0	0.0	
Change	27	20	68	68
	35.6	23.4	56.0	56.0
	-8.6	-3.4	12.0	12.0
Exchange	66	16	27	27
	33.8	22.1	53.1	53.1
	32.2	-6.1	-26.1	-26.1
Totals	241	158	379	778
	31.0%	20.3%	48.7%	100.0%

Pearson Chi-square = 63.05 (df = 8) $p < 0.01$.

Note: Cell values are count, expected value, residual.

A statistically significant difference was also detected in the pattern of co-occurrence of different classes of entity across the strategic purpose prototypes (Pearson Chi-square = 19.22, $df = 8$, $p < 0.05$). Inspection of the residuals in Table 4 indicates that discrepancies between patterns of incidence of entities with prototype words can be largely accounted for by four cells. Associations between Collective Entities and *strategy* occur more frequently than expected by chance (residual = 19.5) and less frequently with *direction* than by chance (residual = -17.2). Influence entities occur more frequently than expected by chance in their co-occurrence with *direction* (residual = 11.0) and relatively less frequently with *strategy* (residual = -9.9).

The majority of co-occurrences of verbs with the strategic purpose prototypes were those involving Formation Activities. Table 5 indicates that there were 319 of such co-occurrences, comprising 41.0% of the total. Next most frequent were Operating Activities which accounted for 20.7% of associations between verbs and prototype words. Change and Exchange Activities co-occurred less frequently (14.8% and 14.0% respectively).

Of the total, 48.7% of Activities co-occurred with the prototype word *strategy*. As shown in Table 5, co-occurrences with *direction* were next most frequent (31.0%), followed by *goal* (20.3%). The pattern of co-occurrence of Activities with strategic purpose prototypes showed a significant variation across prototype words (Pearson Chi-square = 63.05, $df = 8$, $p < 0.01$). Residuals in the categories of Formation Activity and Exchange Activity largely accounted for the differences in Activity across prototype words. Formation

Table 6. Incidence of co-occurring entities across internal and external referents associated with the prototype word direction

Entity category	Entity reference		Totals
	External to organisation	Internal to organisation	
Analytic	6	77	83
	18.9	64.1	37.9%
	-12.9	12.9	
Collective	26	36	62
	14.2	47.8	28.3%
	11.8	-11.8	
State of being	3	31	34
	7.8	26.2	15.5%
	-4.8	4.8	
Influence	9	24	33
	7.5	25.5	15.1%
	1.5	-1.5	
Environment	6	1	7
	1.6	5.4	3.2%
	4.4	-4.4	
Totals	50	169	219
	22.8%	77.2%	100.0%

Pearson Chi-square = 44.18 (df = 4) $p < 0.01$.

Note: Cell values are count, expected value, residual.

Activities co-occurred with *goal* more frequently than expected by chance (residual = 14.2) and less frequently with *direction* than expected (residual = -21.8). Further contributions to the significant difference in pattern of Activity came from the unexpectedly higher incidence of association between Exchange Activities and *direction* (residual = 32.2) and relatively few co-occurrences of Exchange with *strategy* (residual = -26.1).

Subsequent analysis concentrates on the prototype word *direction*. This choice among the three prototype words for strategic purpose is largely arbitrary but justified in this exploratory study. It should be understood that a more exhaustive lexical analysis involving *goal* and *strategy* would be required to fully account for the language adopted by strategists in relation to strategic purpose.

With this provision in mind, the following analysis explores further patterns of co-occurrence involving the referents of Entities with *direction*. The question motivating this further analysis was whether strategists referred to Entities inside their organisation or to outside or external Entities. Table 6 presents the result of such further classification. It shows that the majority (77.2%) of references to Entities were to nouns associated with the strategist's own organisation. Furthermore, the pattern of references to Internal and External Entities varied significantly across classes of Entity (Pearson Chi-square = 44.18, df = 4, $p < 0.01$). Analytic Entities were biased towards those inside the strategist's organisation (residual = 12.9) and Collective Entities were more likely to be associated with External Entities than to Internal (residual = 11.8).

Table 7. Simultaneous co-occurrence of entities and activities with prototype direction

Entity category	Activity category					Totals
	Formation	Operation	Influence	Change	Exchange	
Analytic	15	18	9	4	12	58
	16.6	13.0	6.3	5.5	16.6	39.5%
	-1.6	5.0	2.7	-1.5	-4.6	
Collective	12	4	3	5	17	41
	11.7	9.2	4.5	3.9	11.7	27.9%
	0.3	-5.2	-1.5	1.1	5.3	
State of being	6	9	2	2	3	22
	6.3	4.9	2.4	2.1	6.3	15.0%
	-0.3	4.1	-0.4	-0.1	-3.3	
Influence	5	2	1	3	8	19
	5.4	4.3	2.1	1.8	5.4	12.9%
	-0.4	-2.3	-1.1	1.2	2.6	
Environment	4	0	1	0	2	7
	2.0	1.6	0.8	0.7	2.0	4.8%
	2.0	-1.6	0.2	-0.7	0.0	
Totals	42	33	16	14	42	147
	28.6%	22.4%	10.9%	9.5%	28.6%	100.0%

Pearson Chi-square = 24.24 (df = 16) p = n.s.

Note: Cell values are count, expected value, residual.

The final analysis concerns the interaction among Entities and Activities. Table 7 displays the pattern of incidence of simultaneous co-occurrence of Entities and Activities together within 25 characters of the prototype word *direction*. Its purpose is to assess which categories of nouns are associated with the different classes of nouns adjacent to the prototype. First, it will be noted from Table 7 that the numbers of Entities and Activities recorded has shrunk from indications in previous Tables. This is a direct result of the demanding restriction imposed by the 25 character inclusion span. Sentences which contained the word *direction* would have contained one or more of each of the nouns and verbs, but the rigorous constraint would not permit capture of all pairs within the 25 character limit. Consequently, the total number of observations was reduced to 147.

The second observation which can be made from Table 7 is that the pattern of co-occurrence of Entities and Activities can largely be accounted for by the proportions of each in the Table. Since the variation in the pattern of cell values is not significantly different from expectations by chance (Pearson Chi-square = 24.24, df = 16, p = n.s.) there is no likely bias towards or away from particular combinations of Entities and Activities.

Discussion

The primary motivation for this study is to investigate what strategists think about when they think about strategy. What then is the evidence for the content of strategic thinking and how does it relate to the themes identified by Mintzberg (1990)?

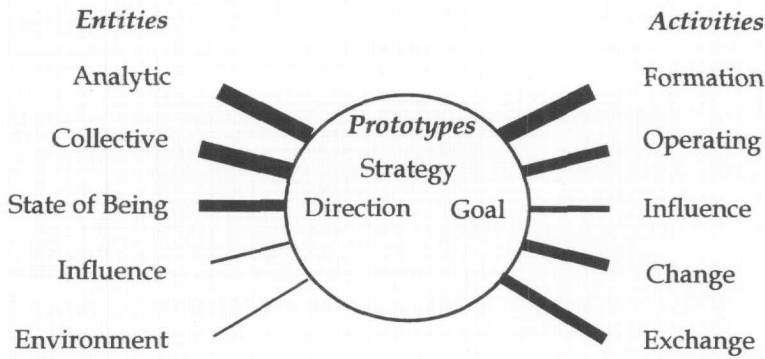


Figure 1. Knowledge structure for strategic purpose.

The knowledge structure derived from the journal data employs five categories of Entities and five classes of Activities. These represent broad groups of nouns and verbs which the managers associated with strategy and are shown in terms of strength of co-occurrence in Figure 1. By far the largest group of entities were the Analytic Entities. These group together many ideas which are associated with the work of strategy formulation; they include analytical devices and outcomes which one would expect to co-occur with the work of developing and maintaining strategic direction. It is clear from the incidence of these entities that the study participants reflected extensively on their central task during the preparation of their journals. Not surprisingly, references to this aspect of the work of strategy formulation, especially in the context of the strategic idea of direction, were linked with matters internal to the manager's own simulated firm.

Collective entities also comprised a major group of referents for strategic thinking. It is interesting to note that there was a bias towards recognition of groups and organisations external to the manager's firm. This is not to say that managers were entirely externally focused, but there was certainly evidence for an appreciation of the salience of outside collective actors, particularly in connection with the idea of direction. In this context it is perhaps surprising that relatively few references were made to aspects of the commercial environment which could be expected to command attention.

Environmental entities comprising markets and opportunities were apparently neglected in favour of groupings of human actors. One possible interpretation of these results is not that external information is unimportant, but rather that external information is not seen as particularly useful in situations, where the environment is uncertain and the information is ambiguous. McCaskey's (1982) insight into information processing in ambiguous situations helps to explain this apparent lack of concern among managers for information from the macro environment. '... (C)ollecting and categorising information becomes a problem. The information flow threatens either to become overwhelming or to be seriously insufficient'. It is therefore reasonable to suggest that when managers are under pressure, they will use information that is readily available and less ambiguous and be less likely to concern themselves with collecting more ambiguous information from uncer-

tain sources. Our findings show that decision makers have used readily available concrete information, from internal sources, and acted collectively, to reduce ambiguity and make sense of their situation. This then perhaps is a partial explanation how, under conditions of uncertainty and ambiguity, strategy is more likely to emerge from collective initiative, rather than from the analysis of the macro environment.

Influence Entities were relatively less prominent in the reflections of the strategists. Those who had the ability to influence strategic direction and sources of power were less salient than Collective and Analytic Entities. A surprising result, this could perhaps be accounted for by the prominent role the managers themselves took in formulating strategy. Their own initiative and assumption of power might well have diminished its relevance in this particular organisational context. Maybe also, the small number of managers who comprised the executives of a simulated firm could have diminished the emphasis on issues of power and control; after all the CEOs of the firms had been appointed beforehand and no power struggle was going to be brought to fruition in the relatively short duration of the simulation. However, the element of surprise in the results arises from the fact that the participants were all senior executives, conscious of their own influence and expertise, and this could be expected to be prominent in strategic thinking.

Hardly mentioned in theories of strategic management, the entity labelled State of Being accounted for nearly 15% of nouns co-occurring with strategy prototypes. Clearly the task of strategy formulation is not purely rational, a fact which was acknowledged in the journals through references to feelings and emotions. Sense making is likely to occur in an emotional and rational context.

The management of strategy is an active process. The large number of references by the managers to Formation Activities is a reflection of this fact. Strategy formulation is also inherently a creative process: elements of creativity were also recognised by managers in their journals. A second aspect of activity which occupied the minds of the strategists was labelled Operating Activities. A third was Change. These are an essential aspect of any managerial role and so are not unusual in their frequent reference in the present context.

More surprising by its relative infrequency of reference is the class of activity labelled Influence Activities. This idea co-occurred with the strategy prototypes on fewer than 10% of occasions, an unusual result for senior managers who are typically conscious of their own power and the influence capabilities of others. The earlier observations on Influence Entities are perhaps also relevant in this context.

The present findings indicate that sense making about strategy possibly contains a bias towards tactical action, focused on current issues, rather than thinking about the strategic future. Miller & Johnson-Laird (1976, p. 670) have identified eighteen cogitation words¹ and seven verbs that express causal relations associated with intentions.² Out of 219 verbs used to describe activities associated with direction only 14 (6%) of words [decide (4); discover (9); and choose (1)] were used to describe thinking and only 6 (3%) of words [force (1); get (2); have (2); make (1)] were found to indicate intentions. These results do not indicate decision makers' preoccupation with deliberate thinking but rather, show deliberate action in their sense making process

during strategy formation. Moreover, the results are in line with Daft & Wiginton's (1979, p. 179) assertion that 'Managers move towards live action, away from reflection towards personal contact and away from formal reports and information'.

We do not suggest that sense making about strategy is mindless action without intentional thought. The findings from our research here point to the importance of action in sense making about strategy, but not at the expense of intentional thinking. Sense making about strategy, or strategic thinking, involves a dynamic relationship between action and thought. Our findings reinforce the importance of action in sense making (Weick, 1995) and lends at least partial empirical support to Mintzberg's (1990) proposition from the learning school, that strategy emerges out of behaviour that stimulates thinking retrospectively. The managerial implication of our finding for strategic thinking is that, the dynamics of strategy formation takes place at the interface of thought and action. Therefore action that emerges out of 'strategic experience' is as much value in strategy formation as intentional strategic thought.

Comparison with Mintzberg's (1990) Vocabulary of Strategic Thinking

How then does the representation of strategic thinking offered by this study compare with the propositions of Mintzberg's (1990) ten schools of strategic thinking? A comparison can be made between the vocabulary of the strategy schools and those drawn from the journal data.

A direct comparison between Mintzberg's vocabulary list and the classified nouns and verbs (Appendix 1 and 2) shows that of the 50 words in Mintzberg's list, ten appear in co-occurrence with prototype words for strategic purpose. Of the total of ten, nine are nouns (five Analytical Entities, and one each of Collective Entity, State of Being, Influence Entity and Environment Entity) and one is a verb (Formation Activity). An inspection of both lists reveals that Mintzberg includes a number of technical terms which have theoretical significance. It is possible that these are not common in the language of business strategists, although actual strategy formulation might be interpreted by scholars in these theoretical terms. Conversely, the language of the strategists contains many nouns and verbs which are found in common use but which have no special theoretical meaning. Perhaps the language of strategic management theory has diffused little into professional usage among business strategists.

Although the overlap between Mintzberg's list and the words in the dictionary of *direction* is limited, the words which do occur in common refer to the Design School (2 references), Positioning School (2), Entrepreneurial School (1), Cognitive School (1), Learning School (1), Political School (1), and the Configurational School (2). Words in the present dictionary make no reference to each of the Planning, Cultural or Environmental Schools. Mintzberg classifies all three as having little future prospect as a useful theoretical perspective. The current findings might be counted as weak evidence in support of his assertion.

Care needs to be taken in placing too much weight on the comparisons with the Mintzberg vocabulary. Mintzberg points out that his vocabulary list is indicative; '... (it) lists some of the main concepts or terms of vocabulary

that each school has contributed to the field of strategic management. We do not mean to cover all the important terms here but rather to convey the flavour of each school' (1990, p. 199). No doubt there are other terms which could be readily added to Mintzberg's list. However, it is most likely that the overall pattern of overlap would alter through such addition in view of the non-technical nature of the dictionary as observed above.

Conclusions

This exploratory study set out with the objective of contributing to understanding of the sense which strategists make of their task of formulating strategic purpose. The accomplishments of this investigation have relevance therefore, for both the fields of cognition and strategic management. Although inferences from the research are restricted by acknowledged limitations of the method, the advances are of interest.

In answer to the question of what managers think when they think about making strategy, it is clear that there is a considerable emphasis on problem solving analytic devices. There is also an emphasis on collective entities; most importantly, those influential groups which lie outside the organisation. Somewhat surprisingly, limited attention is accorded sources of power. Again, surprisingly, the environment is relatively neglected, perhaps because of the need to restrict attention to potentially confusing sources of information from ambiguous and uncertain sources. Emotions and feelings also come into consideration. Strategic thinking is as action oriented. Formative activities are prominent in connection with strategy, and references to operations, change and exchange are clearly recognised but with relatively less salience. Influence activities receive relatively weak acknowledgement.

The knowledge structure of strategic thinking was compared with Mintzberg's (1990) categorisation of schools of thought relating to strategic management. This connection explored the possibility that the vocabulary of theory was reflected in the language of executives reflecting on their work of managing strategy. Some overlap was found suggesting links between thinking and all but three of Mintzberg's schools of thought—the three which he believes are theories which are losing scholarly favour. While the correspondence between the language of theory and practice is of interest, it is also pertinent to note that the sense which strategists make of their task of strategy formulation is largely framed in common, rather than technical language.

To date, understanding of strategic thinking has been limited to inferences from cognitive maps which display concepts and cause-effect linkages. While useful to help reveal patterns of ideas about strategy, and especially to account for strategic pathologies, they have largely relied on published textual data. This study has offered the potential for an alternative approach. Here, under simulated business conditions, executives were involved in a competitive and complex strategy formulation activity. Their reflection on the work of strategy formulation was recorded in journals which were analysed by content and lexical analysis. This approach to analysis of strategic thought offers an alternative to other forms of cognitive mapping with interesting prospects for further development.

Notes

1. The eighteen cogitation words identified by Miller & Johnson-Laird (1976) being: think-know, doubt, believe, judge, compare, decide, imagine, picture, theorise, intend, plan, reason, remember, discover, choose, teach, learn and trick.
2. The seven verbs that express causal relations associated with intentions (Miller & Johnson-Laird, 1976) are: allow, cause, force, get, have, let and make.

Appendix 1. Classification of nouns co-occurring within 25 characters of strategic purpose prototype word

Analytic entities	Analytic entities	Collective entities	States of being	Influence entities	Environment entities
Advice	operation	Bindet***	attention	above	markets
agenda	opinion	companies	change	arguments	opportunity
agreement	plan	company	co-ordination	CEO	situation
beginning	policies	conglomerate	commitment	chairman	somewhere
computer	policy	everybody	confidence	communication	
decision	problem	firm	confusion	guidance	
decisions	problems	group	co-ordination	head	
detail	process	groups	frustration	leader	
effort	product	Jupiter's***	growth	leadership	
efforts	products	marketing	harmony	manager	
end-result	question	meeting	insight	position	
findings	reasons	members	loyalty	power	
goal	result	organisation	misunderstanding	powerbase	
goals	results	organization	momentum	suggestion	
idea	sense	people	need	top	
ideas	stage	production	order	direction style	
input	strategies	regional	pattern	general manager	
issue	strategy	Renault***	stress	vice president	
job	task	staff	understanding	ds**	
map	tasks	team		pd**	
method	theme	head office		gb**	
mission	time	parent company		af**	
needs	vision	regional office		jo**	
objective				pl**	
objectives				al**	
				pb**	

** Names of individuals abbreviated to maintain confidentiality.

*** Names of companies in the simulations.

Appendix 2. Classification of verbs co-occurring within 25 characters of strategic purpose prototype word

Formation activities	Formation activities	Operating activities	Influence activities	Change activities	Exchange activities
action	identified	amalgamate	advised	came	asking
actioned	install	based	agree	carry	brings
appeared	involved	chosen	agreed	coming	called
assigned	looked	concentrate	agreeing	continue	desired
began	looking	consider	arguing	continued	discuss
begin	modified	control	check	drift	expected
change	over-ridden	discover	coaching	follow	expecting
changed	place	focus	defend	follows	gave
commenced	prepared	forcing	drive	go	get
create	reform	gearing	exert	going	getting
creating	reformat	helps	finalise	heading	give
decide	reject	holding	guide	leap	given
decided	searched	instills	guided	moving	gives
defined	set	keep	influence	proceed	giving
designed	sets	keeping	know	remain	got
develop	setting	maintain	lobby	stay	meeting
developed	start	making	motivate	stayed	needed
establish	started	managing	point	wait	needing
established	summarized	operating	proved	waiting	offered
find	translate	pricing	pulling		provide
formed		reduce	reinforce		providing
formulate		resist	role-play		receive
formulated		wasting	steer		received
formulating		work	stop		requested
formulation		working	tried		sought
galvanized			voting		take
			check out		taken
			role play		taking
					wanting

** Names of individuals abbreviated to maintain confidentiality.

*** Names of the companies in the simulations.

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