

STRATEGIC GROUPS: A COGNITIVE PERSPECTIVE

RHONDA K. REGER

Department of Management, Arizona State University, Tempe, Arizona, U.S.A.

ANNE SIGISMUND HUFF

College of Commerce and Business Administration, University of Illinois, Champaign, Illinois, U.S.A.

The strategic group concept provides an attractive middle ground between firm and industry for both theory development and empirical analysis. To date, this concept has been defined by researchers in terms of secondary accounting and financial data, and a number of critics have questioned the validity of this work. Our research shows that industry participants share perceptions about strategic commonalities among firms, and that participants cluster competitors in subtle ways not reflected in extant academic research on strategic groups. Decision makers' perceptions and cognitions are phenomena that can be expected to influence industry evolution. They are of research interest as an additional source of data on firm commonalities which helps address concerns about previous strategic group research.

In 1972 Hunt introduced the term 'strategic group' to describe the 'symmetry of operations' he observed in the appliance industry. Hunt noted significant differences in characteristics and strategies among the firms in his study, while at the same time he found that many firms followed similar strategies. Grouping firms clarified understanding of the apparently viable strategic options in the industry.

Although no formal definition is universally accepted, a 'strategic group' continues to be commonly defined as a group of firms within the same industry making similar decisions in key areas (Porter, 1980: 129). If these possibilities are thought of as an n-dimensional graph, strategic groups identify clusters of firms in 'strategic space,' and group membership defines the essential characteristics of a firm's strategy. The identification of strategic groups has been used primarily to explore systematic differences in profitability among firms in the same industry

Key words: Strategic groups, managerial cognition, cognitive maps, industry evolution, repertory grid technique

(McGee and Thomas, 1986). The strategic groups area is quite active and continues to generate numerous studies. Table 1 summarizes the main studies published since the McGee and Thomas (1986) review.

Recent reviewers, however, have voiced several frustrations with the state of strategic group theory and empirical research (Barney and Hoskisson, 1990; Cool, 1985; Hatten and Hatten, 1987; McGee and Thomas, 1986; Thomas and Venkatraman, 1988). Dissatisfactions include insufficient theoretic underpinnings for the construct itself, inadequate model specification, haphazard selection of strategic dimensions used to form groups, and inconclusive results from empirical research. Given these serious concerns, it is essential that we step back from research in this area to examine fundamental questions about the strategic group concept.

The most recent and potentially most devastating attack on strategic group research has been made by Barney and Hoskisson (1990), who claim that two critical assertions of strategic group theory remain untested: '(1) that strategic groups exist and (2) that a firm's performance

Table 1. Recent strategic groups studies

Study	Industry	Primary data type
Cool and Schendel (1987)	pharmaceutical	archival
Fombrun and Zajac (1987)	financial services	survey questionnaire validated with archival
Hatten and Hatten (1987)		conceptual
Johnson and Thomas (1987)	U.K. brewing	archival
Cool and Schendel (1988)	pharmaceutical	archival
Lawless, Bergh and Wilsted (1989)	manufacturing firms	archival
Lawless and Finch (1989)	52 manufacturing firms	archival
Mascarenhas (1989)	oil-well drilling	archival
Mascarenhas and Aaker (1989)	oil-well drilling	archival
McNamee and McHugh (1989)	Northern Ireland clothing industry	archival
Zajac and Shortell (1989)	hospitals	questionnaire
Barney and Hoskisson (1990)		conceptual
Fiegenbaum and Thomas (1990)	insurance	archival
Kumar, Thomas and Fiegenbaum (1990)		conceptual
Lewis and Thomas (1990)	U.K. retail grocery	archival
Porac and Thomas (1990)		conceptual
Schroeder (1990)	foundry	interviews
		multiple case studies
Ulrich and McKelvey (1990)	Japanese electronics	archival
Boeker (1991)	brewing	archival
Lawless and Tegarden (1991)	47 four-digit SIC	archival
Nohria and Garcia-Pont (1991)	automobile	archival
Sudharshan, Thomas and Fiegenbaum (1991)	pharmaceutical	archival
Tallman (1991)	automobile	archival
Caves and Ghemawat (1992)	variety from PIMS NRDB database	archival

depends upon strategic group membership' (1990: 187). Further, the assumption '[t]hat there are groups of firms suggests that firms are not idiosyncratic in strategically relevant ways' (Barney and Hoskisson, 1990: 188). Strategic group research is also suspect, since, to date, groups have been defined using 'an almost standard method. . . [which] employs some form of cluster or factor analysis' (Barney and Hoskisson, 1990: 189). Hatten and Hatten support this basic challenge with the assertion that strategic groups are merely analytical conveniences used by researchers, artifacts of our theories and techniques, without any objective analogue in the natural environment (1987: 329).

Our view is, first, that strategic groups can be defined in a way that allows some strategically important variance among firms within each group. This view is supported by results presented in this paper. Second, although the explanation of performance differences among

firms is clearly elusive (Cool and Schendel, 1988; Fiegenbaum and Thomas, 1990; McGee and Thomas, 1986), we believe a modified theory of group structure, along lines developed later in this paper, may still make a contribution to the understanding of profitable strategic choices. Predicting firm profitability, however, is not the key contribution of a cognitive approach to strategic groups.

Even if strategic groups are found to be uncorrelated with performance outcomes, our position is that managerial perception of similarities and differences among competitors influence strategic decision making, and thus are worthy of study. In fact, strategists' grouping schemes may prove to be more significant than researcher-defined groupings for understanding competition and performance because, through enactment processes (Weick, 1979), the way firms see themselves and their competitors (Porac, Thomas, and Emme, 1987) is expected to have tangible

effects on strategy reformulation and subsequent industry structure.

It seems logical that strategists will think in terms of clusters of competitors to cognitively simplify a complex environment. Commonalities among firms should also be expected, independent of individual precepts, as a result of broader pressures creating institutional isomorphism (DiMaggio and Powell, 1983) and because of the many inertia factors inhibiting strategic change (Tushman and Romanelli, 1985). Recent work on isomorphism and inertia (Powell and DiMaggio, 1991) have bolstered our understanding of why firms do not always achieve the kind of idiosyncratic positions Barney and Hoskisson (1990) rightly indicate are often associated with competitive advantage.

Finally, though we will make the argument that perceptual and economic factors can reinforce each other, fundamental questions about the real and the perceived cannot be answered definitively by any research endeavor. The demise of logical positivist standards make even simple assertions such as 'the sun will rise tomorrow' unprovable (Kuhn, 1970). As all proofs become suspect, no research project can satisfactorily say it has identified anything that is objectively 'real.' The study reported here focuses on determining if strategists perceive differentiating commonalities among firms and if so, to outline the nature of those perceptions. If groups of firms are 'real' for strategists, then research at the strategic group level is much more important than if groups are only the result of researchers' analytical exercises. Empirical evidence using strategists as data sources also provides multimethod confirmation (Huff, 1982; Jick, 1979) for extant research using archival sources.

In this paper, we summarize research from cognitive psychology, organization theory and strategy that supports two propositions. These propositions, that strategists will perceive similarities among subgroups of firms in an industry and that strategists in the same industry will group participants in that industry in similar ways, are examined with data from the Chicago banking industry. The data show a shared sense of group structure in the industry, but also reveal a range of agreement on the similarity of firm strategies. These subtleties in executive perceptions add important dimensions to the

strategic group concept and increase its potential utility for understanding competitive positioning. To foreshadow points elaborated upon in the concluding sections of the paper, we believe those interested in describing and explaining strategic group structure might well amplify results from archival studies with cognitive studies. Those interested in predicting change in strategic position may be even more dependent on cognitive data to extend retrospective financial and accounting data.

STRATEGIC GROUPS AS THE RESULT OF PERCEPTION AND COGNITION

Strategic management research is just beginning to assess the importance of cognitive frameworks in strategic decision processes (Dutton, Fahey, and Narayanan, 1983; Huff, 1990; Mason and Mitroff, 1981; Stubbart, 1986, 1987). Porac and Thomas' (1990) recent theoretical paper examines many of the cognitive rationales for mental models of competition. Two reasons why managers in demanding competitive situations might focus on groups of firms rather than individual competitors deserve special note.

Simplification

Cognitive research suggests that simplification is a cognitive necessity in cases of information overload. Research also shows that human beings can be easily overloaded. Miller (1956), for example, found that people cannot hold more than about seven bits of data in mind at a time. Work on cognitive simplification processes among managers (e.g., Schwenk, 1984; Simon, 1945) suggests that strategists simplify the complex cognitive problem of independently analyzing a large number of competitors by grouping them. In fact, executives, journalists and industry analysts often refer to groups of firms in public statements.

Elaboration

Cognitive elaboration involves filling in gaps (often unconsciously) when interpreting stimuli. The theoretical rationale for this activity is precisely the opposite of that offered for simplification. Sometimes data are not rich or varied

enough to allow interpretation without further elaboration. Often unconsciously, the unknowns about a particular case are likely to be filled in with information consistent with beliefs about other, better known examples that are believed to be similar (Rosch, 1981).

Prahalad and Bettis (1986) have given a compelling example of this kind of embellishment. They propose that managers make acquisitions and divestments on the basis of a 'dominant logic,' or dominant paradigm developed through past experience. The result is a consistency in firm decisions over time, despite a wide variety of acquisition opportunities. We submit that executive perceptions may similarly 'gel' with respect to the dominant logic ascribed to surrounding firms. It is possible that these attributes go beyond the deliberate intentions of the companies involved, but the practical result is increased facility with the difficult problems of complex analysis.

While simplification and elaboration are very different responses to competitive conditions, an important result of both processes, we suggest, is that strategists will perceive similarities among firms. Our first proposition, then, based on both cognitive simplification and elaboration is that:

Strategists' perceptions of their competitors' strategies will be characterized by a group structure, rather than each firm's strategy being perceived as unique or all firms' strategies being perceived as similar.

Interaction

While cognitive simplification and cognitive elaboration could lead to totally idiosyncratic groupings, strategists who work in the same industry environment are expected to develop shared perceptions of the competitive environment over time. Company executives interact with each other at industry associations and other gatherings; they share similar sources of information such as trade publications; they hire from the same professional labor pool and frequently employ the same consultants. As events shape the industry, such commonalities in information sources encourage shared interpretation of the present and shared expectations for the future, including shared perspectives on industry groupings (Huff, 1982; Porac, Thomas, and Baden-

Fuller, 1989). Thus, based on arguments of shared information sources and interaction, we further propose that:

Strategic group structure will be widely shared by strategists within an industry, rather than each strategist holding unique perceptions of strategic group structure.

COGNITIVE STRUCTURES

Given the potential importance of participant perspectives on the competitive environment, we believe that inquiry on strategic groups should include research based on cognitive data. This work appropriately begins with tests of the existence of competitor groupings in the minds of strategists. Previous research has made important first steps in this direction (Dess and Davis, 1984; Fombrun and Zajac, 1987). These researchers' purpose was to measure managerial perceptions of theoretically significant constructs, not to uncover cognitive structure *per se*. Questionnaires were used to gather data in these studies, and therefore it is not clear if the competitor groups found represent the respondents' cognitive structure of the industry or a structure inherent in the instruments used (Fransella and Bannister, 1977).

Two streams of research in cognitive psychology are particularly appropriate for overcoming this problem in studies of cognitive structure including the study of cognitive strategic groups. Classification theories concentrate on categories of concepts and the hierarchical relationships among them (Johnson-Laird and Wason, 1977: 169-253; Lakoff, 1987; Rosch, 1978). Alternatively, personal construct theory (Kelly, 1955; Fransella and Bannister, 1977) focuses on the dimensions of concepts. The research reported here draws primarily on personal construct theory, which is especially germane given that extant strategic group theory assumes variation among firms along key dimensions of decision making (Porter, 1980; Cool and Schendel, 1987; Porac and Thomas, 1990) just as personal construct theory concentrates on the key dimensions, or constructs, of human cognition (Kelly, 1955). In addition, Thomas and Venkatraman (1988) advocated the use of this approach in their review of strategic groups research.

Personal construct theory was first postulated as a theory of personality (Kelly, 1955); but later adherents assign it a more limited role as a theory of cognition (Fransella and Bannister, 1977). Briefly, the theory posits that bipolar constructs (or dimensions) are the primary mechanism individuals use to organize, simplify, and interpret the mass of stimuli that constantly confront them. Constructs are defined in terms of similarities and differences and are organized into systems of meaning which individuals use to develop theories about the environment, to make predictions and guide action.

Personal construct theory is predicated on the belief that individuals act on their perceptions of the objective world filtered through their constructive system. The individual does not passively perceive the environment, rather he or she actively construes (attaches meaning to) perceptions. Kelly suggests that it is relatively easy for an individual to move an object along a cognitive construct, but much more difficult to think of objects in terms that are not part of an existing construct system. Constructs are thus seen to form a somewhat flexible yet structured network that both facilitates and restricts an individual's perceptions and actions (Kelly, 1955: 49).

Hundreds of studies have been published in psychology and related fields using personal construct theory (Fransella and Bannister, 1977), but application of the theory and its related methodology, repertory grid technique, is quite new to strategic management. Ginsberg (1987) and his colleagues (Dunn *et al.* 1986; Dunn and Ginsberg, 1986) have recommended the theory and methodology for the study of business and public policy issues. Empirical studies are limited, but initial studies illustrate the flexibility of its application. Eden, Jones, and Sims (1979; 1983) combined personal construct theory with causal mapping to help organization members clarify and alter their perceptions of management situations. Walton (1986) built profiles of prototypical successful and unsuccessful firms using the repertory grid technique and Dutton (1987) studied the dimensions managers use to categorize issues with the same method.

RESEARCH DESIGN

We used personal construct theory to address the research questions of this study. First, do

strategists group competitors in an industry? Second, are perceptions of competitor groupings widely shared or are they idiosyncratic? The two propositions were examined in the context of U.S. banking industry—a quite demanding test site, given that recent changes in regulation and increased competition might be expected to make clusters of competitors less stable and more difficult to assess.

The research focused on the competitive strategies of the 18 largest bank holding companies (BHCs) headquartered in the Chicago area between 1982 and 1985 (Table 2). This time frame was chosen because it was bracketed by major regulatory changes in Illinois. In 1982, Illinois bank holding companies were allowed to acquire additional banks. Previous to this date, Illinois was a unit banking state, meaning that a bank holding company could only own one bank. Beginning in July, 1985, Illinois passed a regional, reciprocal banking pack with other midwestern states. Both of these changes were expected to increase the rate of environmental change and facilitate major strategic repositioning in the banking industry. While all 18 firms were not necessarily direct competitors in all markets when interviews were conducted in 1986, we expected, and found, that most strategists would be aware of the total population of major firms under these circumstances.

Interviews were conducted at 6 of the 18 BHCs in the study population. The six were chosen for their diversity, relying on industry observers not in the study and secondary sources. Two firms were widely touted as well run, two were financially troubled and two had mixed performance reviews from industry insiders. Two of the banks were located 'in the loop,' two were in other downtown locations, and two were thought of as suburban banks. Two of the BHCs owned a single large 'flagship' bank, one was clearly organized as a multibank confederation. Interestingly, at least four of the six banks were rumored to be acquisition oriented, while five of the six were rumored to be takeover candidates.

All six firms chosen for the sample agreed to participate in the study. The CEO at each bank identified five strategic decision makers within the firm who were especially familiar with competition in the Chicago market from 1982 through 1985. Four of the six CEOs personally participated in the study. In all, 30 strategists

were contacted and 23 provided usable data for a 77% participation rate.

All informants for the study were experienced bankers. They were employed in the banking industry for an average of 18.5 years, with banking experience ranging from 10 to 35 years. Respondents had worked for their current firm for an average of 10.25 years. Their experience varied widely, with seven (30%) in general management, five (22%) in finance, three (13%) in strategic or corporate planning and one (4%) in marketing. Seven of the informants worked in major product areas, including two (9%) in commercial loans, two (9%) in retail or private banking and one each in correspondent banking, financial institutions and trust (4% each).

Data collection

Data were collected in Fall 1986 via semistructured interviews using the minimum context form of the repertory grid technique (Dunn and Ginsberg, 1986; Fransella and Bannister, 1977; Kelly, 1955; Reger, 1990b). This technique requires each informant to generate personal dimensions for describing the phenomenon of

study and to make similarity and difference judgments about individual examples of that phenomenon along those dimensions only. Thus, researcher-imposed structure on subject cognition is minimized.

Each informant in the study was interviewed separately. Following standard procedures for the minimum context format, the 18 BHCs' names were presented to each informant three at a time. The sequence of presentation of triads was random and the same for each informant. Informants were asked the way or ways in which two of the BHCs were more similar strategically and how the third was different. In this way, bipolar dimensions used by strategists to differentiate among the strategies of competitors were elicited.

Each informant personally identified dimensions, which were then used to elicit judgement about competitors' strategies. Ideally, informants would rate each focal BHC along all the dimensions they personally use to distinguish competitors. However, pretests indicated that asking an individual to rate all 18 BHCs along all defining dimensions was infeasible because of the time involved; pretest subjects reported their

Table 2. Number and percentage of informants who assigned each focal bank holding company to each cluster

	Cluster 1		Cluster 2		Cluster 3	
	No.	%	No.	%	No.	%
First Chicago	18	100	0		0	
Northern Trust	17	100	0		0	
Continental Ill. Harris	17	100	0		0	
ABN-LaSalle Exchange	11	79	0		3	21
	8	67	2	17	2	17
First Evergreen	0		15	100	0	
Gary Wheaton Affiliated	0		16	100	0	
	0		9	100	0	
First United	1	17	14	93	0	
USAmeribancs	1	7	13	93	0	
State National	0		9	90	1	10
First Illinois	0		10	90	1	9
First Colonial	1	10	8	80	1	10
Cole-Taylor	2	13	11	73	2	13
Boulevard	4	29	6	43	4	29
Lake Shore	4	24	6	35	7	41
Unibancorp	3	27	2	18	6	55

boredom level rose substantially when so many ratings were required. Therefore, each informant was randomly assigned to one of four groups to rate an overlapping subsample of 12 of the 18 focal BHCs. This sampling procedure, commonly used in marketing (Green, 1977), allowed for comparisons across informants without each informant rating all BHCs.

Each informant rated the BHCs along his (all subjects were male) self-supplied dimensions using 11 point scales. The procedure yielded $23 n \times m$ rating grids, one for each informant, where n is the number of dimensions elicited for each of the 23 informants and m represents the number of firms the informant felt knowledgeable assessing. The Appendix provides a sample of the elicited dimensions. Detailed dimension-level results of this research also are reported elsewhere (Reger and Palmer, 1990).

Data analysis

It is possible to ask informants to directly form groups by sorting the population into subsets, a variant of repertory grid technique called the full context form (Fransella and Bannister, 1977: 15). This sorting task was rejected for two reasons. First, extant strategic group theory is both theoretically and empirically concerned with the dimensionality of competitive strategy; that is, how firms are positioned in multidimensional competitive space. Therefore, we employed procedures which mirrored current research practice. Second, most applications of personal construct theory have used the minimum context form and, thus, reliability and validity measures have been better established for this procedure (Fransella and Bannister, 1977).

Instead of directly asking informants for their perceived groupings, we cluster analyzed each informant's rating grid using SAS CLUSTER. Cluster analysis particularly fits the objectives of this study, since it places objects into groups suggested by the data. Clustering techniques can be criticized, however, since by their nature they will break the data available into subsets, however weak the association among data points. Therefore, three clustering methods were employed, each of which has been found to have somewhat different strengths and weaknesses. If all three clustering methods give similar results using multiple criteria, confidence that the groups

are an inherent part of the data and not an artifact of the particular clustering algorithm is increased.

The first clustering technique used, the average linkage algorithm, forms clusters on the basis of the average distance between pairs of observations. This method 'tends to join clusters with small variances and is slightly biased toward producing clusters with the same variance' (SAS, 1985: 263). The second, centroid method maximizes the distance between group means, recomputing the centroids each time a new observation is included in a cluster. This method 'is more robust to outliers than most other hierarchical methods' (SAS, 1985: 264). Ward's method was used as a third alternative. Groups are formed by minimizing the within cluster ANOVA sum of squares. With this technique Ward's cluster analysis 'tends to join clusters with a small number of observations and is strongly biased toward producing clusters with roughly the same number of observations' (SAS, 1985: 267).

Cluster analysis is not an inferential statistical technique in which the researcher can link a specified confidence level with a set of clusters (Everitt, 1980: 66); instead, the researcher must specify rules for choosing the number of clusters that will be used for description and analysis of the data. Three decision rules determined the number of clusters from each algorithm's output for each informant's data: adopt cluster solutions at large breaks in the dendrograms, avoid cluster solutions that produce one firm groups, and choose solutions with high interpretability based on qualitative comments made by informants (Everitt, 1980; Hartigan, 1975; Romesburg, 1984). As a further assurance that the clusters represented 'real' groups in the data and not simply artifacts of the methods, the first author applied the decision rules to the average linkage output, while the second author independently evaluated the centroid and Ward's results. Use of these decision rules was considered preferable to blind application of any one decision rule that might misrepresent the data (Everitt, 1980: Romesburg, 1984).

As a test of the correspondence between strategic groups identified by industry participants and economic 'reality,' we then looked at two outcome indicators. Data on profitability and survival, independent variables of longstanding interest in strategy research, were gathered on

the 18 firms in the study. Profitability data were gathered in 1986. Though mergers made it impossible to compare profitability in subsequent years, the merger pattern itself provides an interesting application of strategic groupings.

RESULTS

Individual results

The decision criteria outlined above yielded either two or three cluster solutions in the data from all but one of the 23 respondents, for whom only one of the three clustering algorithms yielded a cluster solution, the other two did not. This informant, however, only felt comfortable ranking 6 of the 12 BHCs presented, and these BHCs were most often clustered together by other respondents. For 17 of the other informants, the cluster results from the three methods converged. In one of the remaining five cases, one method created a group where the other two did not. In a second instance, one procedure did not create a group where the other two did. Two other cases involved one mismatch among the three methods out of the 12 firms the respondents answered, and a third involved 2 out of 12 discrepancies among the three methods.

The fact that three algorithms yielded exactly the same clusters in data from 17 of 23 informants (74%) and that the worst case involved only a 16% discrepancy argues for accepting the first proposition of the study—that strategists cognitively group their competitors—and rejecting the alternative explanation that the clusters formed are mere artifacts of a clustering technique. Additional support for this proposition can be found in the strong similarities among clusters in the six cases that showed any discrepancy at all among the methods explored.

Commonality across informants

There is also strong commonality across respondents in the firms assigned to each cluster, which supports our second proposition: grouping schemas are not idiosyncratic, but widely shared across strategists. Since the results were similar across the three clustering algorithms, for clarity of exposition analyses from the average linkage method only are presented below.

Table 2 summarizes the number and percentage

of informants who assigned each BHC to each of the three clusters commonly observed in the data. Both Cluster 1 and Cluster 2 include a core group of BHCs assigned to the same cluster by all informants rating that company and a secondary group of companies clustered with this core by more than 65% of the informants. Firms in Cluster 1 generally followed a 'money center' strategy concentrating on wholesale and commercial activities in a national or even international market whereas firms in Cluster 2 generally were stronger in middle market commercial, small business and consumer banking in a more limited geographic area. Cluster 3 does not exhibit a core, nor as strong a secondary group, and appears to be more of a catch-all cluster that cannot be as meaningfully compared across informants. For example, Boulevard Bankcorp (BOU) and Unibancorp (UNI) are assigned most often to this cluster, but are also found in each of the other clusters as well.

Robustness of results

Since cluster analysis requires researcher interpretation and is not a statistical methodology, it is prudent to examine the robustness of results under various assumptions. Thus, we took three approaches to evaluating the data shown in Table 2. First, we assumed that a three cluster solution represented common opinion about group structure in the industry, and asked: How often did a given individual assign a given firm to the 'right' cluster? Table 3, which summarizes the 251 competitor assessments shown in Table 2, indicates (on the diagonal) that in 209 instances, or 83% of the total, individual assessments resulted in assigning the firm to the cluster expected if group assignments are assumed *a priori* to be shared across all industry participants. If each informant in this study had randomly assigned firms to groups based on the relative sizes of the three groups, assignments would be 'successful' only 40% of the time. The difference between the observed result and the random expectation (which is statistically significant at the 0.001 level) provides strong support for the proposition that cognitive groups are shared among participants in an industry.

It seems reasonable to suspect, given the low level of common assignments to Cluster 3, that this is a residual group which does not mirror

Table 3. Assignment of Bank Holding Companies to Clusters: Three Cluster Solution

3 groups of firms

Cluster	A	B	C	Total
1	87	5	11	103
2	2	105	14	121
3	5	5	17	27
	94	115	42	251

strategic commonalities. The second test of shared strategic groups assumed that firms assigned to the first two clusters followed especially clear cut strategies. The data found in the upper left square in Table 3 summarize the number of firms assigned to these clusters. This inner square shows only 7 'misassignments' out of 199 judgements made about firms belonging to the two clear strategic groups in this industry; two in which a firm that common wisdom said belonged in Cluster 1 was instead assigned to Cluster 2, and five in which a firm common wisdom assigned to Cluster 2 was instead placed in Cluster 1.¹ This test shows even stronger support for the idea that group assignments are shared.

Further examination of the data shows more agreement about the two frequently 'misassigned firms' than at first appears. The approach here was to relax the expectation that industry participants will share *one* view of competitor groupings. Tables 4 and 5 divide respondents by the number of clusters judged to best portray their assessments of competitors, and distinguish

¹ Given the strength of results showing assignments in both the three group case and the two group case, no further evidence is really necessary to support proposition two. In more complex cases, it might be appropriate to compare the observed assignment with assignment to any other cluster. (In our case, the number of assignments to Cluster 1 vs. assignments to Clusters 2 or 3; and then the number of assignments to Cluster 2 vs. assignment to Clusters 1 or 3). A phi square, which corrects for the size of the sample (Reynolds, 1977: 27), or Cramer's V, which is particularly useful for assessing symmetric arrays (Reynolds, 1977: 32), can be used to describe data that are less clear cut.

'outlier' firms from those in clusters. These tables show that ambiguity about the strategies of Boulevard Bankcorp (BOU) and Unibancorp (UNI) occurs almost exclusively among those who see the industry as falling into two strategic groups. There is little ambiguity among those who cluster the industry into three groups. They unanimously agree that BOU belongs in Group 3, and only one individual disagrees on the placement of UNI in Group 3.

This third view of the data suggests even more strongly that there is considerable agreement on the strategic location of the BHCs in the population we studied. Commonality of group membership is supported under three different approaches to analyze the data, thus, proposition two is conclusively supported.

Cognitive groups, performance and survival

The strong results of this study show that cognitive data can be used to form strategic groups. Are these groups useful for understanding performance or other outcomes of interest? Table 6 shows the 1986 ROA for each focal BHC, as well as whether the BHC has remained independent or was acquired subsequent to the study. Again, since the status of Cluster 3 as a cohesive strategic group is in doubt, we concentrated our analysis on the first two clusters. Using a *t*-test of group mean differences for small samples, average ROA for the two groups was significantly different in 1986 ($\alpha = 0.005$). Since many of the focal BHCs were acquired in 1987, and thus, did not report independent ROA figures, it is impossible to meaningfully compare profitability differences for later years.

However, substantial differences exist between the two groups identified with cognitive data as to whether the members remained independent, or if acquired, what type of firm made the acquisition up to 5 years after executive assessments were made. In Cluster 1, both Harris and LaSalle had been purchased by international bank holding companies when data were collected in 1986. Subsequent to the interviews, LaSalle's parent, ABN, also acquired Exchange. The three other members of this cluster have remained independent. None of the core BHCs in Cluster 1 have changed ownership since the research was conducted.

Table 4. Assignment of bank holding companies to clusters by informants whose data resulted in a two cluster solution

Bank holding companies	Informants														
	A2	A3	A4	A5	A6	A7	B1	B4	C1	C2	C5	C6	C7	D1	D2
ABN-LaSalle	1		1	1	1	x			1	1	1	1	x	1	1
Affiliated	2	2	2		2					2	2	2	2		
Boulevard							2	2	2	1	2	1	1	1	2
Cole-Taylor	1	1	2	x	2		2	2						2	2
Continental Ill							1	1	1	1	1	1	1	1	1
Exchange	1	1	1	1	1	1	2	1							
First Chicago	1	1	1	1	1	1	1	1	1	1	1	1	1		
First Colonial										2	2	1	2	2	2
First Evergreen	2	2	2	2	2		2	2		2	2	x	2		
First Illinois							2	2						2	2
First United	2	2	2	2	2					2	2	1	2	2	2
Gary Wheaton	2	2	2	2	2		2	2						2	2
Harris	1	1	1	1	1	1	1	1	x	1	1		1		
Lake Shore	x	1	1	2	2	x	2	2	2	1	x	x	1		
Northern Trust	1	1	1	1	1	1	1	1						1	1
State National										2	2	2	2	2	2
Unibancorp							2	1						1	1
USAmeribancs	2	1	2	2	2				x	2	2	2	2	x	2

x = outlier firm

Table 5. Assignment of bank holding companies to clusters by informants whose data resulted in a three cluster solution

Bank holding companies	Informants							
	B2	B3	B5	B6	C3	D2	D4	D5
ABN-LaSalle					1	3	3	3
Affiliated					2			
Boulevard	3	3	3	3	3	3	3	2
Cole-Taylor	2	2	2	2		2	2	3
Continental Ill	1	1	1	1	1	1	1	1
Exchange	2	1	3	3				
First Chicago	1	1	1	1	1			
First Colonial					2	2	3	2
First Evergreen	2	2	2	2	2			
First Illinois	2	2	2	2		3	2	2
First United					2	2	2	2
Gary Wheaton	2	2	2	2		2	2	2
Harris	1	1	1	1	1			
Lake Shore	3	2	3	3	3			
Northern Trust	1	1	1	1		1	1	1
State National					2	3	2	2
Unibancorp	3	3	2	3		3	3	3
USAmeribancs					2	2	2	2

Table 6. Profitability and ownership changes

	1986 ROA	Ownership ²
<i>Cluster 1</i>		
<i>Core Firms</i>		
First Chicago	0.71	Independent
Northern Trust	0.57	Independent
Continental Illinois	0.5	Independent
Harris	0.7	Bank of Montreal
<i>Secondary Firms</i>		
ABN-LaSalle	0.52	Algemene Bank Nederland
Exchange	0.53	Algemene Bank Nederland
Mean ROA, Cluster 1	0.59 ¹	
<i>Cluster 2</i>		
<i>Core Firms</i>		
First Evergreen	1.3	Independent
Gary Wheaton	1.1	First Chicago
Affiliated	–	Manufacturers (Michigan)
First United	1.0	First Chicago
USAmeribancs	–	NBD Bancorp
State National	0.85	NBD Bancorp
First Illinois	1.2	BancOne (Ohio)
<i>Secondary Firms</i>		
First Colonial	0.82	Independent
Cole-Taylor	–	Independent
Mean ROA, Cluster 2	1.05	
<i>Cluster 3</i>		
Boulevard	1.0	Independent
Lake Shore	1.0	Independent
Unibancorp	1.1	Old Kent Financial

¹Mean ROA for Cluster 1 and Cluster 2 are significantly different at the 0.005 level of significance using a *t*-test of differences between group means for small sample sizes.

²Ownership changes which occurred after the interviews were conducted and announced as of October 1, 1991 are indicated in bold. All of the focal BHCs were independent at the time of the study except for the following: LaSalle was purchased by Algemene Bank Nederland (ABN) on August 14, 1979; Harris became a wholly-owned subsidiary of the Bank of Montreal on Sept. 4, 1984; NBD Bancorp (headquarter in Michigan) announced the purchase of USAmeribancs on October 23, 1986. Interviews were conducted in November 1986.

The BHCs in Cluster 2 have faced a quite different fate. Five of the nine BHCs have been acquired, all by BHCs headquartered in the midwestern United States. Only one of the core BHCs in this cluster, Evergreen, has remained independent. The other two banks which have remained independent in this group, First Colonial and Cole Taylor, were the members most often assigned to other clusters.

Performance at the time of data collection and survival 5 years later thus support the cognitive data on strategic group assignment. Firms in Cluster 1, especially those assigned unambiguously, did not change ownership. In fact, the only member of this group that was acquired, Exchange, followed the pattern set by other group members—it was acquired by a foreign bank holding company. All except one of

the firms assigned by at least 90 percent of respondents to Cluster 2 were acquired by regionally-based U.S. bank holding companies within 5 years of our analysis. These results are supportive of the other findings on the homogeneity of firms within cognitive groups, however, the small sample sizes and the correlational nature of the analysis precludes the assertion of a causal link between these outcomes and strategic group membership.

DISCUSSION OF RESULTS

Given the amount of change in the Chicago banking market from the early 1980s on, the support for the basic propositions of this study is surprisingly strong, especially since respondents used their own dimensions to describe firm strategies rather than a common set of researcher-supplied categories. Nonetheless, idiosyncratic assessments in the data deserve further explanation. Why were some firms unambiguously assigned to a strategic group across informants, while placement of other firms is more uncertain? Further examination of the data suggest six arguments which may explain disagreement about strategic group membership for some firms. These arguments address the nature of strategic positioning as well as the ability of researchers and competitors to perceive subtleties in the strategic choices firms make.

1. *Fuzzy Groups.* Some BHCs that were not uniformly assessed by informants may have exhibited strategies essentially in line with those of one or more 'core' BHCs in a particular group, but these firms also may have shared secondary attributes with other groups or possessed idiosyncratic secondary traits. Zadeh (1965), a leading categorization theorist, has suggested that many conceptual categories are 'fuzzy' on their boundaries, such that some members of the category are better examples of the category than are others. Thus, a firm that shares many commonalities with the category is likely to be widely perceived as a good example of the category. A firm that shares fewer characteristics is likely to be associated with a wider variety of firms. Some informants might have concentrated on core aspects of this firm's strategy, while other informants focused on secondary characteristics the firm happens to share with firms in other clusters.

2. *Obscured Strategy.* Disagreement among this group of expert observers about the placement of a few BHCs also may be due to the difficulty of observing some firms' strategic actions. Porter (1980) and others have suggested that firms are wise to obscure their intentions in order to gain competitive advantage. Thus, it is likely that the strategies of some firms, either intentionally or unintentionally, will be difficult to interpret. Given the theoretical importance of surprise in establishing competitive advantage, our results are interesting not because a few firms' strategies were difficult to identify, but because respondents agreed on the basic strategy of almost all firms in the population. Obscured strategy appears to have played, at most, an extremely limited role in this industry.

3. *Firm Repositioning.* Even during the most stable periods of industry evolution, the strategies of some BHCs may be in flux due to firm specific conditions such as new management, poor past performance or firm specific innovation. Respondents in our study might have varied in their perceptions of such firms. Some observers may have focused on the BHC's old strategic position, some on current position and some may have been oriented toward anticipated future position.

4. *Industry Realignment.* Another possible explanation for variation in the categorization of some firms is tied to the structure of the industry as a whole. An industry in transition, such as the one we observed, is likely to be moving toward a larger or smaller number of viable group 'recipes' (Spender, 1980, 1989), or, if the key dimensions of strategy are themselves in the process of change, some observers may have been more aware of this transformation than others. Inconsistencies in the data may thus be due to some informants reporting an 'old' structure, while others anticipate a new industry structure. Though similar in effect to internally motivated repositioning of individual firms, industry realignment is conceptually different because it is more closely tied to external environmental change.

5. *Reactors and Misfits.* Some companies do not follow clear, constant strategies. Such firms have been described as 'stuck in the middle' (Porter, 1980) or 'reactors' (Miles and Snow, 1978); they change strategic direction often or simply react to environmental events as they

occur. These firms might be best described as misfits in that they do not exhibit a coherent strategic pattern over time. It is not surprising that industry observers vary in the way they describe such firms.

6. *Strategic Idiosyncrasy*. Some focal BHCs may have adopted strategies which are so dramatically different from all others in the industry that it is not easy to position them *vis-à-vis* other firms along common dimensions. These firms are not aligned with other firms; they do not compete in similar ways. Such firms may have a coherent strategy and that strategy may fit the industry, but it does not fit the cognitive map that usefully describes almost all other competitors within the industry. When Timex first entered the watch industry, it was misaligned in this way. Its strategy was so radically different from existing watch manufacturers that it could not be meaningfully mapped on dimensions which differentiated other competitors. New dimensions, and hence a new map, were needed. Lack of consensus among industry observers may indicate analogous outliers in the Chicago banking market.

These arguments are complementary, not mutually exclusive. Multiple explanations appear to account for disagreements about the placement of all six equivocal firms in our study. For example, the banking industry was undergoing a major realignment at the time data were collected for this study (McKinsey and Company, 1985). Several informants indicated both Lake Shore and Boulevard were pursuing strategies that were radically different from other bank holding companies at this time. ABN-LaSalle, on the other hand, was often described as both a misfit and a firm with a 'fuzzy' strategic position. This firm had been acquired twice in the 7 years preceding the study. It had long operated under a consistent strategy which aligned it with firms in Cluster 1, and at the time of the study it retained strengths associated with that strategy. New ownership had moved the company toward strategies more distant from either Cluster 1 or 2, but decisions in the 1986 time frame were interpreted by some observers as reasserting a strategy in line with Cluster 1. The lack of agreement about the association of ABN-LaSalle across informants appears to be a good indicator of genuine uncertainty about the strategic direction of this firm.

A BROADENED THEORY OF STRATEGIC GROUPS

While there is some ambiguity in the current literature about the ontological status of strategic groups, with the skeptic position expressed especially by Hatten and Hatten (1987) and Barney and Hoskisson (1990), our study suggests that strategic groups are readily perceived by strategists. The study thus provides evidence that strategic groups are more than analytical conveniences used by researchers; they are part of the way strategists organize and make sense of their competitive environment. The performance differences between Cluster 1 and Cluster 2 at the time of the study as well as the utility of these groups for differentiating acquisition experience 5 years after data collection suggest promising avenues for future research. Explaining performance was not the focus of the current research and these results, although suggestive, do not establish a causal link between group membership and outcomes. Nonetheless, the strategic groups derived from the cognitive structure of strategists in this industry demonstrate that executive perceptions have real potential for competitive strategy research. Further, the results contribute to evidence from previous empirical studies using different methods (Porac *et al.*, 1989; Porac *et al.*, 1987). Accumulating evidence suggests that strategic groups are phenomena with an ontological status; they are not the contrivance of a single method. This is particularly important as industry level groupings, such as those based on SIC code assignments, become more and more tenuous.

Disagreement on strategic group assignment for some firms suggests, however, that future research might benefit from a revised view of strategic group structure. Existing research implicitly assumes that all firms follow a strategy, that this strategy is knowable by outsiders, and that all firms can be assigned unambiguously to a strategic group (even if the group has only one member). Few of the studies reviewed by Cool (1985) or by McGee and Thomas (1986) removed even a single firm from the analysis due to interpretability problems (Hatten, Schendel and Cooper, 1978, is an exception). The results of this study support the existence of strategic group structure, but suggest several ways in which current conceptualizations could be enriched.

1. *Every firm does not have to have a strategic position.* The overwhelming majority of informants in our study classified two-thirds of the BHCs into one of two strategic clusters. Agreement was lower for the other 6 firms in the population. Three firms (Boulevard Bankcorp, Lake Shore Bankcorp and Unibancorp) appear in all three clusters and, at the least, do not appear to be following a widely agreed upon strategy. A distinction must be made between strategic situation, which characterizes the unique environmental and internal circumstances challenging every firm, and strategic position, which characterizes the firm's response to those circumstances. Every firm faces a strategic situation. These data, however, suggest that the largely unexamined assumption of existing strategic group theory, that every firm has a *strategic position*, may be true for only some firms in the industry. The competitive positions of at least some firms are not easily assessed and/or readily assigned to a strategic group. When strategy is conceptualized as a pattern over time (Mintzberg, 1978), it is quite likely that some firms do not have a coherent strategy. Including such firms will diminish the usefulness of studies observing strategic position.

One particularly interesting implication of this argument for future research is that past correlational studies might be usefully re-examined. For example, the ambiguous results of studies attempting to link strategic group membership to profitability seem to have brought this line of inquiry to an impasse. If problematic firms are removed from group assignments, it is possible that more conclusive results could be achieved.

2. *Group membership is a matter of degree.* Strategic groups were 'fuzzy sets' when aggregated across informants in this study. A more fine-grained view of membership within groups might be profitable for many strategic group studies. Our results suggest that a strategic group might be best conceptualized as a core group of firms that define the group position and secondary firms that are aligned with core firms in many essential respects, though they also make some unique strategic decisions. Porter (1980: 154) implicitly acknowledges the possibility of ambiguously defined groups when he advises analysts to draw many strategic group maps using different dimensions depending upon the analyst's pur-

poses. However, no published empirical work has yet taken this approach.

The general point worth considering is that some firms are prototypical of a group's position, while others are not. Categorization theorists label this phenomenon 'membership gradience' (Berlin and Kay, 1969; Zadeh, 1965). However, it is also probable that the firms included in a particular analysis will determine which firms are core and which are secondary (Lakoff, 1987). A map of the financial services industry (Fombrun and Zajac, 1987) provides different results than one which includes commercial banks only (Passmore, 1985). Reger (1990a) pursues the ramifications of this point for the design of competitive positioning research.

3. *Some groups may be tightly associated while others are more diverse.* One interesting observation on the pattern of cluster formation from our data analysis is that some firms are rapidly linked by clustering algorithms while others lie at greater distance and are incorporated into a group much later in the clustering procedure. The implication is that some firms in an industry are quite similar while others, though associated, are more disparate. Studies of performance, and other potential correlates of group membership, again might benefit from distinguishing 'tight' and 'loose' groups.

4. *Overlapping group membership may characterize some industries.* Our data suggest that strategic groups may be overlapping at their periphery, with a small set of firms sharing some strategic characteristics with one group and other strategic characteristics with another. While this possibility muddies the ideas of symmetry and simplification that are basic attractions of the strategic groups idea, allowing overlap may be necessary if we wish to more realistically map complex industries. The existence of overlap also raises some interesting research questions. Firms at the intersection of two existing groups may indicate a potentially viable location for new group formation, for example, or they may represent the problem of literally being 'stuck in the middle' (Porter, 1980).

5. *For periods of time, group structure may not exist or may not be apparent.* Cool (1985) and Fiegenbaum (1987) identify stable strategic time periods in an industry by stable strategic group membership. Taking the previous suggestions (1 through 4) to an extreme, it may be

necessary to allow not only for shifting group membership between stable time periods, but for periods in which an industry can not be usefully defined in terms of strategic group structure at all. Mintzberg (1978) suggests that firms often go through periods of inchoate search before establishing a strategic direction or redirection. The same may be true for industries as a whole. Economic conditions can be in such flux that firms will not be able to follow consistent strategies, and, as firms change position this movement will tend to further destabilize the industry. However, we expected less stability in this study of bank holding companies than we found. Even in a period of uncertainty and search for new strategies—like the one that currently characterizes the banking industry—it may be that similar firms muddle in similar ways and the strategic groups idea remains useful.

In summary, based on our findings from the bank study, we propose that strategic group structure be reconceptualized as graphically depicted in Figure 1. This figure provides a general picture of strategic groups composed of the following kinds of firms:

- *Core Firms* that are tightly associated and define the basic 'recipe' of a strategic group.
- *Secondary Group Members* that implement the strategic group recipe less consistently than core firms.
- *Transient firms* whose strategies are changing from one strategic position to another, but along dimensions common to other firms in the industry.

Left out of this schematic are two kinds of firms:

- *Misfit firms* whose strategies are inconsistent over time.
- *Idiosyncratic firms* whose strategies cannot be easily expressed in terms of the key strategic dimensions used to define the competitive positions of most firms in the industry.

DIRECTIONS FOR FUTURE RESEARCH

If strategic group membership is reconceptualized as a matter of degree, a number of interesting research possibilities become available.

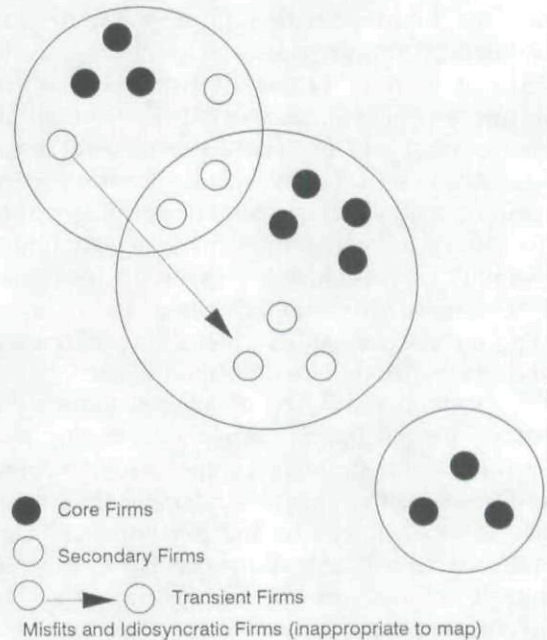


Figure 1. A reconceptualization of strategic group relationships

1. *Strategic groups research provides an opportunity to look more closely at viable strategic alternatives.* If groups are defined solely on dimensions associated with the core members of the group, clearer insights into strategic alternatives may be forthcoming. Deviation from the core might indicate either inability to implement the group recipe completely or deliberate attempts to differentiate the firm from core members. The distinction between imitability and differentiation might be addressed more directly by distinguishing core and secondary firm characteristics.

2. *Intragroup dissimilarities may be clarified by exploring the roles different types of firms play in industry dynamics.* For instance, the extent to which core firms serve as referents for other members or tend to be first movers are promising research avenues. We hypothesize that core firms will vary in terms of innovativeness, but that they will serve as key referents and tend to dominate external views of the industry.

Transients, misfits and idiosyncratic firms may provide important clues as to future strategic options or necessities in an industry, and are therefore important to those interested in industry evolution and competitive dynamics (Lewin and Minton, 1986). From a population ecology perspective, these firms may represent the 'gene

pool' for future variation in response to new conditions; they provide some evidence as to what may be more or less attractive positions in the future. These firms provide the counterbalance to what can be learned from core firms. Core firms reflect the current consensus of opinion about viable modes of operating within an industry context; outlier firms suggest future possibilities. This evidence is especially important as exogenous forces impinge upon the industry or powerful competitors change the nature of competitive dynamics within the industry.

3. *Attention should be directed at more valid methods for determining group membership and structure.* Valid strategic groups should account for outcomes of interest in strategic management such as strategic choice and performance. Our results tentatively suggest that cognitively-derived strategic groups are promising for exploring performance outcomes and independent survival in a consolidating industry. More research should focus on the usefulness of strategic groups for predicting other strategic outcomes. One focus of this inquiry might be on the relationships between 'competitive' groups (firms that compete against each other) and 'strategic' groups (firms that compete using similar strategies). The interaction between changes in strategic positioning as perceived by managers and changes evident in 'objective' data is also an alluring research area. Under what conditions do managerial perceptions lead, or lag, economic and financial indicators of changing positions?

4. *The study of cognitive strategic groups can enrich the theory of how analytically identified groups form and why they tend to remain stable.* We suggest that the 'analytic' strategic groups formed by observable variations in accounting and financial data (Cool, 1985; Fiengenbaum, 1987) owe their regularities, at least in part, to the process of enactment (Weick, 1979). It is reasonable to expect that the groups managers perceive will have real effects on strategy reformulation, strategic action and subsequently on industry structure. Economic realities make strategic similarities likely, but cognitive processes also may be expected to reinforce economic influences and thus help maintain the existing group structure. As Pfeffer and Salancik note, 'environments are not given realities, but created through a process of attention and interpretation' (1978: 13). Enactment of strategic

groups may be aided by several processes including simplification, elaboration, interaction, borrowed experience, and expectations. In aggregate, these processes provide the mechanisms whereby cognitive and economic realities converge.

The effect of cognitive simplification, we suggest, is not just that strategists will tend to think of competitors in clusters, but that they will tend to recognize similarities between their own firm and a set of fellow firms and act accordingly. While the link between thought and action remains problematic in social science research, most strategy researchers assume some connection. It then follows that cognitive simplification should contribute to simplification of action. As firms recognize links between themselves and others, and act based on these apparent simplifications, groupings of firms within an industry will tend to become even more distinct.

Cognitive elaboration, the process which creates information about competitors, may also lead to the enactment of strategic groups. To the extent strategists find similarities between their firm and others, and act upon these similarities, they can create further alignment in economic realities. For example, if firm A believes its competitor B faces similar production capacity constraints (whether this is true or not), it may monitor and react to B's capacity expansion decisions in a number of ways that work to fulfill that expectation. If B begins to act as if it might increase its capacity (by initiating exploratory studies, for example), A may begin to contemplate a similar move that it had not here-to-fore considered. Firm A interprets B's actions in a way that leads it to imitate B's strategy. A's assumption of the need for competitive reaction thus serves to bring the two firms' strategies into closer alignment. Our point, again, is that perceived similarities, whether or not they accurately reflect reality initially, channel actions into a smaller number of alternatives than might otherwise be the case and strategic groups are likely to further coalesce.

Likewise, interaction among strategists and with industry analysts, distributors and other third parties tends to result in similar thought patterns (Porac *et al.*, 1989). Executive fraternization makes it more likely that firms will react in similar ways to threats and opportunities within the industry—further clustering firms.

While shared information and interpretation are expected to promote similar decisions, cognitive clustering is even more likely when strategists 'borrow experience' through observing other firms in the industry as a substitution for direct experimentation with strategic alternatives (Huff, 1982). As firms experience success and failure, their actions will tend to be copied and/or avoided by others in the industry. Over time we expect this process of replication and circumvention to make a major contribution to clustering firms within an industry.

As strategists scrutinize other firms within an industry and develop mental frameworks for interpreting what they see, they come to expect certain behavior and act on these expectations. Expectations thus are another force for channeling firms into a limited repertoire of behavior. If a firm is classified as aggressive, for instance, small changes in its pricing policy will be given increased importance and retaliatory responses are more likely. Similar actions by another firm, perceived to be following a less aggressive path, will be taken less seriously. Such expectations exist not only among competitors, but among buyers, suppliers and potential entrants. The result, particularly given limited ability to make distinctions among firms due to cognitive overload, is to further homogenize both the perception of strategic options within an industry and the repertoire of strategic actions taken.

LIMITS TO COGNITIVE GROUP RESEARCH

In our view, these are strong arguments for assuming that strategists' cognitive structures will have a material effect on strategic choices. As choices channelled by managerial perception contribute to the economic structure of an industry, the external stimulus for future perceptions of similarity are further reinforced. In other words, cognitive groups tend to reinforce economic groups. They combine with forces at other levels that create institutional isomorphism (DiMaggio and Powell, 1983).

The spiral of mutual reinforcement should be balanced by evolutionary changes in technology, buyer demographics and so on, along with the declining profitability of overpopulated strategic positions. These evolutionary agents force firms

to change their strategies and break groups apart. Research shows, however, that established mental maps lead individuals to ignore contradictory data (e.g., Prahalad and Bettis, 1986). Thus a problem with cognitive associations is they may not reflect evidence from a changing world. Cognitive structures also are inevitably based on incomplete knowledge, and even the simplest inferences are frequently biased (Schwenk, 1984).

These limitations on the accuracy of managerial perceptions limit the research utility of managerial observations in general, and cognitive strategic groups in particular, but they do not justify abandoning cognitive data. In our view, strategy researchers interested in competitive interaction should treat participants in an industry as expert witnesses and important sources of data. Many biases and limitations can be mitigated, if not canceled, by broadly seeking opinions among industry participants. Furthermore, accounting and financial data have their own categorization and reporting biases that might be more easily seen when compared with the categorizations of industry participants.

Our results must be interpreted with caution since the study focuses on only one geographic area of one industry. The banking industry in Chicago was facing unique environmental challenges stemming primarily from state deregulation. Thus, future research will be necessary to determine the generalizability of these results to other industries facing other environmental conditions. Another limitation has to do with the small number of informants; the intensive interviewing needed to collect rich data necessarily limits cognitive studies. Future research might be usefully directed to the optimal number of subjects necessary to establish a 'cognitive community' (Porac *et al.*, 1989). Again, further research is required to examine these generalizability issues.

CONCLUSION

Strategic groups offer a promising way to summarize competitors' strategies in industries populated by so many competitors that individual consideration of each firm is impossible. This study theoretically argues and finds empirically that even in a changing industry strategists cognitively group their competitors' strategies.

In fact, there is strong uniformity across our sample of informants in the grouping of almost all 18 firms studied. These groups accurately predicted subsequent performance differences and acquisition patterns.

Managers group firms in subtle ways not captured by economically oriented research. If more subtle distinctions in strategic group membership along the lines shown in Figure 1 are identified, we believe new utility in the strategic group concept may emerge. Even more interesting, in our view, is the potential of a refined concept of strategic groups for further understanding competitive positioning. What are the differences between core and secondary group members? Are there barriers to mobility even within groups? How will firms perceived as following aspects of more than one strategy fare? Are they stuck in the middle or are they developing a new and viable niche? Once questions of positioning like these become the focus for research, it becomes more and more interesting to include practitioners as a source of data on strategic groups. The fact that we found such strong consensus among informants, even in a rapidly changing industry, suggests that practitioners can be a reliable and valid source of data. The apparent ability of these observers to capture nuances in association among competitors over time suggests that this data can considerably enrich archival studies.

ACKNOWLEDGEMENTS

The authors wish to thank Irene Duhaime, Luis Gomez-Mejia, Richard Gooding and anonymous *Strategic Management Journal* reviewers for their comments.

REFERENCES

- Barney, J. B. and R. E. Hoskisson. 'Strategic groups: Untested assertions and research proposals'. *Managerial and Decision Economics*, **11**, 1990, pp. 187-198.
- Berlin, B. and P. Kay. *Basic Color Terms: Their Universality and Evolution*. University of California Press, Berkeley, CA, 1969.
- Boeker, W. 'Organizational strategy: An ecological perspective', *Academy of Management Journal*, **34**, 1991, pp. 613-635.
- Caves, R. E. and P. Ghemawat. 'Identifying mobility barriers', *Strategic Management Journal*, **13**, 1992, pp. 1-12.
- Cool, K. O. 'Strategic group formation and strategic skills: A longitudinal analysis of the U.S. pharmaceutical industry, 1963-1982'. Unpublished doctoral dissertation, Purdue University, May 1985.
- Cool, K. O. and D. E. Schendel. 'Strategic group formation and performance: The case of the U.S. pharmaceutical industry, 1963-1982'. *Management Science*, **33**(9), 1987, pp. 1102-1124.
- Cool, K. O. and D. E. Schendel. 'Performance differences among strategic group members', *Strategic Management Journal*, **9**, 1988, pp. 207-223.
- Dess, G. G. and P. S. Davis. 'Porter's (1980) generic strategies as determinants of strategic group membership and organizational performance', *Academy of Management Journal*, **27**, 1984, pp. 467-488.
- DiMaggio, P. J. and W. W. Powell. 'The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields', *American Sociological Review*, **48**(2), 1983, pp. 147-160.
- Dunn, W. N., A. G. Cahill, M. J. Dukes and A. Ginsberg. 'The policy grid: A cognitive methodology for assessing policy dynamics'. In W. N. Dunn (ed.), *Policy Analysis: Perspectives, Concepts, and Methods*, JAI Press, New York, 1986, pp. 355-375.
- Dunn, W. N. and A. Ginsberg. 'A sociocognitive network approach to organizational analysis', *Human Relations*, **40**(11), 1986, pp. 955-976.
- Dutton, J. E. 'Separating the wheat from the chaff: The important dimensions of strategic issues', Conference on Managerial Thinking in Business Environments, Boston University, 1987.
- Dutton, J. E., L. Fahey and V. K. Narayanan. 'Toward understanding strategic issue diagnosis', *Strategic Management Journal*, **4**, 1983, pp. 307-324.
- Eden, C., S. Jones and D. Sims. *Thinking in Organizations*, Macmillan, London, 1979.
- Eden, C., S. Jones and D. Sims. *Messing About in Problems*, Pergamon, Elmsford, NY, 1983.
- Everitt, B. *Cluster Analysis*, second edition, Heinemann Educational Books, London, 1980.
- Fiengenbaum, A. 'Dynamic aspects of strategic groups and competitive strategy: Concepts and empirical examination in the insurance industry'. Unpublished doctoral dissertation, University of Illinois at Urbana-Champaign, 1987.
- Fiengenbaum, A. and H. Thomas. 'Strategic groups and performance: The U.S. insurance industry, 1970-1984', *Strategic Management Journal*, **11**, 1990, pp. 197-215.
- Fombrun, C. J. and E. J. Zajac. 'Structural and perceptual influences on intraindustry stratification', *Academy of Management Journal*, **30**, 1987, pp. 33-50.
- Fransella, F. and D. Bannister. *A Manual for Repertory Grid Technique*, Academic Press, New York, 1977.
- Ginsberg, A. 'A cognitive methodology for assessing strategic diversity', Conference on Managerial Thinking in Business Environments, Boston University, 1987.

- Green, P. E. 'A new approach to market segmentation', *Business Horizons*, February 1977, pp. 61-73.
- Hartigan, J. A. *Clustering Algorithms*, Wiley, New York, 1975.
- Hatten, K. J. and M. L. Hatten. 'Strategic groups, asymmetrical mobility barriers and contestability', *Strategic Management Journal*, 8, 1987, pp. 329-342.
- Hatten, K. J., D. E. Schendel and A. Cooper. 'A strategic model of the U.S. brewing industry: 1952-1971', *Academy of Management Journal*, 21, 1978, pp. 592-610.
- Huff, A. S. 'Industry influences on strategy reformulation', *Strategic Management Journal*, 3, 1982, pp. 119-131.
- Huff, A. S. *Mapping Strategic Thought*, Wiley, Chichester, 1990.
- Hunt, M. S. 'Competition in the major home appliance industry, 1960-1970'. Unpublished doctoral dissertation, Harvard University, 1972.
- Jick, T. D. 'Mixing qualitative and quantitative methods: Triangulation in action', *Administrative Science Quarterly*, 24, 1979, pp. 602-611.
- Johnson, G. and H. Thomas. 'The industry context of strategy, structure and performance: The U.K. brewing industry', *Strategic Management Journal*, 8, 1987, pp. 343-361.
- Johnson-Laird, P. N. and P. C. Wason. *Thinking*, Cambridge University Press, Cambridge, MA, 1977.
- Kelly, G. A. *The Psychology of Personal Constructs*, Vols. 1 and 2, Norton, New York, 1955.
- Kuhn, T. *The Structure of Scientific Revolutions*, University of Chicago Press, Chicago, IL, second edition, 1970.
- Kumar, K. R., H. Thomas and A. Fiegenbaum. 'Strategic groupings as competitive benchmarks for formulating future competitive strategy: A modelling approach', *Managerial and Decision Economics*, 11, 1990, pp. 99-109.
- Lakoff, G. *Women, Fire, and Dangerous Things*, University of Chicago Press, Chicago, IL, 1987.
- Lawless, M. W., D. D. Bergh and W. D. Wilsted. 'Performance variations among strategic group members: An examination of individual firm capability', *Journal of Management*, 15, 1989, pp. 649-661.
- Lawless, M. W. and L. K. Finch. 'Choice and determinism: A test of Hrebiniak and Joyce's framework on strategy-environment fit', *Strategic Management Journal*, 10, 1989, pp. 351-365.
- Lawless, M. A. and L. F. Tegarden. 'A test of performance similarity among strategic group members in conforming and non-conforming industry structures', *Journal of Management Studies*, 28, 1991, pp. 645-664.
- Lewin, A. Y. and J. W. Minton. 'Determining organizational effectiveness: Another look, and an agenda for research', *Management Science*, 32, 1986, pp. 514-538.
- Lewis, P. and H. Thomas. 'The linkage between strategy, strategic groups, and performance in the U.K. retail grocery industry', *Strategic Management Journal*, 11, 1990, pp. 385-397.
- Mascarenhas, B. 'Strategic group dynamics', *Academy of Management Journal*, 32, 1989, pp. 333-352.
- Mascarenhas, B. and D. A. Aaker. 'Mobility barriers and strategic groups', *Strategic Management Journal*, 10, 1989, pp. 475-485.
- Mason, R. O. and I. I. Mitroff. *Challenging Strategic Planning Assumptions*, Wiley, New York, 1981.
- McGee, J. and H. Thomas. 'Strategic groups: A useful linkage between industry structure and strategic management', *Strategic Management Journal*, 7, 1986, pp. 141-160.
- McKinsey and Company. *Bankers' Merger and Acquisition Choices: Mapping a Course through Consolidation*, Bank Administration Institute, Rolling Meadows, IL, 1985.
- McNamee, P. and M. McHugh. 'Mapping competitive groups in the clothing industry (Part 2)', *Long Range Planning*, 22, 1989, pp. 89-97.
- Miles, R. E. and C. C. Snow. *Organization Strategy, Structure, and Process*, McGraw-Hill, New York, 1978.
- Miller, G. A. 'The magic number seven plus or minus two: Some limits to our capacity for processing information', *Psychology Review*, 50, 1956, pp. 81-97.
- Mintzberg, H. D. 'Patterns in strategy formation', *Management Science*, 24, 1978, pp. 934-948.
- Nohria, N. and C. Garcia-Pont. 'Global strategic linkages and industry structure', *Strategic Management Journal*, 12(Special Issue), 1991, pp. 105-124.
- Passmore, S. W. 'Strategic groups and the profitability of banking'. Research paper No. 8501, Federal Reserve Bank of New York, New York City, 1985.
- Pfeffer, J. and G. R. Salancik. *The External Control of Organizations*, Harper & Row, New York, 1978.
- Porac, J. F. and H. Thomas. 'Taxonomic mental models in competitor definition', *Academy of Management Review*, 15, 1990, pp. 224-240.
- Porac, J. F., H. Thomas and C. Baden-Fuller. 'Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers', *Journal of Management Studies*, 15, 1989, pp. 397-416.
- Porac, J., H. Thomas and B. Emme. 'Understanding strategists' mental models of competition.' In G. N. Johnson, (ed.), *Business Strategy and Retailing*. Wiley, New York and Chichester, 1987, pp. 59-79.
- Porter, M. E. *Competitive Strategy*. Free Press, New York, 1980.
- Powell, W. W. and P. J. DiMaggio (eds.). *The New Institutionalism of Organizational Analysis*. University of Chicago Press, Chicago, IL, 1991.
- Prahalad, C. K. and R. P. Bettis. 'The dominant logic: A new linkage between diversity and performance', *Strategic Management Journal*, 7, 1986, pp. 485-501.
- Reger, R. K. 'Managerial thought structures and competitive positioning'. In A. S. Huff (ed.), *Mapping Strategic Thought*, Wiley, Chichester, 1990a, pp. 71-88.
- Reger, R. K. 'The repertory grid technique for eliciting the content and structure of cognitive constructive systems'. In A. S. Huff (ed.), *Mapping Strategic Thought*, Wiley, Chichester, 1990b, pp. 301-309.
- Reger, R. K. and T. B. Palmer. 'Cognitive schemas of competition: Understandings of strategy in a turbulent industry'. Paper presented at the Academy of Management Meetings, August, 1990.

- Reynolds, H. T. *Analysis of Nominal Data*, Sage, Beverly Hills, CA, 1977.
- Romesburg, H. C. *Cluster Analysis for Researchers*, Lifetime Learning Publications, Belmont, CA, 1984.
- Rosch, E. 'Principles of categorization'. In E. Rosch and B. Lloyd (eds), *Cognition and Categorization*, Erlbaum, Hillsdale, NJ, 1978, pp. 27-48.
- Rosch, R. 'Prototype classification and logical classification: The two systems'. In E. Scholnick (ed.), *New Trends in Cognitive Representation: Challenges to Piaget's Theory*, Lawrence Erlbaum Associates, Hillsdale, NJ, 1981, pp. 73-86.
- SAS Institute, Inc. *SAS Users Guide: Statistics*, Version 5 Edition, SAS Institute, Cary, NC, 1985.
- Schroeder, D. M. 'A dynamic perspective on the impact of process innovation upon competitive strategies', *Strategic Management Journal*, 11, 1990, pp. 25-41.
- Schwenk, C. R. 'Cognitive simplification processes in strategic decision-making', *Strategic Management Journal*, 5, 1984, pp. 111-128.
- Simon, H. A. *Administrative Behavior*, Macmillan, New York, 1945.
- Spender, J.-C. 'Strategy making in business'. Unpublished doctoral dissertation. Manchester Business School, University of Manchester, 1980.
- Spender, J.-C. *Industry Recipes*, Basil Blackwell, Oxford, England, 1989.
- Stubbart, C. I. 'The cognitive psychology of strategic planning: Research opportunities', National Academy of Management Meetings, August 1986.
- Stubbart, C. I. 'Cognitive science and strategic management: Theoretical and methodological issues', National Academy of Management Meetings, August 1987.
- Sudharshan, D., H. Thomas and A. Fiegenbaum. 'Assessing mobility barriers in dynamic strategic groups analysis', *Journal of Management Studies*, 28, 1991, pp. 429-438.
- Tallman, S. B. 'Strategic management models and resource-based strategies among MNEs in a host country', *Strategic Management Journal*, 12(Special Issue), 1991, pp. 69-82.
- Thomas, H. and N. Venkatraman. 'Research on strategic groups: Progress and prognosis', *Journal of Management Studies*, 25, 1988, pp. 537-555.
- Tushman, M. L. and E. Romanelli. 'Organizational evolution: A metamorphosis model of convergence and reorientation', *Research in Organizational Behavior*, vol. 7, JAI Press, Greenwich, CT, 1985, pp. 171-222.
- Ulrich, D. and B. McKelvey. 'General organizational classification: An empirical test using the United States and Japanese electronics industries', *Organization Science*, 1, 1990, pp. 99-118.
- Walton, E. 'Managers' prototypes of financial terms', *Journal of Management Studies*, 23, 1986, pp. 679-699.
- Weick, K. E. *The Social Psychology of Organizing*, Addison-Wesley, Reading, MA, 1979.
- Zadeh, L. 'Fuzzy sets', *Information and Control*, 8, 1965, pp. 338-353.
- Zajac, E. and S. M. Shortell. 'Changing generic strategies: Likelihood, direction, and performance implications', *Strategic Management Journal*, 10, 1989, pp. 413-430.

APPENDIX

This appendix lists examples of the dimensions elicited in the interviews. In all, 331 dimensions were elicited, or approximately 13 per informant. The dimensions presented here have been grouped together by categories agreed upon by three raters. The numbers in parentheses indicate the percentage of informants who provided dimensions in that category (only those categories where at least 25 percent of informants gave dimensions are presented).

Every informant provided at least one idiosyncratic dimension (92 of the 331 dimensions or 28 percent of the total). Some examples of dimensions provided by only one informant are 'ethnic clientele vs. broad based clientele,' 'supports liberalized branching laws vs. unit banks,' and 'interested in buying savings and loans vs. not interested in buying savings and loans.' Additional information on procedures for categorizing the

dimensions and results of the dimension level analysis are available from the first author.

Geographic Scope (88% of informants)

national market vs. local strategy
international presence vs. no international presence

Target Market: Lending (88%)

money center, wholesale vs. retail operation
middle market vs. retail, small business

Growth Strategies (79%)

planned expansion through acquisition vs. internal development
growth vs. retrenchment and survival were major concerns

Location (71%)

downtown area vs. suburban operation
loop area competitors vs. suburban banks

Management (63%)

ability to implement strategic focus vs. nonstrategically focused
average management capabilities vs. high management capabilities

HC Structure and Management (58%)

unit bank vs. multibank holding company
'federal approach': collection of banks vs. centralized

Trust (54%)

strong trust department vs. no trust department
trust department important (commercial and retail) vs. personal trust only

Product/Market Scope (42%)

broad range of financial services vs. focused on a niche
full service banks vs. limited services

Successful Company (29%)

good earnings performers vs. poor earnings performance
control overhead vs. not careful with overhead

Ownership and Control (25%)

public ownership vs. private ownership
independently owned and managed by owners vs. managers don't control

Asset Based Lending (25%)

asset based lenders vs. unsecured lending
asset based lending important to strategy vs. asset based lending not important to strategy

Copyright of Strategic Management Journal is the property of John Wiley & Sons, Inc. / Business and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.