

STRATEGIC PERSISTENCE IN THE FACE OF CONTRARY INDUSTRY EXPERIENCE:
TWO EXPERIMENTS ON THE FAILURE TO LEARN FROM OTHERS *

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Strategic Persistence in the Face of Contrary Industry Experience: Two Experiments on the Failure to Learn from Others

Empirical studies indicate that organizations do not always learn from the experience of others in their industry and thus persist with ineffective strategies. This can be partly explained by cognitive biases that impact strategic decision making. Using two experiments with a realistic strategic decision and actual industry data, we found strategic persistence more likely under three conditions. One, when evidence against a strategy was more, rather than less, ambiguous, allowing the prior-hypothesis bias to operate. Two, when decision makers felt highly responsible for making the initial erroneous choice and thus felt the need to justify their choice despite contrary evidence. And three, when decision makers were high self-monitors, i.e., those who are very perceptive and responsive to social cues.

INTRODUCTION

The managers who make strategic decisions for organizations are almost always intelligent and motivated. Yet, often the decisions they make are wrong which may cause their organizations to decline or even fail. In this paper, we investigate one common type of strategic decision making error - persistence with a strategy despite evidence against its effectiveness. This error is a subclass of strategic persistence, which is the tendency for organizations' strategies to exhibit stability over time (Finkelstein and Hambrick, 1990). Although the broad phenomenon of strategic persistence is not necessarily bad for organizations, the instances of strategic persistence that we examine are -- they represent persistence with strategies that are less effective than available alternatives. Persistence with bad decisions, strategic or otherwise, is often referred to as escalation of commitment (Brockner, 1992; Staw, 1997). Therefore, the phenomenon that we study may be seen as the intersection between strategic persistence and escalation of commitment.

Evidence against the effectiveness of a strategy can come from an organization's own experience, or from the experience of others. Lant, Milliken and Batra (1992) have demonstrated that strategic persistence can result from a failure to learn from one's own experiences. In this paper, we are particularly interested in strategic persistence as an incidence of the failure to learn from others' experience (Huber, 1991; Miner and Haunschild, 1995; Reed and DeFillippi, 1990). We take this position because others' experience is potentially an important source of feedback on the effectiveness of strategies, but, according to empirical evidence, it is difficult to learn from others' experience. Part of the potential value of others' experience is that it is more plentiful and more varied than an organization's own experience (Miner and Haunschild, 1995). Also important is that others' experience may be 'cheap' to an organization in the sense that an organization may be able to learn without enduring the costs associated with accumulating experience. This is particularly important in the context of organization strategy, where the cost of employing a bad strategy might be poor financial performance or outright failure of the organization (Ingram and Baum, 1997; Miner, Kim,

Holzinger and Haunschild, 1999). There are obvious benefits if organizations can learn vicariously about the effectiveness of strategies -- organizations that must rely solely on their own experience to evaluate a particular strategy may not survive long enough to apply what they learn.

Unfortunately, the available empirical evidence indicates that it is difficult to realize these potential benefits of others' experience. A number of learning-curve studies have found that, in the absence of a linkage between two organizations, the experience of one organization does not improve the performance of the other (Darr, 1994; Darr, Argote and Epple, 1995; Baum and Ingram, 1998). However, explanations of the systematic failure to benefit from others' experience are limited despite the importance for firm survival and growth. Therefore, in this paper we explicitly investigate why organizations persist with strategies despite evidence from the experience of others that there are more effective alternatives.

Among the explanations offered for strategic persistence are that early successes can lead organizations into competency traps (March, 1991; Miller and Chen, 1994), and that political interests of organizational participants can result in a preference for the status quo (Miller, 1991). Without taking away from such organizational explanations of strategic persistence, we offer complementary explanations that focus on cognitive processes. The relevance of cognitive processes for strategic decision making is central to upper-echelons theory, which builds on the research of the Carnegie School (Cyert and March, 1963; March and Simon, 1958) to argue that the values, knowledge and preferences of top-management teams affect strategic choice (Hambrick and Mason, 1984). From this position, it has been argued that characteristics of the top-management-team, such as tenure, affect information processing and thereby contribute to strategic persistence (Finkelstein and Hambrick, 1990; Hambrick, Geletkanycz and Fredrickson, 1993). In addition to individual differences in information processing, a number of systematic (across individuals) biases in processing information and making decisions have been demonstrated (Gilovich, 1991; Kahneman, Slovic and Tversky, 1982; Nisbett and Ross, 1980; Staw, 1997; Tetlock, 1985) and argued to affect strategic decision making (Barr, Stimpert, and

Huff, 1992; Schwenk, 1989). We focus on these cognitive biases in order to contribute to a fuller picture of the role of cognitive processes for strategic persistence.

Cognitive biases are systematic mistakes that operate to impair a strategist's perception, information processing, and decision making (Barnes, 1984; Schwenk, 1988; Stubbart, 1989; Walsh, 1995). Due to their impact on the ability to process information and make sound strategic decisions (Schwenk, 1984; Walsh, 1995), they can impede learning from the experience of others in the industry and hence lead to strategic persistence. Strategy researchers have laid the foundations for our research by describing the relevance and impact of some cognitive biases to strategic planning (Barnes, 1984), strategic decision-making (Schwenk, 1984; 1988), organizational renewal (Barr, Stimpert and Huff, 1992), and competition (Zajac and Bazerman, 1991). These works have selectively analyzed only those of the many possible cognitive biases that have a bearing on strategic problems and contexts (Eisenhardt and Zbaracki, 1992). However, with few exceptions (e.g., Bateman and Zeithamel, 1989; Bukszar and Connolly, 1988), much of the work is not empirical.

The most significant empirical evidence of cognitive biases comes from a huge literature in experimental psychology. While the progress of this literature is impressive, there is a growing "contextualist" critique which asserts that cognitive research on decisions has overemphasized the search for universal laws, and underemphasized the examination of how decisions are really made in context. As Tetlock (1985: 303-304) puts it, "The appropriate question is not 'What kind of machine is the human decision processor?' but rather, 'What kinds of machines do people become when confronted with various types of tasks in various types of environments?'" The decisions used in the extant experimental literature are often simple and artificial. The relevant experiments also rely heavily on undergraduate subjects who may be neither intimately familiar with the decision context nor highly motivated. Further, there is evidence that some decision biases do not operate at all when subjects are asked to make realistic decisions (Cheng and Holyoak, 1985; Schoorman, Mayer, Douglas and Hetrick, 1994).

In response to these problems, some decision-making researchers have advocated that experimental research use more realistic decisions with an eye to better simulating the behavioral forces that operate in real decision situations (Tetlock, 1985; Staw, 1997). Strategy researchers have echoed the contextualist critique, questioning the generalizability of findings from experimental psychology to strategic decision making (Schwenk, 1995). Consequently, they have argued that cognitive biases should be explored in the specific context of strategic decisions (Eisenhardt and Zbaracki, 1992; Priem and Harrison, 1984).

With these concerns and exhortations in mind, we conducted two laboratory experiments to explore the cognitive biases behind strategic persistence in the face of experience from others that indicates the strategy is bad. The subjects were MBA students, most with work experience. They were familiar with the sort of strategic-decision used in the experiments, and we gave them a monetary incentive to make good decisions. The decision context was one where strategic persistence has already been shown to exist, and subjects were given actual industry data. Responding to recent arguments that persistence behavior has multiple cognitive causes (Brockner, 1992; Staw, 1997), we focused on two cognitive biases, selected for their compelling significance to strategic decision making. The first experiment, described in the subsequent section, explored the operation of the prior-hypothesis bias under different informational conditions. Given that the ambiguity of information is one of the key challenges that strategic decision makers face (Finkelstein and Hambrick, 1990), our goal was to identify the role of information ambiguity on strategic persistence. In the second experiment, we explored the role of decision-maker responsibility as a cause of strategic persistence. Our motivation was that responsibility (and accountability) is a particularly salient aspect of strategic decision making which has often been overlooked in the experiments that evidence cognitive biases (Tetlock, 1985). In the second experiment, two hypotheses on the effect of responsibility were tested. One is whether responsibility for implementing a strategy influences persistence in the face of contrary evidence, and the second is whether decision makers who are highly perceptive and responsive to social expectations are more likely to persist with strategies.

EXPERIMENT 1: EVIDENCE AMBIGUITY AND STRATEGIC PERSISTENCE

"The prevailing view of the person within the cognitive research program has been that of a theory-driven thinker who relies heavily on preconceptions in interpreting new information" (Tetlock, 1992: 352). The tendency to interpret evidence in favor of a prior hypothesis, referred to as the prior-hypothesis bias, has been identified as being of potential importance to strategic management (Barnes, 1984). Decision makers overvalue evidence in support of their hypothesis, and undervalue evidence against it (Lord, Ross, and Lepper, 1979; Nisbett and Ross, 1980, chapter 8). Consequently, they sometimes retain their hypothesis even when evidence suggests it should be rejected in favor of the alternatives.

An important factor in the operation of the prior-hypothesis bias is the relative ambiguity of the available evidence. By ambiguous, we mean that the relationships between variables are not clearly apparent. As Gilovich (1991: 53) notes, "in evaluating more clear-cut information, our perceptions are rarely so distorted that information that completely contradicts our expectations is seen as supportive." Ambiguous feedback has been recognized as a contributor to persistence with bad decisions (Bowen, 1987; Russo and Shoemaker, 1989; Staw, 1997). The more ambiguous the feedback, the easier it is for a number of cognitive processes to operate to distort a decision maker's interpretation of it.

In particular, subjects faced with ambiguous feedback are more free to focus on elements of the feedback that confirm their prior hypothesis. Crocker (1982) illustrated this preference for confirmatory evidence in a study in which subjects were asked what information they would need to estimate the relationship between practicing or not practicing the day before a tennis match, and the outcome of the match. Information on the occurrence of events in all four cells of the practice/outcome matrix (practice-win, practice-lose, no practice-win, no practice-lose) is required to accurately estimate the relationship between practice and outcome. However, subjects' requests for information were biased by the hypotheses they were testing. Subjects that were asked if there was a relationship between practicing before a match and winning were most likely to ask for information from the practice-win cell. Subjects that were asked if there was a

relationship between practicing before a match and losing were most likely to ask for information from the practice-lose cell. Gilovich (1991: 31-32) argues that the most likely reason for preference for confirmatory evidence is that it is easier to deal with cognitively:

Consider someone trying to determine whether cloud seeding produces rain. An instance in which cloud seeding is followed by rain is clearly relevant to the issue in question--it registers as an unambiguous success for cloud seeding. In contrast, an instance in which it rains in the absence of cloud seeding is only indirectly relevant -- it is neither a success nor a failure. Rather, it represents a consequence of not seeding that serves only as part of a baseline against which the effectiveness of seeding can be evaluated. Additional cognitive steps are necessary to put this information to use.

Often, the evidence from the experience of others regarding the quality of a previous strategic decision is just the type of ambiguous evidence that allows decision makers to exercise their preference for confirmatory evidence, and thereby exhibit the prior-hypothesis bias. The multiple influences on organizational performance effectively create hundreds of "cells" that are all necessary to evaluate the relationship between strategy and performance. Given the multiple influences on performance, few strategies will be so lethally bad that a decision maker won't be able to find *some* organizations that employ them and perform well. If decision makers focus on this data to the exclusion of other relevant data, they will see support for their preferred strategy even if the balance of evidence is against it.

Ambiguous evidence may affect not only which data people attend to, but also the interpretation of data. The multiple determinants of organizational performance make it easy to rationalize away evidence against the effectiveness of a strategy (Mosakowski, 1997). Without the discipline on interpretation that unambiguous evidence provides, instances where an organization flounders or fails while employing a favored strategy can be attributed to other factors, such as the wrong organizational structure. Instances where organizations with unfavored strategies succeed can likewise be attributed to reasons other than the strategy. If the evidence against a strategy is sufficiently ambiguous to allow multiple interpretations, we believe that decision makers will make the interpretations that support their prior hypotheses.

Emshoff and Mitroff (1978: 50) illustrate the role of the preference for confirmatory evidence in strategic persistence in a case study of a cereal manufacturer: "Because product quality was so fundamental to Premium Foods, the senior executives were committed to continue the strategy if there was any way to justify it." The executives of General Foods received feedback from scientific experiments that indicated their strategy of product quality was not creating value for the customer. In response, they questioned the methodology of the experiments, even though it was a standard methodology in their industry. They commissioned another study, using a different and more expensive methodology. The second study yielded different results and supported the efficacy of the strategy of product quality. Apparently, "the company was willing to spend much more money on methods to confirm predispositions than on methods that might negate them" (Emshoff and Mitroff, 1978: 51).

The simple fact that decision makers persist with strategies when the evidence against the strategy is higher in ambiguity is not surprising. There are many perfectly sensible reasons to persist in the face of ambiguous evidence (Bowen, 1987). The above arguments, however, suggest something more, and for decision makers, more ominous, about the relationship between persistence and ambiguous evidence. The arguments that decision makers select and interpret information to favor their prior hypotheses suggest that decision makers will not view ambiguous evidence as lacking. Given their goals of supporting prior hypotheses, ambiguous evidence is perfectly satisfactory. As the case of Premium Foods indicates, good evidence is evidence that justifies the strategic status quo. Therefore, we claim not only that strategic persistence is more likely when evidence against a strategy is higher in ambiguity, but also that this effect will hold even when controlling for the decision maker's satisfaction with the evidence.

Hypothesis 1: Strategic decision makers are more likely to persist with a strategy when they are presented with evidence against the strategy that is high in ambiguity than when they are presented with evidence against the strategy that is low in ambiguity. This effect will hold even after controlling for the decision maker's satisfaction with the evidence.

Method

Strategic decision context: We began by identifying an actual strategic decision context where strategic persistence has been shown to occur. The strategic decision context we chose concerns the naming strategies of chain organizations. Ingram (1996) examined the naming strategies of U.S. hotel chains and demonstrated that it is better to give the units of a chain common names instead of unique ones. With common names, customers can recognize that units belong to a chain and engage in repeated interactions with the chain. An alternate naming strategy practiced by some is to give each unit a unique name to conceal their membership of a chain. In an analysis of the hazard of chain failure using a data set that included every chain in the U.S. from 1896 to 1980, it was found that giving units common names reduced the failure rate of the chain (Ingram, 1996). Chains using the common-name strategy also had faster rates of growth (Ingram, 1998). There was additionally evidence that chains tended to persist in their naming strategy. Those that gave their units unique names when the chain was founded seldom switched to common names. This is an instance where one strategy performs better than another as indicated by the performance of organizations in the industry, yet organizations with the weaker strategy do not switch to the stronger one.

Subjects: The subjects for the experiment were MBA students at an urban, public university. Fifty-one percent of the subjects were female, and ninety-three percent had full-time work experience (an average of 3.375 years) before beginning the MBA program. All the subjects were volunteers who were paid \$12 each for participating in the experiment. An additional \$5 incentive was offered to encourage subjects to make correct strategic decisions. Those that favored the strategy which was supported by the data were given the extra \$5.

Experimental procedure: We began by presenting subjects with the strategic decision context included in Appendix A. The decision context begins by describing a fictitious industry where the naming strategy of multi-unit organizations is an important strategic choice. A fictitious industry was used so that subjects would rely on the descriptions of the strategies and the data presented rather than on their own knowledge of the hotel industry. Next, descriptions of the two

strategies for naming units are provided. They are based on the arguments used in the U.S. hotel industry. We labored to present the descriptions of the strategies in parallel fashion, using equivalent language to avoid influencing a subject's preference between the two strategies.

The decision context, like all of the experimental materials, was subjected to a pre-test to identify unclear language and other problems. After reading the decision context, subjects answered in writing a question on which strategy they thought would result in higher organizational performance. The wording of the question specified that if the subjects thought that the strategies had different implications for different measures of organizational performance, they should interpret performance as minimizing the risk of failure. Thirty subjects with an initial preference for the unique-names strategy were used in this experiment. Those with an initial preference for the common-names strategy were used in a different experiment.

Each of the thirty subjects was then randomly assigned to one of two experimental conditions, a "low-ambiguity" condition or a "high-ambiguity" condition. Subjects were asked to take the position of a strategic decision maker with the goal of determining which naming strategy led to higher performance. They were presented with data corresponding to their experimental condition and were given forty minutes to review it. During this period, subjects were prompted every ten minutes to make a few notes on what they then thought the data showed about the relationship between naming strategy and organizational performance. This was done to keep them oriented to the task throughout the forty minutes they had to review the data. Later, they were asked to answer some questions in writing, including one on which strategy they now believed resulted in higher performance.

For both conditions, the data included the organizational characteristics and performance of real hotel chains. Data for the period 1976 to 1980 were taken from the Directory of Hotel and Motel Systems (a publicly available source to which chain managers have ready access). In each condition the data were presented in twenty pages. The data for both conditions were based on yearly "observations" of every hotel chain. It consisted of eleven variables at the organizational and industry levels, including whether the organization failed in a given year and

the percentage of the organization's units that had common names. Regarding the efficacy of naming strategies, it was possible to deduce from the data that common names resulted in a lower failure (and higher growth) than unique names. These relationships were statistically significant. So, the data was counter to subjects' original preference for the unique-names strategy.

In the low-ambiguity condition the twenty pages of data consisted of various tables and graphs that showed simple statistical analyses of the relationships among the above variables. Some of the pages were very informative regarding which strategy resulted in higher performance. In particular, there were correlations between variables, and a graph of the risk of failure as a function of the percentage of an organization's units that had common names. Other pages did not address the relationship between naming strategy and risk of failure. Representative of these was a graph comparing the average age of organizations that failed to the average age of organizations that survived.

In the high-ambiguity condition, the twenty pages consisted of a large table showing the eleven variables for each organization in each year. This data 'contained' the same relations between variables as the low-ambiguity data, but those relationships were not explicitly stated. Rather, it was left to the subjects to recognize the relationships in the data. To facilitate their review of this data, subjects received the table sorted in two ways: by year and within year by failed/survived, or by organization and within organization by year.

Insert Tables 1 and 2 about here

Results: Table 1 presents subjects' strategic decisions by the experimental condition and the result of an analysis of variance. The two strategic decisions were to either persist with the initial naming strategy after inspecting the evidence or to change it. Results indicate that subjects were more likely to persist in their initial belief despite evidence to the contrary when the evidence they saw against their choice was high rather than low in ambiguity ($p < .01$). This provides support for hypothesis 1.

To test our claim that hypothesis 1 will hold even controlling for subjects' satisfaction

with the evidence, we examined two alternative explanations for the observed persistence. It could be argued that subjects in the high ambiguity condition persisted with the erroneous strategy simply because they could not effectively analyze the ambiguous data in the forty minutes they were provided to review it. Persistence could also be explained by a lack of more sophisticated computational tools at their disposal (subjects only had calculators during the experiment). To rule out these alternatives, we asked the subjects two questions. First, we asked them to indicate the amount of time pressure they felt during the experiment on a seven-point Likert scale, with seven indicating severe time pressure. If they felt they did not have enough time to adequately analyze the data, it would be reflected in their response to this question. Second, we asked, “If you could have hired a consultant to analyze the data for you to help determine the best strategy, would you have?” The only difference between the high-ambiguity and low-ambiguity conditions is that we had analyzed the data to make causal relationships clear in the low-ambiguity condition. So, essentially this question is offering subjects the chance to transform high-ambiguity evidence into low-ambiguity evidence. If subjects felt limited by their capacity to analyze the data, it would be reflected in their response to this question.

Table 2 presents a probit regression of the likelihood that subjects would change their strategic preference. Hypothesis 1 indicates that subjects who saw highly ambiguous evidence will be less likely to change their strategic preference, even when subjects' satisfaction with the evidence is controlled. The negative coefficient for highly ambiguous evidence in Table 2 supports this ($p < .05$). The time pressure and consultant variables did not add significantly to the model of the likelihood of a change in strategic preference. So, not only were subjects who saw ambiguous evidence more likely to persist with their initial, erroneous strategic choice, but they did so with the confidence that they had been able to effectively analyze the ambiguous data. As far as they were concerned, they were able to get what they wanted from the data.

We also explored the process through which ambiguous evidence leads to strategic persistence by analyzing two questions that subjects answered after they had reviewed the data and indicated which strategy they preferred. The first was, “Why do you favor the strategy that

you favor?" The second was, "Specifically, what in the data presented to you caused you to prefer the strategy that you prefer?" We coded responses to these questions as indicating an over emphasis on confirmatory evidence if they focused on the success or failure of organizations that used either strategy *without* making a comparison to the success or failure of organizations that used the other strategy. In other words, subjects were seen as overemphasizing confirmatory evidence if they looked for evidence that confirms their hypothesis without considering evidence that contributes to the relevant base rate. Each author coded the responses to these questions, blind to the experimental condition. We initially agreed on the coding of 28 of the 30 subjects. The differences in coding of the remaining two were then reconciled to the satisfaction of both authors. To our surprise, only five of the thirty subjects indicated an over-emphasis on confirmatory evidence. Of these five, four were from the high-ambiguity condition. A probit regression of over-emphasis on confirmatory evidence on experimental condition showed that subjects in the high ambiguity condition were significantly more likely to over-emphasize confirmatory evidence ($p < .05$). Further, as expected, subjects that over-emphasized confirmatory evidence were more likely to exhibit strategic persistence ($p < .05$).

Although these results are consistent with the view that ambiguous evidence causes strategic persistence through an over-emphasis on confirmatory evidence, they also suggest that there is more to the process. In subsequent analysis with the five "confirmatory evidence" subjects omitted, subjects in the high ambiguity condition *still* experienced a significantly higher incidence of strategic persistence. This may be because of the biased interpretation of evidence, which is also part of our explanation for the relationship between evidence ambiguity and strategic persistence. Our process data was not sufficiently rich to allow us to categorize subjects based on their interpretation of data. It may also be that we did not identify all of the subjects that over-emphasized confirmatory evidence. Certainly a written answer about why a decision was reached does not give nearly as much insight into the process as would a verbal protocol. Ambiguous evidence may also work in ways beyond the emphasis and interpretation of evidence to cause strategic persistence.

EXPERIMENT 2: RESPONSIBILITY AND STRATEGIC PERSISTENCE

As we stated at the outset, strategic persistence in the face of evidence against a strategy can be characterized as one form of escalation of commitment. Decision-maker responsibility has been the focus of much of the research on escalation of commitment (Brockner, 1992). Decision makers who are responsible for a decision are more likely to persist with it in the face of negative feedback. The psychological underpinning of this effect rests partly on self-justification. Either to avoid cognitive dissonance or through an inference process, people's attitudes and beliefs adjust to be consistent with past decisions (Staw, 1997). Responsibility for a decision may also create the need to justify it to others, even if the others are unidentified (Tetlock, 1992). The possible need to justify to others may contribute to strategic persistence by causing decision makers to avoid explicitly making a decision (the reversal) that could later be questioned -- errors of omission are judged less critically than errors of commission (Tetlock, 1992). The need for justification to self and others is quite real for strategic decisions, which have a significant impact on an organization's survival and growth, and therefore affect important outcomes of employees, owners and customers.

Staw (1976) is representative of the empirical research relating responsibility to persistence. Staw asked subjects to make a decision on the amount of funds for research and development to allocate to a division, after seeing evidence that a previous allocation had not yielded positive results. In the high responsibility condition, subjects made the initial allocation. In the low responsibility condition, subjects were told that someone else had made the initial allocation. Subjects in the high responsibility condition allocated more to the division than subjects in the low responsibility condition. Subsequent research by Staw and others expanded the initial findings by examining different decision contexts, forms of responsibility, and behavioral options for the decision maker (see Staw, 1997 and Bazerman, 1998 for reviews).

Despite this prior research, there is merit in exploring whether responsibility contributes to strategic persistence. Staw (1997) argues that a shortcoming of past research on escalation of

commitment is the lack of realism in the decisions used in experiments, and advocates that future research be conducted with more realistic experiments and in the field. Further, existing research relating responsibility to escalation of commitment has used negative evidence on the outcomes of the initial decision. In the context we study, the negative evidence comes not directly from the initial decision, but indirectly from similar decisions by others. It is not obvious that indirect feedback will induce the same justification processes that direct feedback does. Indirect feedback may be seen as less of a threat to the self, and may therefore result in less defensive behavior by responsible decision makers. Responsible decision makers could interpret indirect feedback as a way to correct their earlier decisions before they yield negative consequences. Whereas revising an earlier decision in response to direct feedback is an admission of a costly error, revision in response to indirect feedback may be seen as a way to get the decision right before costs are incurred. Our expectation is that indirect feedback will induce persistence in the same way that direct feedback does, but these other possibilities make it worthwhile to examine the role of decision-maker responsibility for strategic persistence in our decision context.

Hypothesis 2: Strategic decision makers who are responsible for a strategy will be more likely to persist with that strategy when presented with evidence against it than are strategic decision makers who are not responsible for the initial strategy.

Finally, we wish to investigate the possibility that strategic persistence is affected by a psychological attribute of the strategic decision maker. The above argument about the role of justification in persistence suggested to us that the decision maker's propensity for impression management might contribute to strategic persistence. The argument that follows is in the tradition of explanations of strategic persistence from the upper-echelons perspective, resting on a psychological attribute of the strategic decision maker, rather than on a cognitive bias produced by the context of the decision (Hambrick and Mason, 1984; Finkelstein and Hambrick, 1990).

The seminal research of Snyder (1974, 1979) introduced the construct of "self-monitoring" to describe individual differences in the tendency to attend and respond to situational cues to guide behavior. An individual that is high in self-monitoring "is particularly sensitive to the expression and self-presentation of others in social situations and uses these cues as guidelines for monitoring and managing his own self-presentation and expressive behavior (1974: 536)." Stage actors tend to be high in self-monitoring; psychiatric patients low (Snyder, 1974). Literally hundreds of studies have applied the self-monitoring construct to predict phenomenon ranging from mate selection to susceptibility to specific advertisements. Self-monitoring has also been applied in organizational settings to explain job choice and performance (Caldwell and O'Reilly, 1992b; Snyder and Copeland, 1989; Sypher and Sypher, 1983)

Self-monitoring may affect tendencies to persistence if there are general social expectations for or against persistence. High self-monitors would be expected to act in a manner that is consistent with those expectations. Bazerman (1998) argues that subordinates have a generalized preference for consistent behavior from leaders. He cites an evaluation of Jimmy Carter that appeared in *Fortune* magazine: "A president must, plainly, show himself to be a man made confident by the courage of his clear convictions... The American people find it easy to forgive a leader's great mistakes, but not long meanderings." Supporting this claim, Staw and Ross (1980) found evidence that administrators who were consistent in their actions were perceived as being better leaders than those that switched from one behavior to another. If organizational leaders that are high in self-monitoring are more aware and responsive to this expectation of their subordinates, they may exhibit persistence in strategic decisions (and other public actions). High self-monitors, at least when they are in leadership positions, can be expected to exhibit a heuristic for consistent behavior and persistence with decisions.

The effect of self-monitoring has been investigated in at least one experiment in the escalation of commitment paradigm. Caldwell and O'Reilly (1982a) discovered that high self-monitors were more biased in their interpretation of evidence and more selective in choosing

evidence to pass on to others that presented them in a positive light. Notably, although their study suggested strongly that high self-monitors may be more likely to exhibit an escalation of commitment, their experiment did not directly test that idea (Brockner and Rubin, 1985).

Therefore, our direct test of the relationship between self-monitoring and persistence is the first that we are aware of.

Hypothesis 3: Strategic decision makers who are high in self-monitoring will be more likely to persist with a strategy when they are presented with evidence against it.

The arguments about self-monitoring and persistence suggest an interaction with responsibility. Regardless of any generalized social expectation for persistence, others' expectation of consistency should be higher for decision makers that were responsible for the initial strategic decision. High self-monitors should therefore be even more likely to persist with decisions that they themselves were initially responsible for. This argument is not at odds with hypothesis 3 because high self-monitors could very well exhibit a general bias for strategic persistence which is stronger when they have responsibility. While we wanted to test this interaction idea, our data did not allow it. With only 31 usable observations, we did not have enough statistical power to effectively estimate an interaction between responsibility and self-monitoring (especially since the correlation between the self-monitoring variable and the interaction between self-monitoring and responsibility was very high, at .90). Interestingly, Caldwell and O'Brien (1982a) examined an interaction between self-monitoring and responsibility and found that it did not increase the amount of favorable or defensive information selected.

Method

Strategic decision context and subjects: The second experiment used the same decision context as the first. The thirty-three subjects were MBA student volunteers from the same school but a later cohort as the subjects of the first experiment. Thirty-six percent of them were female, and average work experience was 3.6 years. Subjects were paid \$15 for participating in the experiment, with an additional \$5 offered as an incentive for effective strategic decision making. They were presented with the strategic problem and descriptions of the two naming strategies just as in the first experiment.

Experimental procedure: Subjects were randomly assigned to high- and low-responsibility conditions. After making an initial choice between the naming strategies, subjects in the high-responsibility condition were told they were the CEO of a new organization in the industry and that they had implemented the naming strategy of their choice. They were then told that some members on the board of directors disagreed with their choice of naming strategy. They were asked to write a memo to the board explaining the rationale behind their choice. When the memo was complete, an experimenter read it briefly and gave the subject a memo from the board of directors in response. It stated that their memo explaining their choice impressed the board, which was swayed by their confidence and the memo's logic.

Subjects in the low-responsibility condition, after making their initial strategic choice, were told they had to apply for the job of a CEO in a new organization in the industry. They were asked to write a memo to the board of directors explaining how their life experiences had prepared them for leadership. An experimenter read their memo briefly and gave them a memo from the board of directors in response. It stated that they had won the CEO job. Their memo had impressed the board, which was swayed by their confidence and the memo's logic. The memo from the board further stated that the board of directors had finished a strategic planning meeting, and had decided to implement a particular naming strategy. The naming strategy the board implemented was always the same one for which the subject had expressed an initial preference (there was no suggestion that the subject had any input into this decision).

So, subjects in both conditions wrote a memo for which they received positive feedback from the board of directors. In both cases, subjects were the CEO of a new organization operating with the strategy that they had initially preferred. However, those in the high-responsibility condition were told that they had implemented the strategy of their choice and defended it to the board. Subjects in the low-responsibility condition were told that the board had decided to implement a strategy which happened to agree with their initial choice.

Subjects in both conditions were then presented with a package of evidence on the performance of organizations in the industry and were asked to evaluate the effectiveness of the two strategies. The evidence was the same as that used in the low ambiguity condition of the first experiment: twenty pages of tables and graphs, some relating directly to the efficacy of the naming strategies, some superfluous. Subjects with an initial preference for unique names saw exactly the same evidence as the low ambiguity condition in the first experiment (which indicated that the common-name strategy resulted in better performance), but for subjects with an initial preference for common names, we reversed all of the relationships between naming strategy and other variables in the data. So, for all subjects, the evidence they saw indicated that the strategy they had initially preferred resulted in worse organizational performance. After reviewing the evidence, subjects were asked which strategy they now preferred, and other questions as in the first experiment.

Measurement of self-monitoring: The tendency of subjects to self-monitor was assessed using Snyder's (1974) self-monitoring scale which measures individual responsiveness to social cues. Snyder (1974) reported extensive evidence for the scale's reliability and validity. The minimum of subjects' scores was four, the maximum twenty, and the mean was 12.67 out of twenty-five.

Insert Tables 3 and 4 about here

Results: Table 3 presents subjects' strategic decisions by the experimental condition and the results of an analysis of variance. The results indicate that subjects in the high-responsibility condition were more likely to persist with their erroneous initial strategy ($p < .05$). This supports hypothesis 2. Again, we examined controls for time pressure, and inability to analyze the

necessary data. Table 4 presents a probit regression of the likelihood that subjects would change their strategic preference. The controls for time pressure and the desire to hire a consultant to analyze the data were again insignificant. The effect of high responsibility remained significant and negative. The probit regression also included the subject's self-monitoring score. The coefficient for self-monitoring was significant and negative, indicating that subjects that were high in self-monitoring were less likely to change their preferences, and therefore more likely to exhibit strategic persistence. This supports hypothesis 3.

DISCUSSION

Using two experiments based on a realistic strategic decision and actual industry data, this study investigated ideas about how cognitive biases can lead to strategic persistence by contributing to the inability to learn from the experience of others in the industry. We found that strategic persistence was more likely under three conditions. One, when evidence against a strategy was high rather than low in ambiguity, allowing the prior-hypothesis bias to operate. Two, when decision makers felt highly responsible for making the initial erroneous strategic choice and thus succumbed to the need justify their choice despite contrary evidence. And three, when decision makers were high self-monitors, i.e., they were very perceptive of and responsive to social cues.

These results inform findings elsewhere that organizations do not necessarily learn from the experience of others in their industry. Despite recent excitement surrounding the idea of inter-organizational learning, it appears that accomplishing it is difficult. One of the barriers to inter-organizational learning is that the experience of other organizations may appear in such an ambiguous form that strategic decision makers are not compelled to revise their erroneous initial beliefs regarding the effectiveness of strategies. When a strategist observes strong or weak performance by another organization in the industry, that performance could be attributed to a number of factors, and if necessary, rationalized away. In this way, cognitive processes can contribute to strategic persistence and the failure to learn from others' experience.

Moreover, the cognitive bias related to ambiguous data also provides a micro-level explanation of why it may be difficult to imitate important skills and resources possessed by competitors (Reed and DeFillippi, 1990). Such causal ambiguity is central to the resource-based view of the firm (Lippman and Rumelt, 1982), and the 'identification problem', cited in the international-management literature as one of the forces that solidifies the advantage of industry leaders (Kogut, 1991, 1993). The ambiguity of complex multivariate relationships associated with strategic assets and performance would make learning and imitation difficult. The inability to learn lessons from others may force organizations to endure the costs that are bound to be associated with learning from their own experience. Some experiences are likely to carry with them high monetary and competitive costs. Further, competence traps and the difficulty of organizational change act to limit the amount of variance organizations can create in their own experience (March, 1991; Miner and Haunschild, 1995).

Part of the value in identifying causes of strategic persistence is to facilitate the development of solutions to the problem. Much of the evidence on the performance of organizations in an industry comes in the form we have called "ambiguous". Converting ambiguous evidence into processed evidence often takes only a common level of analytical skill. However, it seems that more of a problem is *recognizing* the need to analyze data. Even when subjects failed to see the truth in ambiguous data, they did not want help in analyzing it. Organizational policies and reward systems that emphasize the process of strategic decision making, and not just the outcome may be of help here. The results also indicate the benefit of formalized, systematic industry analysis. Russo and Schoemaker (1989) suggest that organizations institutionalize formal 'learning analysis' in order to push decision makers out of the traps that inhibit learning. However, there are also costs to systemizing and institutionalizing processes of environmental scanning and learning analysis. Routinized behavior creates biases and blind-spots, even when its goal is to avoid other biases and blind-spots.

Another solution for the psychological processes that encourage strategic persistence is for organizations to shy away from giving high self-monitors the authority to make strategic

decisions. It is likely, however, that many of the hurdles that lead to the executive positions associated with such authority are biased in favor of high self-monitors. High self-monitors demonstrate higher levels of communicative and persuasive skill (Sypher and Sypher, 1983), and self-monitoring is a predictor of leader emergence in groups (Garland and Beard, 1979). At least one field study has found that managers in an organization score higher in self monitoring than non-managers (Giacalone and Falvo, 1985, cited in Snyder and Copeland, 1989). Further, high self-monitoring may improve not only the likelihood of obtaining executive positions, but also some dimensions of performance in those positions. Caldwell and O'Reilly (1982b) showed that high self-monitors perform better in boundary-spanning roles, and high self-monitors' bias for strategic persistence generates the consistency that subordinates look for in leaders (Staw and Ross, 1980). Boundary spanning and leadership are clearly important dimensions of executive performance. It is even possible that for some organizations, the benefits that high self-monitors bring on these dimensions may offset the cost of persistence with bad strategies. So, while organizations have an obvious solution for the tendency of high self-monitors to exhibit strategic persistence, the broader implications of excluding high self-monitors from strategic decision making must be weighed against the promised reduction in strategic persistence.

Attempts could also be made to address the justification processes that contribute to strategic persistence. One solution is to moderate the responsibility felt by decision makers. If managers were explicitly aware of the riskiness of strategic decisions and the need to learn from past mistakes, escalation of commitment would be less likely (Bazerman, 1998). The relaxation of responsibility, however, might have negative consequences on the motivation to make good decisions in the first place, even as it makes it easier to fix mistakes. So, for all three causes of strategic persistence we identify, there are ready solutions. It is possible, however, that the medicine would be worse than the disease. Organizations might be willing to accept greater risk of persistence with bad strategies in exchange for non-rigid decision processes, executives with leadership and boundary spanning abilities, and the benefits of making decision makers responsible for their decisions. In this sense, cognitive biases may produce trade-offs for

organizations that are akin to the trade-offs that individuals must make. With the progress that has been made in identifying cognitive biases, it has not become clear that individuals would be better off without them. Often, biases are the result of heuristic approaches to decisions that often serve decision makers well, but which lead decision makers astray in systematic circumstances (Gilovich, 1991).

While we believe that the main contribution of this paper is to the literature on strategic decision making and organizational learning, we also see a contribution to the more general literature on decision making. That literature is voluminous, and all of our theoretical claims are, in one form or another, familiar to it. There are at least three elements of our experiments, however, that should interest decision making researchers. First, the decision context we used mapped reasonably closely to decisions that managers actually make. This is not unique in the decision making literature, but others have argued that it is too rare (Staw, 1997). Second, whereas the great body of escalation of commitment research has focused on direct feedback regarding an earlier decision, the feedback in our experiments was indirect in that it came from the experience of others. That others' experience induced the familiar persistence behavior is informative about the process behind escalation. Third, ours is the first study to directly show the relationship between self-monitoring and persistence in the face of negative feedback.

Finally, a comment on the method used in this paper as it applies to strategy. There have been a number of calls to use experiments to study strategic decision making, and just as many cautions about applying experimental methodology to strategy. The experiments reported here have features that we view as necessary for experimental strategy research: the use of a realistic strategic decision context, actual data, and the use of informed, volunteer subjects with an incentive for good decision making. Moreover, it is important to carefully consider past research on cognition for its applicability to strategic decision making. The task is not simply to see whether each of the many decision biases identified so far are also evident in strategy contexts. It is also important to think hard about the features of strategic decisions and on that basis decide which cognitive biases are most likely to be relevant.

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TABLE 1
Experiment 1: Strategic Decisions of Subjects by Ambiguity of Evidence
and Analysis of Variance

	Low-Ambiguity Condition	High-Ambiguity Condition
Revise Initial Strategic Preference	14 subjects	6 subjects
Persist in Preference for Erroneous Strategy	2 subjects	8 subjects

Analysis of Variance

Source of Variation	Variation	Degrees of Freedom	Mean-Square	F
Regression	1.488	1	1.488	8.05 *
Residual	5.278	28	0.185	
Total	6.667	29		

* $p < .01$

TABLE 2
Experiment 1: Probit Regression of Likelihood of Change in
Strategic Preference in the Face of Contrary Evidence¹

Variable	Estimate	Standard Error	Chi-Square
Constant	2.677	1.093	5.99 *
High Ambiguity of Evidence	-1.330	0.608	4.78 *
Time Pressure	-0.244	0.172	2.01
Want an Analysis Consultant	-0.679	0.634	1.15

* $p < .05$

¹ The probit regression uses 29 observations since one subject had a missing value for the consultant question.

TABLE 3
 Experiment 2: Strategic Decisions of Subjects by Responsibility Condition
 and Analysis of Variance

	High-Responsibility Condition	Low-Responsibility Condition
Revise Initial Strategic Preference	4 subjects	9 subjects
Persist in Preference for Erroneous Strategy	13 subjects	7 subjects

Analysis of Variance

Source of Variation	Variation	Degrees of Freedom	Mean-Square	F
Regression	0.882	1	0.882	3.91 *
Residual	6.996	31	0.226	
Total	7.878	32		

* $p < .05$

TABLE 4
Experiment 2: Probit Regression of Likelihood of Change in
Strategic Preference with varying Responsibility¹

Variable	Estimate	Standard Error	Chi-Square Value
Constant	2.721	1.773	2.353
High-Responsibility	-2.143	0.953	5.058*
Self-Monitoring	-0.263	0.120	4.812*
Time Pressure	0.261	0.723	0.131
Want an Analysis Consultant	0.230	0.200	1.321

* $p < .05$

¹ The probit regression uses 31 observations because two subjects did not complete the self-monitoring scale.

Appendix A

Strategic Decision Context Presented to Subjects

[Subjects were presented with the strategic decision context exactly as it appears below. For half the subjects, the common-names strategy was described first, and for the other half, the unique-names strategy was described first.]

This experiment is about a fictitious industry that offers a leisure service that people use while traveling away from home. The service is often viewed by customers as a luxury. The organizations in the industry are multi-unit, operating a number of distinct units in different geographic markets, each of which offers the service. Typically, an organization would operate one unit per city, but in a large city, an organization might operate more than one unit.

An important strategic question for senior managers in this industry is how to name the individual units in their organization. There are two naming strategies from which to choose. Each is based on different reasons, and managers appear to be split between these two choices--even industry experts do not agree on which strategy is best. Details on each are provided below.

I. The Common-Name Strategy: This strategy requires that each unit in the organization be given the same name. Consequently, customers would recognize individual units as belonging to a particular organization, immaterial of the unit's location.

This approach is based on the rationale that since the service is used when traveling away from home, the customer often has a one-shot interaction with the unit providing the service. The likelihood is small that the same customer will ever return to that particular unit in the future. Without a common name, there is a risk that an individual unit may provide bad service given the small chance of the customer coming back to the same unit. Accordingly, customers may avoid buying the service from the unit altogether. However, if every unit in the organization is named the same, the customer has repeated interactions with the overall organization even if interactions with individual units remain one-shot occurrences. The reputation of the organization is at stake here. Repeated interactions between the customer and the overall organization gives the organization an incentive to provide reliable service to encourage the customer to return to the organization. With this assurance of reliable service, customers are more likely to buy the service from the commonly named units in the organization.

II. The Unique-Name Strategy: This strategy requires that each unit in the organization be given its own unique name. Consequently, customers would not recognize that a given unit belongs to an organization. They would assume it is a stand alone, individually operated unit.

This approach is based on the rationale that the service provided is a leisure purchase which is often viewed as a luxury. Customers may prefer to avoid units recognized as belonging to a larger organization. People often associate large organizations with 'cold, impersonal, uniform' service. Giving each unit a unique name prevents customers from knowing that the unit actually belongs to a larger organization. Thus they are less likely to presume standardized service, and are more likely to purchase the service from the individual unit. Such units are perceived as being unique, and as belonging to the community where they are located. The unique name for each unit in the organization not only conceals its association with the organization, but the name also reflects the character and history of the local community or geographical region where the unit is located. This helps create expectations of a unique travel experience, and thus helps satisfy the leisure and luxury needs of the customer. With this assurance of a unique experience, customers are more likely to buy the service from the uniquely named units in the organization.