

UNIVERSITE DE DROIT, D'ECONOMIE ET DES SCIENCES D'AIX MARSEILLE
UNIVERSITE PAUL CEZANNE
INSTITUT D'ADMINISTRATION DES ENTREPRISES

*CENTRE D'ETUDES ET DE RECHERCHE
SUR LES ORGANISATIONS ET LA GESTION*

PAYOFFS AND PITFALLS OF STRATEGIC LEARNING****

*William H. STARBUCK**
*Michael L. BARNETT***
*Philippe BAUMARD****

W.P. n° 719

April 2005

**** This paper is currently under review. Please ask for permission before quoting

* *Professor, New York University, Stern School of Business*

** *Professor, University of South Florida, College of Business Administration*

*** *Professeur des Universités , rattaché au CEROG-IAE d'Aix-en-Provence ,
Université Paul Cézanne Aix-Marseille III, Clos Guiot, Chemin de la Quille BP 33,
13540 Puyricard*

Toute reproduction interdite

L'institut n'entend donner aucune approbation, ni improbation aux opinions émises dans ces publications : ces opinions doivent être considérées comme propres à leurs auteurs.

Payoffs and Pitfalls of Strategic Learning

Abstract

Managers and management researchers have tended to assume that learning from strategic events yields benefits. Although it appears that some firms have gained competitive advantages from learning, these instances are infrequent and the firms that have gained persistent advantages through learning are probably quite unusual. Learning from successes has short-run benefits but eventually makes firms less capable of surviving. Learning from failures disappears in clouds of rationalization and defensive behavior. Noisy feedback about results causes people to develop very heterogeneous and often highly erroneous perceptions of firms and their environments, so it should not be surprising that strategizing is harmful as often as it is helpful. Indeed, it is not clear that most firms and most managers deem it important that strategies should have rational foundations. Conceptual hurdles make strategic learning problematic for theorists. In particular, why do non-cognitive theories not dominate cognitive theories, or vice versa?

Key-words:

Organizational learning; organizational failures; organizational behavior.

Résumé

Les managers et les chercheurs tendent à considérer que l'apprentissage d'événements stratégiques est systématiquement bénéfique. Bien qu'il apparaisse que certaines entreprises aient gagné des avantages concurrentiels de tels apprentissages, ces cas sont peu fréquents, et les entreprises qui ont réussi à gagner des avantages durables sont probablement peu ordinaires. Apprendre de ses succès engendre certainement des bénéfices à court terme, mais rend généralement les entreprises moins aptes à survivre dans le long terme. Apprendre de ses échecs disparaît généralement dans les nuées de la rationalisation et des comportements défensifs. Le bruit qui entoure le retour d'information sur les résultats des entreprises amènent les managers à développer des perceptions très hétérogènes, et souvent erronées de leurs entreprises et de leur environnement, et il n'est pas surprenant de constater que la stratégie est aussi souvent dangereuse que bénéfique pour les organisations qui la pratiquent. De fait, il n'est pas sûr qu'une stratégie doive avoir un fondement rationnel. Ces obstacles conceptuels rendent l'apprentissage stratégique aussi problématique pour les théoriciens que pour les managers. En particulier, pourquoi les théories non-cognitives dominent-elles les théories cognitives de l'apprentissage stratégique, et vice-versa ?

Mots-Clés :

Apprentissage organisationnel ; échecs ; comportement organisationnel.

Payoffs and Pitfalls of Strategic Learning

Although Cyert and March's book appeared in 1963, *A Behavioral Theory of the Firm* originated in a period of intense controversy about the theory of the firm that began before 1950. The late 1940s and early 1950s brought many cries of dissatisfaction with the theory of the firm (Salgado, Starbuck, and Mezias, 2002). As a result, the 1950s and early 1960s introduced quite a few ideas that are continuing to influence strategic management at the beginning of the twenty-first century. Indeed, long periods elapsed before strategy theorists recognized the implications of the ideas introduced in the 1950s. Three streams of thought stand out as having exerted strong influence on organizational and strategic thinking during the last half of the twentieth century.

Firstly, Alchian (1950) introduced the idea that evolution constrains the properties of populations of business firms. He argued that firms can survive only by earning positive profits and that firms that behave more optimally have higher probabilities of survival. Thus, an economist "can state what types of firms or behavior relative to other possible types will be more viable, even though the firms themselves may not know the conditions or even try to achieve them" (1950: 216). A decade later, stimulated by Alchian's ideas, Winter (1964) looked at evolutionary processes more systematically and found many reasons why unprofitable firms might survive indefinitely despite evolutionary selection. After another two decades, Nelson and Winter (1982) redirected attention from evolution of firms to evolution of standardized behavioral routines. They asserted that some behavioral routines survive for long periods and others do not, that a specific routine may occur in many firms, and that firms often imitate each other's routines. Thus, strategic evolution might be conceived as changes in the routines used to implement strategies. Not only have the ensuing decades brought numerous empirical studies of evolving populations of firms, but more recently, studies of evolving strategic behaviors.

Secondly, Penrose (1959) argued that a firm's profitability depends upon its resources and that profits might come from short-run changes rather than from long-run results.

In contrast to Ricardo, who had pointed out the advantages to be gained from the possession of more productive physical resources, Penrose suggested that differences in profitability could be attributed to differences in skills and abilities. This implied that related diversification would offer advantages as a growth strategy. In this case too, decades passed before these insights received much attention: Wernerfelt (1984) applied Penrose's ideas to strategic management and Barney (1991) pointed out properties that resources would need to possess in order for them to generate competitive advantages. Barney's specification that firms need resources that are VRIN – valuable, rare, inimitable, and nonsubstitutable – appears in every course of strategic management. These notions have attracted attention because they propose how individual firms may be able to exceed industry-wide norms. Penrose's ideas have also influenced contemporary thought about the value of learning and knowledge and about the advantages of and limitations on first-mover advantages.

Thirdly, Cyert and March (1963) launched “a behavioral theory of the firm”. They (1963: 19) wanted to create a theory that would describe “the actual process of organizational decision making” and to use this theory to predict a firm's behaviors. Their book offered several generalizations about firms' development over long periods. (a) Decision making is generally programmatic, guided by rules. Firms program recurrent decision processes so that they can occur reliably. Information gathering programs also enable firms to cope with unlimited stimuli. (b) Firms' perceptions – their estimates of current and future parameters – incorporate biases that reflect both their experiences and their hopes for future success. (c) Long-run profit maximization is not firms' only goal. Firms pursue conflicting goals and they do not attempt to reconcile these conflicting goals. Instead, they attend to goals sequentially, one at a time. (d) Firms reduce their perceived uncertainty by concentrating on pressing problems, by attempting to control their environments, and by retaining “organizational slack,” meaning resources that are underutilized. (e) Firms do not try to foretell the long-run future and they do not see all current alternative actions. They continue to behave as they have been behaving until they perceive problems, and then to discover alternative actions, they have to search. These searches follow simple rules and they focus on the short run. (f) Firms learn, or at least the people in firms think they are learning. They change their goals and forecasts in response to experience and current perceptions. They change their decision rules to fit current

circumstances and adapt their goals to make them “realistic”. They search where previous searches have succeeded. Cyert and March argued that firms learn mainly by encountering problems rather than experiencing successes.

One controversy inherent in the ideas of the 1950s was whether learning occurs at the level of one firm or across populations of firms. Alchian paid no significant attention to learning by individual firms; what mattered, he thought, was behavioral change at the population level. Penrose and Cyert and March, however, focused on learning by and within individual firms. Nelson and Winter attempted to reconcile the firm and population levels by proposing that firms’ learn by adopting routines that have been succeeded elsewhere. However, diffusion of routines does not explain firms’ willingness to modify their goals and perceptions, and it provides a weak explanation for firms’ behavioral changes that do not involve imitation or that explicitly deviate from widespread practices.

A second controversy inherent in the ideas of the 1950s was whether learning is a matter of involuntary change in behavior or of voluntary response to cognition. Do firms determine their destinies or do environments compel certain behaviors? Theorists on the *non-cognitive* side of this debate, such as Alchian or Nelson and Winter, seek to explain as much behavior as possible without considering cognitions or analytic decision processes (Footnote). In contrast to the non-cognitive theories, *A Behavioral Theory of the Firm* adopted a *cognitive* approach that describes people and firms as perceiving, analyzing, planning, predicting, and deciding. A cognitive approach says firms learn, or fail to do so, voluntarily and so they exert strong influence on their individual fates, whereas a non-cognitive approach views firms as puppets under environmental control.

Although *A Behavioral Theory of the Firm* stimulated an interest in learning by firms generally, most of the examples in the book dealt with learning that affects firms’ strategies in their competitive environments. This article examines the research about strategic learning by firms that has ensued. Ideas about what strategies involve have broadened through the years, from a rather narrow focus on prices and outputs to encompass technological trajectories, acquisitions, marketing appeals, and so on.

A few case studies suggest that strategic learning can be very effective, but that the firms that gain strategic advantages through learning are abnormal. Many, many firms find strategic learning quite difficult. Of course, like other issues in strategic management, strategic learning poses challenges of mutual contradiction. If every firm were highly capable of learning effectively, then strategic learning would be essential but would confer no competitive advantages. For strategic learning to be advantageous, it must be VRIN – valuable, rare, inimitable, and nonsubstitutable. If advantageous strategic learning occurs through cognitive change, it must be rather difficult to do. If advantageous strategic learning occurs through non-cognitive change, some properties of firms or their environments must make it rare.

The next section of this article describes one exemplary instance of highly effective strategic learning and points out some characteristics that make this firm peculiar. The ensuing two sections explain why learning from successes and learning from failures do not make strategies more effective over the long run. Learning from successes does improve firms' performance for a time, but firms over-learn the behaviors they perceive to foster success and they become unrealistically confident. Then when social and technological changes erode the value of their previous learning, firms have difficulty unlearning what they learned earlier. Learning from failure also encounters challenges: Some firms, at least, learn from neither small failures nor large ones. The article's final two sections puzzle over the conceptual hurdles that make strategic learning problematic for theorists. Why do noncognitive theories not dominate cognitive theories, or vice versa? Why do firms not devote more resources to learning and who benefits from ineffective learning?

An Example of Successful Strategic Learning

Wachtell, Lipton, Rosen and Katz is the most successful American corporate law firm. It has been involved in a large majority of the significant legal cases for over two decades. In 1999, its revenues per lawyer were 88% higher than its nearest competitor and 2.7 times the average of its nineteen nearest competitors. Similarly, in 1999, Wachtell's profit margin of 75% was 27% higher than its nearest competitor and 82% higher than the average of its nineteen nearest competitors.

Many factors contribute to Wachtell's exceptional performance (Starbuck, 1993). They have earned a reputation for having generated innovative legal strategies that won cases other law firms had judged to be hopeless. Their clients say Wachtell's partners are superior to those in any other law firm; this high quality probably results from the way Wachtell organizes its work as teams in which less experienced lawyers can learn from more experienced ones. There appear to have been instances in which parties to disputes retained Wachtell primarily to assure themselves that Wachtell would not be working for their opponents. The firm eschews ordinary legal work and it has remained small so that it can concentrate on outstanding cases. Either the founding partners were lawyers with very exceptional abilities and the motivation to build a firm rather than to benefit as individuals or their firm amplified their abilities remarkably and showed them the value of organization building. And, the firm's early development took advantage of social conditions that have subsequently disappeared, so new-born competitors cannot succeed by imitating Wachtell's formulas.

However, Wachtell stands out especially in its demonstrated ability to extract strategic lessons from its experience. At least one of these lessons arose from imitation. The senior partners noted that investment bankers often charge their clients, not on the basis of hours worked, but for a fraction of the profits their clients made as a result of the bankers' work. Wachtell adopted a similar practice for cases that involve large amounts of money. They tell clients that they and the clients will discuss their fees together after the cases have concluded and the clients have been able to assess the results.

More often, however, the senior partners developed strategies on their own. For example, early in the firm's existence, a single client accounted for two thirds of Wachtell's revenue. Then, competing groups in this client's Board of Directors asked Wachtell to favor them in ways that would made the law partners their allies in the Board's conflict. Wachtell's partners resigned the relationship and so lost two thirds of their income. A few months later, after they had dealt with the immediate need for revenue, the partners adopted policies that would keep any single client from becoming so important again. They decided that Wachtell would not accept retainers for unspecified future services and instead would engage solely in "transactional representation" based on short-term agreements. They would also encourage their

clients to maintain relationships with other law firms. Wachtell's partners say this transactional practice implies that other law firms can enlist Wachtell as co-counsel without fearing that Wachtell might try to steal their clients. As well, transactional practice means that Wachtell is likely to be available to new clients because it has few conflicts of interest arising from ties to current clients.

In another instance of Wachtell's learning from experience, a corporation contacted its usual law firm to ask that some urgent work be done over the weekend, and that law firm replied that they did not work on weekends. Fearing the consequences of delay until the next week, the corporation contacted Lipton to ask if Wachtell would work on the weekend. Seeing an opportunity to initiate a relationship with a potentially valuable client, Lipton said "yes, of course" even though weekend work had not previously been the firm's practice. This event called the attention of Wachtell's senior partners to the fact that no major corporate law firm was then offering 24-7 service. Wachtell began to advertise its availability on any day at any hour.

Other learning experiences led to Wachtell's developing unusual human resources policies, unusual ways of organizing work, an emphasis on legal innovations, a focus on defense against unfriendly acquisitions, and a focus on bank reorganization. Such developments both helped the firm distinguish itself from its competitors and adapt to changing environmental challenges and opportunities.

One problem with evolutionary descriptions of firm behavior is that they have difficulty explaining the origination and survival of very exceptional firms. By definition, an exceptional firm must deviate from the average. There are many reasons why Wachtell will not remain exceptional indefinitely, but it rose to great prominence in less than twenty years and it has remained in this prominent position for over twenty years. Although Wachtell shares many properties with other law firms, it pushes a few properties to extremes that no other law firm attains, it combines properties in a way that no other firm duplicates, and it may possess a few unique resources. It is very much a product of the 1950s and 1960s, of New York City, and of its founders. Its founders espoused values that fit with the 1960s. Its birth reflected conditions in the New York City corporate law industry of the 1960s and New York

City's ethnic diversity. Wachtell also expresses the charisma and off-beat ideas of Wachtell and Lipton and the commitments to democracy and teamwork of Rosen and Katz. Over four decades, Wachtell's founding partners have repeatedly analyzed the significance of their experience and extracted lessons that gave them competitive advantages over competing law firms whereas their competitors, looking at similar data, did not extract similar lessons. Although other law firms hunger after Wachtell's high status and stratospheric fees, either they have been unable to reproduce the conditions necessary to elicit these or they have refused to make the required tradeoffs.

How Learning from Success Creates Failures

Cyert and March's (1963) theory emphasized the centrality of decision rules that govern actions. They said successes and failures change the parameters in these decision rules. When actions yield good results, firms tend to repeat these actions, and repeated actions eventually become standard operating procedures. To explain firms' slowness in adapting to environmental changes, Cyert and March (1963: 36-38) introduced the concept of 'organizational slack', which is the difference between the resources available to a firm and the resources required to keep the firm in existence. Successes increase slack, which encourages risk taking and experimentation.

Subsequent research has generally supported this description. For example, numerous studies have shown that production becomes cheaper as with repetition; these cost decreases come from both learning by individual workers and learning by the organization as a unit (Epple, Argote, and Devadas, 1991; Levitt and March, 1988). But research has also added a number of caveats. Levinthal and March (1993) emphasized the shortsightedness of organizational learning and the subjectivity of performance evaluations. They said, "Organizational learning oversamples successes and undersamples failures" because the organizations themselves define success and failure (p. 109). Because learning appears to eliminate failures, it fosters optimistic expectations; and because firms promote the people who led successful activities, leaders tend to be optimistic people. Ginsberg and Baum (1994) and Levitt and March (1988) pointed out that successful use of inferior behaviors reinforces these behaviors even if alternative behaviors would produce better results. Starbuck (1983, 1985)

observed that standard operating procedures often cause firms to act unreflectively and automatically, with one result being that their actions lack relevance to current problems. When such inconsistencies come to light, firms may invent 'problems' to justify their actions. Similarly, Weick (1991) argued that firms tend to emit the standardized responses even though they are dealing with unstable and changing stimuli. Further, Starbuck and Hedberg (2001) pointed out that success does not always induce firms to standardize operating procedures. Successes may stimulate experiments that lead to new strategies and proactive actions.

In populations of competing organizations, learning creates the Red Queen effect. Barnett and Hansen (1996: 139) described this effect by saying: “An organization facing competition is likely to engage in a search for ways to improve performance. When successful, this search results in learning that is likely to increase the organization's competitive strength, which in turn triggers learning by its rivals — consequently making them stronger competitors and so again triggering learning in the first organization.”

Probably the most striking discovery about the effect of success on learning is the observation that success plants the seeds of future failure. After analyzing the histories of 36 firms, Miller (1993, 1994) inferred that lengthy periods of success foster (a) structural and strategic inertia, (b) extreme process orientations, (c) inattention, and (d) insularity. Success breeds simplicity and purity, not complexity. Focusing on core competence and competitive edge, which initially helps a firm to succeed, tends to make the firm more narrow and specialized over time. Positive feedback reinforces this simplicity and the firm loses requisite variety. Miller (1990: 3) summarized these studies by saying: “Success leads to specialization and exaggeration, to confidence and complacency, to dogma and ritual. . . . Robust, superior organizations evolve into flawed purebreds; they move from rich character to exaggerated caricature, as all subtlety, all nuance, is gradually lost.” Sitkin (1992) too remarked that success provides discretion and it facilitates fine-tuning and elaboration of strategies, although it also diverts attention from the environment and from the future.

Another series of case studies by Greve, Hedberg, Nystrom and Starbuck led them to infer that the same processes that enable firms to learn from their successes also undermine the firms' long-run viability (Starbuck, Greve, and Hedberg, 1978). Firms seek to reproduce their successes. They create behavioral programs, buffers, and slack resources, and they focus their information gathering and communication to make them efficient. Believing they know how to succeed in their current environments, firms attempt to block environmental changes. As well, firms' environments ask them to provide rationalizations, predictions, and reliability, and these demands further amplify firms' inherent tendencies toward rigidity. However, firms have limited abilities to block environmental change, and so their limited awareness of environmental change means that crucial changes occur outside the apparently successful firms' awareness. Further, their rigid behaviors and commitments to existing programs and predictions prevent them from responding promptly and effectively when they do discover problems. Top managers' first reaction to problems is to postpone action and to interpret the problems as transient. This leads the managers to make predictions of future success that prove false. If the problems are not transient, the firms go through periods of "unlearning" during which top managers learn that they cannot cope, personnel learn to distrust their top managers, and many people depart.

Although Wachtell is a firm that has experienced repeated successes, its learning has differed from that of many successful firms. The general pattern is that successful firms learn to repeat the behaviors that they credit for their success. Wachtell has also learned to repeat its behaviors. But sometimes, its founding partners have decided that recent events say the firm should adopt some new behaviors that would differentiate them from competing law firms. Some of these new behaviors have been imports from related industries but others have been unique innovations. About once a year, the partners have judged one of these behavioral innovations to be sufficiently successful to warrant its occupying a prominent spot in the firm's strategic portfolio.

How Firms Fail to Learn from Failure

Cyert and March (1963) said actual or expected failures induce a firm to make changes in their goals or forecasted outcomes. If these changes prove inadequate to

allow forecasts of success, the firm searches its environments for new alternatives. Similarly, Sitkin (1992) argued that moderate failures draw a firm's attention to potential problems and stimulate it to search for possible solutions for these problems. He set forth criteria for 'intelligent failure' (p. 243). He said people should plan their actions (a) to yield diagnostic information, (b) to limit the costs of failure, (c) to generate feedback quickly, and (d) to focus on familiar domains so that they will be able to analyze what happened. He also listed some organizational properties that foster intelligent failure. Burgelman too (1994) saw moderate failures as sources of information. He analyzed Intel Corporation's development of strategies as evolutionary processes. He said Intel's top managers create rules for selecting among alternative courses of action. For such rules to work, the selected actions must match pressures in the firm's environment. This matching depends both on middle managers' generating appropriate strategic initiatives and on top managers' having "strategic recognition capability". Failures enable top managers to learn how Intel's "distinctive competence" relates to "the basis of competition" (p. 52).

However, this idea that failure stimulates experimentation contrasts with research findings from studies of individual people, which indicate that unpleasant consequences generally stop existing behaviors without stimulating efforts to behave differently. As well, Hedberg (1981) pointed out that organizational inertia often delays or counteracts problem solving. Milliken, Lant, and Batra (1992) interpreted data about two industries as showing that most poorly performing firms do not alter their strategic orientations. Dendrell (2003) and Levinthal and March (1993) have argued that failures are under-sampled both by firms and by management research.

In fact, there have been very few empirical studies of firms' responses to failure, as both researchers and managers have been more prone to record and advertise successes than failures. For that reason, Baumard and Starbuck have been studying 14 strategic failures that occurred at IndoCom over two decades. With help from executives in the firm, we have compiled data about seven large failures and a matched sample of seven small failures. The firm experienced many more than seven small failures but we want to contrast the large failures with small ones in similar competitive environments.

The idea of comparing large failures with small ones arises from observations made in previous studies. Normann (1971), Rhenman (1973) and Wildavsky (1972) have observed that firms react quite differently to variations, which would modify the firms' strategic domains only incrementally, than to reorientations, which would redefine the strategic domains. Variations exploit firms' experience, preserve existing distributions of power, and can win approval from partially conflicting political interests. Reorientations take firms outside their familiar domains and alter the bases of power, so reorientation proposals instigate struggles between power holders and power seekers. Based on several studies of firms facing crises, Starbuck (1983) proposed that behavioral change usually requires changes in top management.

Baumard and Starbuck have found that whenever possible, managers interpreted small failures as reinforcing their firm's core strategic beliefs. On one hand, managers interpreted the small failures as demonstrating the foolishness of attempts to deviate from the firm's core beliefs, but on the other hand, the interpretation processes tended to modernize the core beliefs. Where such interpretations were very implausible, managers dismissed the small failures as idiosyncratic. Thus, there was some incremental learning, but the perceived consistency of small failures with core beliefs meant that ventures did not really test the validity of the core beliefs.

When asked what they learned from large failures, IndoCom's managers interpreted every one of these large failures as having idiosyncratic and largely exogenous causes. The larger the failure, the more idiosyncratic or exogenous causes they saw. They perceived the larger failures as having occurred in ventures to which the firm had weaker commitments and over which the firm had weaker control. Since the large ventures had pursued long-run goals and had developed slowly, the managers of these ventures had changed and few managers were committed to their ventures' success. The ventures' costs were distributed over time and hidden by other events. Furthermore, managers saw no relations between new large failures and previous ones, even when the same people had managed more than one failed venture.

Across all 14 cases, both large failures and small ones exhibited some pervasive issues in learning. Reporting about failures was incomplete and senior managers discounted early reports of problems. The managers of small ventures did not report

problems that implied the ventures had been ill-advised, while the managers of large ventures did not report problems they expected to diminish in the long run. In fact, the managers of ventures had reported problems in only 8 of 14 ventures, and they had portrayed these problems as involving only implementation issues. Thus, senior managers had difficulty distinguishing vital problems from trivial ones.

When managers have analyzed strategic issues at IndoCom, maneuvers for political advantage have taken precedence over the substantive strategic issues. Managers appear to use their allegiance to the firm's core strategic beliefs as justification for the failures in which they participated. Thus, the analyses have not really brought into question the correctness of these core strategic beliefs. In fact, individuals who have questioned the core strategic beliefs have been demoted.

The contrast in learning ability between IndoCom and Wachtell is striking. One firm has repeatedly extracted valuable lessons from its experiences whereas the other has repeatedly failed to find any lasting value in its experiences. Although such differences might occur by chance, it is difficult to see a string of 14 heads as arising from the same coin as a string of 14 tails. One significant difference between the firms is political. Although Wachtell has many partners, a small, cohesive group of founding partners has maintained control throughout the firm's history. These men have consistently chosen to accept lower personal earnings in order to subsidize the earnings of their partners, and since they cannot be dislodged from their dominant positions, their personal rewards are very closely tied to the firm's success. IndoCom has many senior managers who compete with each other for promotions, control over resources, and political advantage. Managers can gain individually even if the firm loses, or they can lose individually even if the firm gains. Of course, the political processes in IndoCom resemble those in many large, divisionalized firms whereas Wachtell has unusually tight control in comparison with large corporations and even competing law firms.

Why Both Cognitive and Non-cognitive Theories of Learning Persist

Despite the enthusiasm of students and researchers for studying strategic management, there is considerable evidence that formal strategizing is a two-edged

sword that is as likely to reduce profits as to raise them. When strategies reflect accurate assessments and forecasts, everyone is working together to achieve difficult, but possible, goals, while ignoring irrelevant distractions. These are optimal results. But strategizing also can produce terrible results by inducing everyone to work intensely to achieve the wrong goals, while overlooking unexpected opportunities. Empirical research suggests that negative outcomes happen roughly as often as positive outcomes, implying that strategizing has negligible effects on the average (Baumard and Starbuck, 2002).

There are several reasons why one should expect strategizing to be ineffective on the average (Starbuck, 1992). Firstly, formalization undercuts strategizing's potential contributions by making strategies less flexible and by amplifying political considerations. Secondly, it takes time to implement significant strategies and no one can forecast accurately over the long term, so the strategies that hold more potential advantage are more likely to be incorrect. Thirdly, fundamental legal and competitive barriers make it very difficult to attain high profits through strategic actions. Fourthly, the feedback that firms receive from their environments reflects many factors in addition to the firms' behavior, so strategic thinking rests on noisy data. And fifthly, most managers hold inaccurate beliefs about both their firms and their market environments, some of these very inaccurate.

Based on two studies of middle and senior managers, Mezias and Starbuck (2003) have reported that only about three-eighths of managers have perceptions that contain less than 50% error, and that the errors in many managers' perceptions exceed 200%. Mezias and Starbuck found almost no relations between the magnitudes of errors and managers' job experience or assigned responsibilities. Although many managers are aware that they have inaccurate perceptions, those managers who believe they have accurate perceptions nevertheless divide into the three-eighths and five-eighths categories. Payne and Pugh (1976) reviewed scores of studies in which researchers asked employees to characterize their firms' structures and cultures. Payne and Pugh concluded that different people in a firm disagree so strongly with each other that it makes no sense to talk about an average belief, and that people's beliefs about their firms correlate very weakly with measurable characteristics of their firms.

Cognitive Learning. Such inaccurate perceptions support the inference that cognitive learning is generally ineffective. Although some people do have accurate perceptions, and learning probably contributes to these, learning also contributes to the very prevalent inaccurate perceptions. If the results of behavior do not depend solely on people's perceptions but also depend on their abilities to implement their ideas and on the actions of their environments, then perceptions receive very erratic reinforcement.

Whereas *A Behavioral Theory of the Firm* focused on the cognitions of people inside a firm, the inaccuracies of perceptions challenge the importance of cognition as a component of learning (Starbuck and Hedberg, 2001). According to cognitive theories, analysis guides action, and learning modifies cognitive maps that form the bases for analysis. Correct cognitive maps enable people and firms to predict the consequences of behaviors they have never tried, so they can search for opportunities, threats, and shortcuts, and they can conceive innovations. However, cognitive learning theories confront insurmountable challenges if most people have incorrect cognitive maps. When the causal maps are erroneous, behavior that appears optimal on the basis of cognitions can be foolhardy (Anderson, Krull, and Weiner 1996).

Generally, cognition's control over behavior has to be loose because behaviors have many determinants in addition to cognitive ones. Even cognitive theories assert that learning can be starting to occur before outsiders can see behavioral changes (Leroy and Ramanantsoa, 1997). Many behaviors occur automatically without continuing reflection, so cognitive controls must operate intermittently. Also, firms sometimes imitate the behaviors of successful firms even though they do not know why their models acted as they did (Haunschild and Miner, 1997). Organizational politics loosen the connections between specific cognitions and specific behaviors. March and Olsen (1979: 26) likened organizational decision settings to "garbage cans" filled with diverse actors, diverse problems, and diverse potential solutions.

Non-cognitive Learning. Given the prevalence of inaccurate cognitions, the dependence of cognitive theories on the accuracy of cognitions generally reinforces the value of non-cognitive learning theories that say learning results from automatic reactions to performance feedback from environments. These non-cognitive theories imply that behaviors can improve even though learners misperceive their

environments or the causal relations between actions and outcomes. However, non-cognitive theories also imply that people or firms may learn elaborate routines in which many components have no instrumental effects, as Stimulus-Response links can gradually aggregate into complex repertoires that evolve, generalize, lose relevance, and possibly grow dysfunctional. As well, the rigidity of behavior programs causes them to lose their correlation with organizational or environmental requirements. Thus, there is no assurance that observed behaviors are necessary for good performance.

Cognitive changes are sometimes consequences of behavioral change. Human brains make involuntary perceptual changes that make actual behaviors seem more rational, and these changes occur even when external forces have compelled the behaviors. Festinger (1962) suggested that perceptions of outcomes change to reduce the dissonance created by forced compliance. Starbuck (1983, 1985) asserted that firms often amend their cognitions to fit with actions that they have already taken or that they take programmatically and unreflectively.

Alchian's (1950) ideas about behaviors evolving in a population of firms exemplifies a non-cognitive theory, and Winter's (1964) critique of such evolution shows some key limitations of such theories. In general, it is easier to interpret non-cognitive changes as mere "changes" than as "improvements". Although imitation of competitors can reduce the deficiencies of firms that are below average, it can also reduce the advantages of firms that are above average, and both effects intensify competition. From a study of 500 unusually profitable small and medium-sized companies, Simon (1996) inferred that their significant characteristics included the avoidance of management fads such as diversification, outsourcing, and strategic alliances. More generally, the notion that learning depends more strongly on environmental properties than on the properties of learners creates a riddle where an environment is largely composed of learners who are all learning from each other.

It seems that cognitive and non-cognitive theories coexist because each approach can explain different phenomena and neither is sufficient. Most studies of learning by individual firms have used cognitive theories; most studies of learning by populations of firms have used non-cognitive theories. However, both types of studies have

displayed puzzling ambivalences. Nearly all studies of learning by individual firms have relied on cognitive theories but they have also emphasized the importance of behavior programs that portray behavior as mechanistic. Conversely, most studies of learning by populations of firms have relied on non-cognitive theories but they have also used cognitive concepts to explain their observations even though they gathered no evidence about cognitions. A few studies of learning by populations of firms have used cognitive theories but these have emphasized imitation and have de-emphasized rational thought.

Festinger (1962) framed the issue of non-cognitive learning versus cognitive learning in terms of the costs of making different kinds of changes. He argued that non-cognitive learning dominates where behaviors are easier to change than cognitions, whereas cognitive learning dominates where cognitions are easier to change than behaviors. However, the relations between non-cognitive learning and cognitive learning can be much more complex than Festinger's formulation allows. For one thing, noncognitive learning and cognitive learning need not be substitutes; they can support each other. For example, people may stubbornly adhere to cognitions that support habitual behaviors, and people often revise their cognitions to align them with their behaviors (Nystrom and Starbuck, 1984; Starbuck, 1983, 1985). For another thing, noncognitive learning and cognitive learning may form dialectical syntheses. For example, people may interpret new cognitions as confirming the validity of long-standing behavior patterns, or people may alter their behaviors dramatically while perceiving themselves to be acting consistently.

To Whom Does the Effectiveness of Learning Matter?

No matter which theoretical approach one takes, the looming mystery is how people and firms manage to survive despite ineffective and self-destructive learning processes that create serious organizational faults and prevalent misperceptions. The managers observed by Mezias and Starbuck (2003) came from the world's best-known companies. If people in these companies were aware that perceptual errors and faulty learning were causing serious problems, these companies certainly have the resources to reduce such errors. But the companies are not devoting significant resources to correcting misperceptions and improving learning processes.

One explanation must surely lie in the weak associations between firms' behaviors and their economic success. People and firms can behave effectively without having accurate information about their current situations. Acceptable performance is comparative (Hinings and Greenwood, 1988; Walgenbach and Hegele, 2001). Managers or firms have to perform as well as competitors; they need not take optimal actions, or even good actions, unless their competitors are taking equally effective actions (Salgado, Starbuck and Mezias, 2002). For evaluations within their firms, managers may not even have to perform as well as competitors, but only better than before. As Winter (1964) pointed out, there are a variety of reasons why very suboptimal firms may survive indefinitely.

Another explanation seems to lie in the abilities of some managers, and possibly some firms, to generate and exploit ambiguity and uncertainty. Mezias and Starbuck (2003) found that most managers who do not have accurate perceptions are aware of their ignorance. Walton and Dawson (2001) inferred that managers emphasize variables that they can control when they discuss criteria for evaluating managerial performance. Baumard (1999, 2002) argued that some top managers have an ability to invent sense-making frameworks that enable them to operate effectively in ambiguous, uncertain environments. Such managers see conflicts between alternative cognitive interpretations as levers they can use to create competitive advantages for their firms.

It appears that before one can talk about a behavioral theory of the firm, one needs to decide which firms the theory is supposed to describe. There are many reasons to doubt that most firms gain any advantages from strategizing or strategic learning, so for most firms, strategic learning merely acts as a generator of change. These changes can stimulate complex strategic interactions without altering the overall survival rates across the population of firms. Since the cognitions of most firms contribute little to their profitability or survival, theories about them can ignore their cognitions and noncognitive theories offer parsimony. There are also reasons to believe that a few firms gain substantial advantages from strategizing and strategic learning. Such gains are almost certain to be temporary because the conditions that make it possible to make such gains are difficult to sustain, but the temporary advantages may last

several decades. Satisfying theories about these exceptional firms need to consider their cognitions.

Footnote

The theories that this article calls *non-cognitive* might also be called “behavioral” (Starbuck and Hedberg, 2001). The “behavioral” designation reflects the fact that psychologists have long used the label “behaviorism” to denote theories that ignore cognition. Watson (1913) blamed a reliance on introspective data for psychology’s failure to progress, and he (1913: 163) argued that psychology should “no longer delude itself” that it can observe mental states. He said introspection reports only the processes of which people are conscious, and people’s descriptions of these processes cannot be verified. "What we need to do is to [make] . . . behavior, not consciousness, the objective point of our attack" (pp. 175-176). Unfortunately, according to this usage, *A Behavioral Theory of the Firm* would not be a behavioral theory, which seems unnecessarily confusing in the current context.

References

- Alchian, A., 1950. Uncertainty, evolution, and economic theory. *Journal of Political Economy* 57, 211-221.
- Anderson, C.A., Krull, D.S. Weiner, B., 1996. Explanations: Processes and consequences. In Higgins, E. T., Kruglanski, A. W. (Eds.), *Social Psychology: Handbook of Basic Principles*. Guilford Press, New York, pp. 271-296.
- Barnett, W.P., Hansen, M.T., 1996. The Red Queen in organizational evolution. *Strategic Management Journal* 17, 139-157.
- Barney, J.B., 1991. Firm resources and sustained competitive advantage. *Journal of Management* 17, 99-120.
- Baumard, P., 1999. *Tacit Knowledge in Organizations*. Sage, London.
- Baumard, P., 2002. Tacit knowledge in professional firms: The teachings of firms in very puzzling situations. *Journal of Knowledge Management* 6, 135-151.
- Baumard, P., Starbuck, W.H., 2002. Est-il réaliste d’étudier les mouvements stratégiques d’une firme? Dans *La Concurrence: Entre Affrontement et Connivence* (coordonné par Le Roy, F.). Vuibert, Paris, pp. 185-204.
- Cyert, R.M., March, J.G., 1963. *A Behavioral Theory of the Firm*. Prentice-Hall, Englewood Cliffs, NJ.
- Dendrell, J.C., 2003. Vicarious learning, Under-sampling of failure, and the myths of management. *Organization Science* 14 (3), 227-243.
- Epple, D., Argote, L., Devadas, R., 1991. Organizational learning curves A method for investigating intra-plant transfer of knowledge acquired through learning by doing. *Organization Science* 2, 58-70.
- Festinger, L., 1962. *A Theory of Cognitive Dissonance*. Stanford University Press, Stanford, CA.
- Ginsberg, A., Baum, J.A.C., 1994. Evolutionary processes and patterns of core business change. In Baum, J.A.C., Singh, J.V. (Eds.), *Evolutionary Dynamics of Organizations*. Oxford University Press, New York, 127-151.

- Haunschild, P.R., Miner, A.S., 1997. Modes of interorganizational imitation: The effects of outcome salience and uncertainty. *Administrative Science Quarterly* 42, 472-500.
- Hedberg, B.L.T., 1981. How organizations learn and unlearn. In Nystrom, P.C., Starbuck, W.H. (Eds.), *Handbook of Organizational Design* (Vol. 1). Oxford University Press, New York, 3-27.
- Hinings, C.R., Greenwood, R., 1988. The normative prescription of organizations. In Zucker, L.G. (Ed.), *Institutional Patterns and Organizations: Culture and Environment*. Ballinger, Cambridge, MA.
- Leroy, F., Ramanantsoa, B., 1997. The cognitive and behavioral dimensions of organizational learning in a merger: An empirical study. *Journal of Management Studies* 34, 871-894.
- Levinthal, D., March, J.G., 1993. The myopia of learning. *Strategic Management Journal* 14, 95-112.
- Levitt, B., March, J.G., 1988. Organizational learning. *Annual Review of Sociology* 14, 319-340.
- March, J.G., Olsen, J.P., 1979. *Ambiguity and Choice in Organizations* (2nd edn). Universitets-forlaget, Bergen.
- Mezias, J.M., Starbuck, W.H., 2003. Studying the accuracy of managers' perceptions: a research odyssey, *British Journal of Management* 14, 3-17.
- Miller, D., 1990. *The Icarus Paradox: How Exceptional Companies Bring About Their Own Downfall*. Harper Collins, New York.
- Miller, D., 1993. The architecture of simplicity. *Academy of Management Review* 18, 116-138.
- Miller, D., 1994. What happens after success: The perils of excellence. *Journal of Management Studies* 31, 325-358.
- Milliken, F.J., Lant, T.K., Batra, B., 1992. The role of managerial learning and interpretation in strategic persistence and reorientation: An empirical exploration. *Strategic Management Journal* 13, 585-608.
- Nelson, R.R., S.G. Winter, Jr., 1982. *An Evolutionary Theory of Economic Change*. Belknap Press, Cambridge, MA.
- Normann, R., 1971. Organizational innovativeness: Product variation and reorientation. *Administrative Science Quarterly* 16,203-215.
- Nystrom, P.C., Starbuck, W.H., 1984. Managing beliefs in organizations. *Journal of Applied Behavioral Science* 20(3), 277-287.
- Payne, R.L., D.S. Pugh (1976. "Organizational structure and climate." In Dunnette, M.D. (Ed.), *Handbook of Industrial and Organizational Psychology*. Rand McNally, Chicago, pp. 1125-1173.
- Penrose, E.T., 1959. *The Theory of the Growth of the Firm*. Basil Blackwell, Oxford.
- Rhenman, E., 1973. *Organization Theory for Long-range Planning*. Wiley, London.
- Salgado, S.R., Starbuck, W.H., Mezias, J.M., 2002. The accuracy of managers' perceptions: A dimension missing from theories about firms. In Augier, M., March, J.G. (Eds.), *The Economics of Choice, Change, and Organizations: Essays in Memory of Richard M. Cyert*. Edward Elgar, Cheltenham, pp. 168-185.
- Simon, H., 1996. *Hidden Champions: Lessons from 500 of the World's Best Unknown Companies*. Harvard Business School Press, Boston, MA.
- Sitkin, S.B., 1992. Learning through failure: The strategy of small losses. *Research in Organizational Behavior* 14, 231-66.
- Starbuck, W.H., 1983. Organizations as action generators. *American Sociological Review* 48, 91-102.
- Starbuck, W.H., 1985. Acting first and thinking later: Theory versus reality in strategic change. In Pennings, J.M., and Associates, *Organizational Strategy and Change: New Views on Formulating and Implementing Strategic Decisions*. Jossey-Bass, San Francisco, pp. 336-372.

- Starbuck, W.H., 1992. Strategizing in the real world. *International Journal of Technology Management, Special Publication on Technological Foundations of Strategic Management* 8(1/2), 77-85.
- Starbuck, W.H., 1993. Keeping a butterfly and an elephant in a house of cards: The elements of exceptional success. *Journal of Management Studies* 30(6), 885-921. Reprinted, with an addendum, in Choo, C.W. Bontis, N. (Eds.), *The Strategic Management of Intellectual Capital and Organizational Knowledge*. Oxford University Press, Oxford, 2002, pp. 371-401.
- Starbuck, W.H., Hedberg, B.L.T., 2001. How organizations learn from success and failure. In Dierkes, M., Berthoin Antal, A., Child, J. Nonaka, I. (Eds.), *Handbook of Organizational Learning and Knowledge*. Oxford University Press, Oxford, pp. 327-350.
- Starbuck, W.H., Greve, A., Hedberg, B.L.T., 1978. Responding to crises, *Journal of Business Administration* 9(2), 111-137.
- Walgenbach, P., Hegele, C., 2001. What can an apple learn from an orange? Or: what do companies use benchmarking for? *Organization* 8, 121-144.
- Walton, E.J., Dawson, S., 2001. Managers' perceptions of criteria of organizational effectiveness. *Journal of Management Studies* 38, 173-199.
- Watson, J.B., 1913. Psychology as the behaviorist views it. *Psychological Review* 20, 158-177.
- Weick, K.E., 1991. The nontraditional quality of organizational learning. *Organization Science* 2, 116-123.
- Wernerfelt, B., 1984. A resource-based view of the firm. *Strategic Management Journal* 5, 171-180.
- Wildavsky, A.B., 1972. The self-evaluating organization. *Public Administration Review* 32, 509-520.
- Winter, S.G. Jr., 1964. Economic 'natural selection' and the theory of the firm *Yale Economic Essays* 4(Spring), 225-272.