Starbuck, William Haynes (1934-)

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Personal background

- born 20 September 1934 at Portland, Indiana, USA
- graduated from Harvard University (AB Physics, 1956), Carnegie Institute of Technology (MSc, 1959; Ph.D. 1964)
- held professorships in administrative sciences and economics (Purdue, 1964-67), administration and sociology (Cornell, 1967-71), and business administration (Wisconsin-Milwaukee, 1974-84),
- held visiting professorhips at Johns Hopkins University, (1966-67), London Business School (1970-71), International Institute of Management, Berlin (1971-74), Norwegian School of Economics and Business Administration, Bergen (1977-78), and Stockholm School of Economics (1977-78)
- currently ITT Professor of Creative Management at New York University,
- Fellow, American Psychological Association (1975), Academy of Management (1986), American Psychological Society (1995).
- developed the concepts of self-designing organizations, organizational design, environmental niches, organizational equilibria composed of antithetical processes, relativity of aspirations through time,
- contributed extensively to behavioral research methods and epistemology.

Major works

- "Organizational growth and development." Pages 451-583 in J. G. March (ed.), Handbook of Organizations; Rand McNally, 1965.
- "Camping on seesaws: Prescriptions for a self-designing organization," with Bo L. T. Hedberg and Paul C. Nystrom. *Administrative Science Quarterly*, 1976, 21: 41-65.
- *Handbook of Organizational Design*, two volumes, edited with Paul C. Nystrom; Oxford University Press, 1981.
- William H. Starbuck contributed more than one hundred articles to leading scientific journals including *Administrative Science Quaterly, American Sociological Review, Behavioral Science*, *Journal of Management Studies*, etc.

Summary

William H. Starbuck has exerted pervasive influence on three generations of behavioral scientists and management researchers. His works, which range over many topics, are distinguished by cautious

inferences and constant reflexive interrogation. They investigate decision making, organizational design, learning, cognition, interaction between rationality and ideologies, forecasting, crises, and scientific methods. They emphasize the relativity of managers' perceptions, the interactions between rationality and ideologies, the use of experimental prescriptions, and crisis management through unlearning of behavioral and cognitive patterns. His methodological writings assume a world filled with paradoxical, contradictory and antithetical processes. He has striven to foster prescriptive organizational design, and his four edited books include the classic *Handbook of Organizational Design* with Paul Nystrom (1981b). During his term as the editor of *Administrative Science Quarterly*, he reoriented it to focus on organization theory and enlisted an international editorial board.

General Appraisal

"Self, career, family, organization and society tangle together. To abstract myself or my career from context would violate my scientific standards" (Starbuck, 1993: 66).

William H. Starbuck's works stand amongst the most influential and most quoted in management sciences. Yet the range and depth of his contributions makes them difficult to describe, and the basic pattern of his research cannot be encapsulated in a single recurrent theme. His production, which started in 1958 at the age of 24, includes more than one hundred articles and contributions to edited works. His works range widely across applied mathematics and experimental psychology (1963a, 1965a, 1965b, 1966, 1968a, 1973), sociology and organizational theory (1974, 1976a, 1976c, 1977, 1981a, 1983, etc.), information systems and man-machine interaction (1971b, 1971c, 1975, etc.), to scientific methods (1961a; 1968; 1974; 1981b – pp. 9-13; 1988a; 1988b – pp. 73-77; 1993 ; 1994). His ability to connect fields of social science made his renown and reputation. He opened the field of management to other disciplines and opened many avenues of research that are considered mainstream today.

Constant self-reflection and relentless interrogation of his own assumptions and values are key attributes of Starbuck's research. As a result, his writings may amaze readers. His autobiographical essay (1993) expresses extreme frankness. His research creates a paradoxical feeling because it is sometimes very *prescriptive* — such as works on managing crises (1978, 1984, 1989) — and sometimes very *relativist,* emboding astute wisdom and skepticism. This relativism is exemplified by the notion that organizations rely on antithetical processes that counterbalance and neutralize each other (1976b, 1976c, 1977).

Consistent with the behaviorist school — which is more attitude than doctrine, more philosophy and epistemology than specific assumptions — Starbuck's works are deeply rooted in a constant interrogation of concrete behaviors, extracting theoretical revolutions from singulars and exemplars. Human failures and weaknesses are particularly praised by Starbuck, who integrates his own life experiences (1993) into his theoretical constructions and his reflections on science. He does not hesitate to question his own scientific achievements by exposing his trials, errors and unlearning. This approach fosters an intimacy with his readership, unveiling a lifetime of theoretical construction in which introspection, doubts and controversies endlessly intertwine.

Early Aspirations

With a B.A. in Physics from Harvard University and three summers at IBM, the young William H. Starbuck was aiming for a doctorate in applied mathematics and a career as a computer designer. Then Richard Cyert, one of his professors at the Carnegie Institute of Technology, offered him financial aid for doctoral studies in Industrial Administration and advised him to focus on behavioral sciences. One result of this history is that Starbuck's writings reflect a tension between determinism and relativism. He sometimes does elegant acrobatics to avoid choosing between his intransigent and mathematical logic, on one hand, and the wisdom of a behaviorist who is willing to introduce fragility and relativity in the act of research, and consequently in theory construction.

From 1957 to 1960, Cyert and March mobilized students to conduct various studies in support of the

forthcoming *A Behavioral Theory of the Firm* (1963). Starbuck ran an experiment in which three people had to cooperate to achieve joint results while also pursuing somewhat divergent individual goals (Cyert, March, & Starbuck, 1961). The experiment drew two conclusions: 1. Individuals modify the information they transmit to pursue the rewards they expect from alternative group actions. 2. However, in the experimetal situation, these manipulations do not affect the groups' performance.

Also, as part of the Behavioral Theory of the Firm project, Starbuck wrote a paper about aspiration levels that built upon Simon's notions (Simon, 1955; March and Simon, 1958: 47-52). This student paper eventually turned into two published articles, and it stimulated a third article.

One of these essays, published in the highly prestigious *Psychological Review* (Starbuck, 1963a), debunked Festinger's theory that people set their aspirations so as to maximize subjhective utility. Festinger (1942) regarded a level of aspiration as point of reference for feelings of success or failure; a performance exceeding the level of aspiration is a success, a performance that fails to reach this level is a failure. Starbuck pointed out that the utility-maximization model implies that, in this case, people should set their aspirations so low that every outcome would produce feelings of success. Starbuck argued, instead, that levels of aspiration change as goals are matched or missed. He also suggested that people construct their preferences *ex-post* so that behaviors and preferences interact continuously. This relative treatment of preferences was later echoed by March and Olsen (1976) and more explicitly by March (1978 on the treatment of tastes).

This theme of antithetical processes that correct themselves in the course of events has been persistent throughout Starbuck’s works, borrowing different clothes and disguises as the scope and focus shifts from very small to very large units of analysis. Organizing processes generate other processes that counterbalance them ("self-designing organizations", 1975-1981). Decision making becomes a continuous collision between rationality and ideologies (1977, 1978, 1984a, 1989).

Other themes in Starbuck's writings arose later: The ironies and bitter surprises of his life probably led him to study brutal and unilateral changes (such as social revolutions) and to develop a theoretical predilection for breakdowns and paradoxes.

Organizational Growth and Metamorphosis

The article that first made Starbuck well known was a chapter about Organizational Growth and Development in the *Handbook of Organzations* (1965b). This chapter began by reiterating the theme that behaviors and preferences interact continuously. Starbuck analyzed motives for organizational growth -- self-realization, risk, prestige, executives incomes, profit, cost, monopoly, stability and survival -- and then he (1965b, p. 465) wondered: "Do these goals produce growth, or does growth produce these goals?".

He divided growth models in four categories : (a) *cell-division* models, which focus on growth as a change in percentage of size by adding cells and divisions; (b) *metamorphosis* models, which acknowledge that growth is not a regular process but incorporates abrupt changes; (c) *will-o’-the-wisp* models, which portray growth as the pursuit of opportunities that disappear as expansion is realized; and (d) *decision-process* models, which examine decision rules and decision-making procedures. Sometimes with an obvious lack of diplomacy, Starbuck unveiled brick by brick the flawed constructions of each model, picking up empirical weaknesses, shedding light on logical inconsistencies or methodological limits. He showed how cell-division models tend to concentrate on effects and to ignore causes of growth; how metamorphosis models, although describing causes and effects of change fail to show their connections; how will-o’-the wisp models frame internal processes and external factors as "chicken and egg"; and how decision-process models become harder to understand as they become more realistic.

"One problem with most models of organizational growth", Starbuck concluded, "is that they imply a degree of autonomy and predestination which is difficult to reconcile with one's direct observation" (1965b, p. 494). Thus, Starbuck (1968, 1973) sought models that would embrace the totality of the phenomenon from its emergence to its extinction. Metamorphosis models seemed promising because they left room for unforeseen and fast adjustments, gave attention to details, and allowed for nonlinearity and intrinsic regulation in the course of action. Starbuck’s penchant for experimentation and his abilities in mathematics led him to the works of the Russian mathematician

Pontryagin (1961). The latter demonstrated that it is far more parsimonious to describe a revolution by three distinct groups of equations, instead of trying to integrate all phenomena into a single system of equations. These three systems describe (a) the slow transformation before the revolution, (b) the fast transformation during the revolution, and (c) a slow transformation after the revolution. This analysis also convinced Starbuck ("Tadpoles", 1973) that for any system capable of dramatic revolution, it is impossible to state precisely why the revolution occurs.

Starbuck's acute and cutting analyses, which leave little hope for the reviewed theories, have become as renown as his generosity and commitment to young researchers. Starbuck's sharp scrutiny literally destroyed contingency theory ("A trip to view the elephants and rattlesnakes in the garden of Aston," 1981). In that case and many others, he has devoted enormous effort to producing evidence contradicting widely held theories, beliefs, or methods. For instance, he has repeatedly attacked tests of statistical significance (e. g. "Theory building in organizational behavior," 19?? ; "On behalf of naïveté", 1994), and recently, he has highlighted the unreliability of multiple regression analyses ("Opening the Pandora's box…", 1996). It may be that Starbuck caught this peculiar habit when he criticized Festinger's theory about levels of aspiration.

Organizational Design

George Box and Norman Draper (1969) were working on improving industrial processes. The classical approach was, at that time, to establish the best possible design *a priori* given the state of current and exhaustive knowledge. Unfortunately, the constant improvement of industrial processes necessitated frequent interruptions and *ad hoc* fine tuning, so Box and Draper proposed the use of "evolutionary operation" (EVOP). The philosophy of this method was to manage processes so that not only products were produced, but also the necessary information to improve the manufacturing processes. Box and Draper saw an analogy between EVOP and biological evolution, with natural selection operating to improve industrial processes.

This idea of a learning derived from incremental experiments eventually led Starbuck to the concept of "self-designing organizations". But first, it influenced a project for the German Federal Health Bureau. Starbuck and Wolfgang Müller (1972) were asked to design an information system that would help the Bureau to evaluate the efficacy of medicines(1993: 87). However, the rapid development of medical research would make any fixed system rapidly obsolete, as would the ever changing information about the efficacy and side-effects of medicines. So Starbuck and Müller proposed that the system be designed to support constant redesign. "The central design challenge is to allow for solutions to an endlessly and rapidly evolving set of problems, taking into account changes in one's own comprehension of the problems as well as changes in the problems themselves" (1975, p. 219).

"Self-designing organizations" became the focus of a fruitful collaboration with Bo Hedberg and Paul Nystrom that extended over a decade and that continues to influence works on learning organizations and paradoxical change in organizations. An early statement of principles appeared as "Camping on Seesaws: Prescriptions for a self-designing organization" (ASQ, 1976). This article emphasized the roles of antithetical processes and contradictory prescriptions as sources of their inner balance for organizations. The deliberately prescriptive approach was itself a methodological prescription. By introducing changes in organization, they said, researchers can simultaneously generate better data, learn more about organizations' behavior, and improve organizations.

Opposing the paradigm that presents organizational design as "diagnosis-solution" sequence, Starbuck et al. advocated focusing on third-order ideologies and strategies to support second-order learning. "A self-designing organization functions most smoothly if its ideology cherishes impermanence" (Starbuck et al., 1976: 43).

Prevalent prescriptions for organizational design, said Starbuck et al., were calling for "organizational palaces" where specialization, clear objectives, unequivocal structures would create differentiated yet harmonious ensembles, where rational procedures and delimited responsabilities would build rigid structures with "refined and elegant" components. But such "palaces" avoid experiments, praise certainties, ossify their behaviors, balk at reorientations, and intolerate despotic leaders. One method to sustain "organizational palaces" is periodic redesign, but a procedure can itself become a routine of self-indulgent examinations and self-fulfilling propheties. For Starbuck et al., there was no reason an organization should behave more consistently than its environment. They proposed that "organizational

tents" should replace palaces. Undecisiveness can increase exploration, unlearning and re-learning. More ambiguous roles can produce flexibility. Organizational members should endlessly look for better performance indicators; should find in experimentation new ideas for experiments, and should derive satisfaction from creating new processes to feed the on-going redesign of the organization. Self-designing organizations should constantly perturb the frames that people are using to understand organizations and the organizations' environments.

What processes enable people to transform palaces into tents? Many processes are available, such as hiring new members, discarding leaders, and seeking outside expertise. Some processes accelerate change, while others decelerate it, and others stabilize the organization. Unfortunately, different processes are pushing the organization in different directions at different speeds, creating the problem of "How to fly without flying apart?" (1976: 55). Should organizations adapt to their environments, or should they bend environments to their aspirations? "Somewhere between the extremes is a balanced organization that regards its environment as partly an unknown to be discovered, partly a set of constraints to be satisfied, partly an alternative to be selected, and partly a setting to be resculptured" (ibid, p. 55).

Not only should managers live in tents, they should pitch the tents on seesaws that balance antithetical organizational forces. Six seesaws intertact: consensus and dissension, contentment and discontent, resource abundance and scarcity, faith in plans and doubt, consistency and experimentation, and rationality and imperfection. While maintaining a minimal level of consensus, organizations need dissension to make them reconsider their implicit assumptions. Although organizations have to keep their members minimally content, excessive contentment blinds members and allows crises to develop. A minimal level of affluence buffers organizations from environmental pressures, yet organizations need reminding about environmental changes and threats. A minimal degree of faith in plans brings consistency, yet rigid plans discourage creativity and lock organizations into ossified routines. Organizations need a minimal level of rationality, but rationality may breed oversimplified models and develop answers to the wrong problems. "A self-designing organization can attain dynamic balances through overlapping, unplanned, and nonrational proliferation of its processes; and these proliferating processes, collide, contest and interact with one another to generate wisdom" (op. cit, p. 63).

In opposition to the implicit quest for optimization and maximization of the first organization theorists, Starbuck and his colleagues opposed the principle of minimality and of constant interaction among organizational processes. They were later be joined in this effort by Karl E. Weick, who studied NASA as a "self-designing organization" (1977) and whose *Social Psychology of Organizing* (1979) paid tribute to Starbuck’s contributions. Weick credited Starbuck with the ideas

- that organizations assemble interdependent and continuous actions in sensible sequences (Weick 1979, p. 3)
- that researchers' questions improve as the researchers get closer to data, with thick descriptions and prescriptive thinking (Weick, 1979, p. 33)
- that organizations are not stable ensembles, but continuously fail to pieces and require elaborate mechanisms to maintain their stability (Weick, 1979, p. 58).

Crises: Reframing and Unlearning

Starbuck’s organizational design theories are rooted in a distinctive analysis of the interactions between ideologies and rationality. The question that originally motivated this work was why organizations or people remain in stagnating environments. Starbuck (1982) attributed this inertia to the ideologies people invent to justify their actions. Ideologies are integrated aggregates of beliefs, values, rites and symbols. Environments are both products and sources of ideologies, as decision-making unfolds and intertwines people, ideologies and rationalization of upcoming events. The conformity of organizational ideologies to societal aspirations acts as a source of reassuring legitimacy for the organization (Starbuck and Nystrom 1981d ; see also Meyer and Rown, 1977). Starbuck offered Kalmar Verkstadt as an illustration. This Swedish firm builds railroad cars, and in 1963, it had to deal with an abrupt cutback of government spending on railroad cars. (Reactions to sudden environmental change has been one of Starbuck's favorite themes.). He analyzed ideological and rational processes as they collided in Kalmar Verkstad's decision process. For instance, ideology demanded that Kalmar Verkstad would not question governmental decisions, so the company did not even consider the

possibility that the government's announcement of cutbacks might have been symbolic gesture. The spectre of competition frightened a firm that had always had government funding. The prospect of technical change scared a firm that had no engineers and had not done strategic planning.

Starbuck drew a distinction between problem solving, which aspires to rationality, and action generating, in which people observe the results of their actions and propose either new actions or new problems to fit the available solutions. He argued that the issue of whether problems are real or not is resolved by collective voting, in which clichés and quasi-theories play important roles. "Organizations' characteristics create perceptual filters that strongly distort their attempts at rational analyses" (Starbuck, 1982, p. 6). These ideas about cognition reflect the influence of Watzlawick, Weakland and Fisch (1974), who examined situations in which people invent solutions that make their problems worse. Before they can generate effective solutions, said Watzlawick et al., the people must see the problems in entirely different frames. Likewise, argued Starbuck, organizations are often unable to respond appropriately to problems until they see the problems in new frames.

Starbuck's ideas on nonrational decision processes culminated in a paper of "action generators," which built on the writings of March and Simon (1958) and Cohen, March, and Olsen (1072). "Organizations' activities categorize in at least two modes: a problem-solving mode in which perceived problems motivate searches for solutions, and an action-generating mode in which action taking motivates the invention of problems to justify the actions. The problem-solving mode seems to describe a very small percentage of the activity sequences that occur, and the action-generating mode a large percentage" (Starbuck, 1983, pp. 91-92).

Hence, organizations build ideologies that turn into structures, language, actions or problems, and then become themselves sources for building new ideologies (Meyer & Starbuck, 1993). Past successes are interpreted as criteria for the validity and consistency of current behaviors, as in the case of NCR, where eighty years of success in mechanical cash registers fused beliefs, strategies, structures, and action programs into a self-reinforcing ensemble. Ideology then blinds the organization to signals of dramatic change (i.e. the computing revolution). When asked about forthcoming technological changes in 1958, NCR's president replied: "I've been hearing about 'saturation of the market' ever since 1912. Make no mistake —mechanical bookkeeping is still going to be around for quite a while!" (Meyer & Starbuck, 1993, p. 106).

When crises materialize, most organizations act in ways that make the crises worse (Starbuck & al., 1978). In 1970, Wall Street realized that NCR had not capability in computers, and bankruptcy loomed. NCR's current managers were unable to act. The directors appointed a new CEO, William Anderson. To address the crisis, obsolete ideologies had to be discarded so that new strategies would become possible. Anderson began his reign by tearing down the old headquarters building and changing the company's name. Thus he helped the NCR managers to "unlearn" the old ideology without shifting too abruptly the symbolic universe that gave them on-going consistency.

Starbuck’s longitudinal case studies -- the Challenger disaster, Facit, Kalmar Verkstad, NCR -- have made "unlearning" a prescription for preventing and dealing with crises (Starbuck et al., 1976, pp.49-54; 1977d; 1978; 1984a; 1988c; 1989). As a prevention, unlearning counteracts the inertia of learning. Busy with applying old programs, organizations fail to invent new behavioral patterns and they discount signs of trouble as being merely expected outcomes. For instance, in the Challenger case, NASA managers interpreted damage to the rubber seals in the booster rockets as evidence that the seals were more robust than engineers had said. "In September 1984, Mulloy spoke of ‘allowable erosion’; and in February 1985, Mulloy and Thiokol characterized joint leakage as an ‘acceptable risk’ (Starbuck and Milliken, 1988c, p. 327).

A second finding of the Challenger study is that ‘fine-tunning’ can finally be the cause of failure because it creates sequences of experiments that test the limits of theoretical knowledge. Hence, if crises are occasions to learn, they are also occasions to discover that beliefs are failing to explain events (1983). Human and organizational flaws pervade Starbuck's theories as do behavioral programs that develop autonomously, showing his taste for relativity and indeterminateness.

Scientific methods

Managers are not the only people who take their objectivity for granted. Recognizing that researchers'

perceptions, language and founding assumptions produce systematic interpretation biases, Starbuck turned his humble attitude towards knowledge into a life-long epistemological commitment (Starbuck and Mezias, 1996b). He has relentlessly combatted theorizing that adopts a rational façade (1996a). "Scientific rationality is a fantasy that appeals us aesthetically, but it violates its own rules, distorts our observations, and extrapolates incomplete knowledge to ridiculous extremes" (1988b, p. 71).

Starbuck made such statements from experience. All of his theorizing has involved his questioning, without complacency or self-indulgence, his own epistemological assumptions. One result has been skepticism about clear-cut positions and theories presented as absolute truths. Even as he advocated the use of mathematics in social sciences, he pointed out that "Symbolic representation can be as unspecific and as ambiguous as one chooses to make it" (1965a, p. 340). When James Price exhorted researchers to have more logical rigor, Starbuck protested, "there are circumstances in which increases in logical rigor will decrease the value of a study" (1968b, p. 135).

Instead of faking objectivity, a sincere researcher, Starbuck suggested, acknowledges the ambiguous border between prescription and prevision, between observation and interpretation. He or she does not reject paradigms, but understands their ideological nature (1974). He or she experiments and predicts in the course of experimentation, so as to surprise himself with errors (1981b, Starbuck and Pant, 1990). He or she acknowledges with humility observations may say more about the researcher than about observed phenomena. He or she acknowledges that time series are autocorrelated and that one progresses faster by eliminating poor hypothesis than by defending plausible ones (1994).

Conclusion

Starbuck's contributions pervade management Ideas and methods that he promoted are widely used everyday -- action generator, computer simulation, environmental niche, evolution, knowledge-intensive firm, mathematical models, organizational design, prescription, fine-tuning, unlearning. Contingency theory is no longer popular, and he continues to wage campaigns against multiple regression, point null hypotheses, and significance tests.

His most important contribution lies perhaps in the modesty that he assigned to the research act. He showed that scientists have personal values that impact their research. Instead of adopting objective façades that look like grimaces, he invites us to constantly reconsider our descriptions with wisdom and our prescriptions with humility.

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