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Disciplines of Organizational Learning: Contributions and Critiques

Mark Easterby-Smith^{1,2}

The paper argues against attempts to create a single framework for understanding organizational learning. Relevant literature is reviewed from six disciplinary perspectives: psychology and OD; management science; sociology and organizational theory; strategy; production management; and cultural anthropology. It is argued that each discipline provides distinct contributions and conceptions of problems. Furthermore, a basic distinction between organizational learning and the new idea of the learning organization is noted. Whereas the former is discipline based and analytic, the latter is multidisciplinary and emphasizes action and the creation of an "ideal-type" of organization. Due to the diversity of purpose and perspective, it is suggested that it is better to consider organizational learning as a multidisciplinary field containing complementary contributions and research agendas.

KEY WORDS: organizational learning; learning organizations; knowledge creation.

INTRODUCTION

The literature on organizational learning has grown very rapidly in the last 5 years. For example, a bibliographic review by Crossan and Guatto (1996) shows that as many academic papers on the subject were published in 1993 as in the whole decade of the 1980s. In parallel with this growth authors frequently comment on the degree of fragmentation in the field, and have called for the development of a comprehensive theory of organizational learning (Shrivastava, 1983; Huber, 1991; Nicolini & Mezner, 1995).

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In this paper, I argue that the creation of a comprehensive theory is an unrealistic aspiration, for three reasons. First, the bulk of the literature on organizational learning can best be understood from a limited number of disciplinary perspectives, and each of these has a distinct ontological view and consequently a bounded understanding of its dynamics and problematics. Second, I argue that there is a new tradition of literature on *the learning organization* which is largely distinct from literature on organizational learning. This new thread of literature, which is best characterized by Senge (1990) in the U.S. and by Pedler et al. (1989) in the U.K., contrasts with the established tradition in several ways. It has an action orientation, and is geared toward creating an ideal type, an organization in which learning is maximized. On the other hand, the literature on organizational learning is analytic and concentrates on understanding learning processes within organizational settings, without necessarily trying to change those processes. Third, the ontologies represented by different disciplines lead to confusion in the research agenda, with regard to important topics, appropriate methods, and contributions. Hence, it might be best to think of several parallel research agendas and of complementary contributions from different perspectives, rather than a unified body of knowledge and practice.

This paper therefore (i) outlines the main disciplinary perspectives in the literature on organizational learning and demonstrates the contributions and problematic features from each perspective; (ii) analyzes the contribution of these disciplines to the conceptualization and practice of the learning organization; and (iii) considers the implications for future research agendas in the field as a whole.

DISCIPLINES OF ORGANIZATIONAL LEARNING

In this section, I review literature from six academic perspectives which have made significant contributions to understanding about organizational learning. These are: psychology & OD, management science, strategy, production management, sociology, and cultural anthropology. I am conscious that these are not all "disciplines" in the strict sense of the word. Whereas psychology and sociology are widely recognized as distinct disciplines, some will be recognized as subdisciplines, or as specialisms within the field of management (Alvesson & Wilmott, 1996).

The key point here is that each "discipline" employs a distinct ontology with regard to the social phenomena that are considered to be the core of organizational learning. This provides a distinctive set of contributions and problems in each case, to the extent that there is often minimal overlap

Table I. Disciplines of Organizational Learning

Discipline	Ontology	Contributions/ideas	Problematics
Psychology and OD	Human development	Hierarchical organization; importance of context; cognition; underlying values; learning styles; dialogue.	Defensive routines; individual to collective transfer.
Management science	Information processing	Knowledge; memory; holism; error correction; informing; single and double loop.	Nonrational behavior; short vs. long term; information overload; unlearning.
Sociology and organization theory	Social structures	Effects of power structure and hierarchy; conflict is normal; ideology and rhetoric; interests of actors.	Conflict of interests; organizational politics.
Strategy	Competitiveness	Organization-environment interface; levels of learning progressively more desirable; networks; importance of direct experience; population-level learning.	Environmental alignment; competitive pressures; general vs. technical learning.
Production management	Efficiency	Importance of productivity; learning curves; endogenous and exogenous sources of learning; links to production design.	Limitations of unidimensional measurement; uncertainty about outcomes.
Cultural anthropology	Meaning systems	Culture as cause and effect of organizational learning; beliefs; potential cultural superiority.	Instability and relativity of culture as barrier to transfer of ideas; whose perspective dominates?

between perspectives. The ontologies and contributions of these disciplines are summarized below in Table I.

In this instance I would stress that I am not attempting to provide comprehensive descriptions or definitions of these disciplines *per se*, rather that they are labels for the different standpoints from which contributions to the literature on organizational learning have been made. Similarly, I am not trying to fit authors into particular disciplinary frameworks. The focus is on the ideas produced by these authors and how they can be used to illustrate disciplinary perspectives. That being said, it is evident that some authors appear to fall rather neatly into one category or another, while others have produced ideas that span several perspectives. These six perspectives are illustrated in the following sections.

Psychology and OD

The central concern from this perspective is on *human development* within the organizational context. Five main threads to the literature will

be discussed, and I summarize both the main contributions and the features that emerge as problematic from this perspective.

First, there is the notion of learning as something that can be organized into a *hierarchy*. This comes from the work of Bateson (1973) who suggested that different forms of learning could be logically related to each other. Zero Learning involves the simple acquisition of information or a direct response to a stimulus (such as withdrawing the hand from a hot object); Learning I represents a change in Zero Learning, as such it implies choice and change in behavior within a context that appears to be constant; Learning II is a change in the process of Learning I, where the meta-context remains constant, and so on. An example he gives of Learning II comes from experiments with Rhesus monkeys where it was found that monkeys were more likely to be able to solve complex problems provided they were similar in *type* to problems that had previously been solved (Harlow, 1949). This idea of hierarchy has been applied to organizational learning by a number of authors who have operated from different disciplinary bases. As we shall see later in the paper, they adapt Bateson's ideas to fit the particular perspectives from which they come.

A second thread concentrates on the *cognitive* processes of learning. Dixon (1994) describes how individuals build up cognitive maps of their work contexts, and how they can modify these maps in the light of experience. It is from these individual maps that collective meaning structures can be built at the organizational level. A number of others have tackled the problem of how individual maps can be transferred to the organizational level. Kim (1993) argues that when individuals make their private maps of the world explicit they can then be shared and distributed across the organization. This is similar to Nonaka's (1994) spiral of knowledge creation, in which tacit knowledge is converted to explicit knowledge, first by individuals, then by groups, and finally by the organization as a whole.

The third thread comes from the tradition of *experiential learning*. Kolb et al. (1973) propose successive stages in individual learning which start with concrete experience and then move on to reflective observation, abstract conceptualization, and active experimentation. This model has been extended by Dixon (1994) into an organizational learning cycle in which information is generated through direct experience of employees, which is shared and interpreted collectively, and this leads to responsible action being taken by those involved. It draws on the work of Revans (1971, 1980) whose "action learning" stresses the need to integrate cognition and action, and theory and behavior. Its practical expression involves colleagues learning from each other in small groups (sets) as they tackle real problems in their work. Sets are helped by a tutor, or set advisor, who offers process, rather than content, advice. Particular emphasis is placed on questioning

the underlying values of the individuals involved. Furthermore, when these individuals are senior members, such as a management team, it can lead to significant change in the values and practices that are encouraged across the organization (Garratt, 1987).

The fourth thread is in the work on *learning styles* (Kolb et al., 1973; Honey & Mumford, 1982) The argument is that individuals have natural preferences for distinct ways of learning, and that these should be recognized and acknowledged as a prelude to broadening individual repertoires. One reason for wishing to broaden repertoires is that different environments favour different learning styles, and hence flexibility enables the individual to perform well in a range of situations. This logic has also been extended by Talbot and Harrow (1993) who suggest that organizations develop distinctive styles either as a consequence of the preferences of individual employees, or because of the general procedures they adopt for obtaining and disseminating information.

The fifth thread concentrates on the *problem* of why, in practice, individuals and organizations still find it so hard to learn from experience. Argyris (1986, 1992) has argued over a long period of time that there is often a conflict between what people say they believe, and the evidence from their actions (espoused theory vs. theory-in-use). Although people often claim to have learned new ideas and practices this is frequently not manifested in their behavior. Furthermore, individuals are highly resistant to admitting that there is any inconsistency between the two, and get angry when challenged. Similarly groups and organizations set up “defensive routines” which make it hard for people to challenge the *status quo* and for the organization as a whole to recognize that it has a problem. Argyris suggests that these defensive routines can best be tackled by confronting individuals and teams with the discrepancies between what they say and do, preferably through the intervention of an external consultant.

But Nonaka and Takeuchi (1995) point out a weakness to this solution. How can one decide whose version of reality is most likely to be correct? Should one rely on the view of a senior manager, or someone at the bottom of the organization, or an external OD consultant? One way out of this dilemma is to develop a consensual view through dialogue between colleagues, while still allowing for the possibility of external challenge. It is claimed that through such “dialogue” not only will communication and self-awareness be improved, but also it will strengthen the culture of trust and openness between members of the organization (Isaacs, 1993; Schein, 1993).

To summarize this section, contributions from the psychological perspective contain the following features:

- a view that there are different hierarchical levels to individual learning;

- recognition of the importance of context;
- the assumption that ideas about individual learning can be adjusted to relate to organizational learning;
- recognition of the importance of cognitive maps and frames of thinking;
- recognition of the interrelationship between thinking and action.

The main problems of organizational learning are seen to be:

- how to move the content of learning from individuals to the collectivity;
- defensive reactions among individuals and groups;
- poor communications between organizational members which can be improved through greater dialogue.

Management Science Perspective

The key concerns from the management science perspective are the *gathering and processing of information* in, and about, the organization. There is a longstanding tradition of theorizing about links between information and managerial decision making, with the earliest contributions coming from March and Simon (1958). More recent work has added the perspective of systems thinking.

A respected contemporary view comes from Huber (1991) who offers a “behavioral” definition: “An entity learns if, through its processing of information, the range of its potential behaviors is changed . . . an organization learns if any of its units acquires knowledge that it recognizes as potentially useful to the organization” (p. 89). He elaborates this through a review of literature around four main processes: knowledge acquisition, information distribution, information interpretation, and organizational memory.

First, knowledge can be acquired through the inherited knowledge of members of the company and by recruiting new staff with external knowledge. Most important, however, is the potential of the organization to learn through feedback on the consequences of its actions. This idea, which derives from cybernetics, has been greatly popularized by Argyris and Schon (1978), through the concepts of single and double-loop learning. These refer first to the correction of error within a given set of governing variables, and second to the process of changing the governing variables themselves. Their model involves a deliberate adaptation of Bateson’s ideas from the individual to organizational context, but retains the notions of logical hierarchies and contextual dependence.

Then this knowledge needs to be distributed and interpreted widely across the organization. Huber (1991) points out that distribution of information can lead to the creation of *new* information because people may now be able to piece together patterns which were not previously apparent. Both the distribution and interpretation of information are seen as limited by the amount of information available, so that total availability of information may paradoxically lead to ineffective interpretation. Along similar lines March and Olsen (1988) have examined the limitations to the rational processing of information. They suggest that rational processing is limited by the cognitive capacity of individuals; hence, only a portion of the information available to any organization is likely to be used in practice.

An important development from this perspective has been the reframing of information as organizational knowledge. Huber (1991) distinguishes between *information* as data that reduces uncertainty, and *knowledge* as a more complex product of learning, like "know-how." The work of Nonaka (1994) develops the latter concept further through the distinction between explicit and tacit knowledge. This has been particularly helpful because it moves beyond rationality. Whereas explicit knowledge is the stuff of management information systems, tacit knowledge cannot be codified or entered into databases. It resides within people, is acquired through experience, and can only be communicated informally or through example. In Nonaka's view, both forms of knowledge are necessary, and it is the continuous dialogue between the two which leads to the creation of "organizational knowledge."

The *systems perspective* adds two important ideas: the "holistic view," and the concept of "informating." Senge (1990) illustrates the holistic view by showing how feedback loops can magnify the consequences of local actions so that they effect the whole system. He does this through the "beer game," which is a simulation of a network of retailers, wholesalers, and manufacturers operating in the brewing industry. Here, an unexpected change in external demand leads logically to responses both up and across the chain which have the effect of producing acute shortage of supplies and then an enormous oversupply. Because companies respond independently using the same information (and logic), they end up following the same courses of action, and this greatly magnifies the effects of any single perturbation. This process leads not only to the rapid swings in financial markets that took place in the late 1980s (Abolafia & Kilduff, 1988), but also to the formulation of common practices and "recipes" across countries, industries, and regions (Spender, 1989).

The idea of informating was first coined by Zuboff (1988) to express the potential of information technology: it can either liberate individual potential, or be used as a tool of control. The difference depends very

much on how management decides to implement the systems. The main principle is that information needs to flow internally without hindrance, but this is difficult to achieve because of hierarchical differences and political conflicts. Argyris and Schon (1978) also show how people filter and manipulate information flows: employees avoid passing on negative information to their superiors, they try not to be too closely identified with new projects in case they fail, and managers involved in decision-making frequently employ information selectively in order to legitimate decisions reached on "other grounds."

The formal aspect of informing is the need to design control systems which help rather than hinder organizational learning. This requires errors in performance to be detected and corrected in ways which both allow the continuation of current objectives and the possibility of modifying these objectives. But again there are problems in implementation. Argyris and Schon (1978) explain how many systems which are set up in order to detect and correct errors require assumptions of what constitutes "normality," and it is usually the deviations from this normality which invite sanction. It is therefore in the interests of individuals to ensure that they are not in any way associated with such deviations. That is why a number of commentators applaud the introduction of scenario planning into Shell Oil during the early 1970s, not just because it enabled the company to anticipate the 1973 Oil Crisis, but because it legitimized more than one view of "normality," which therefore meant that it was much harder to define what would be an unacceptable deviation (Wack, 1985; Galer & van der Heijden, 1992).

There are two other concerns about the problems of implementing organizational learning. First there are the problems of *politics and nonrational behavior*. Huber (1991) sees political behavior causing problems for learning because it leads to the distortion and suppression of information. When involved in decision-making, managers frequently need to identify and present information in order to legitimate decisions reached on "other grounds." Thus, they do not necessarily follow the logical consequences of the information that they have to hand. The solution, for Senge (1990), lies in the skills of reflection and mutual inquiry. Individuals and teams must be fully committed to open dialogue. They may not be able to remove political processes, but they should be able to handle them when they surface.

The second concern comes from March (1991) who identifies a key paradox between *exploration* and *exploitation*. There is a tension between the exploitation of current technology which generates returns in the short-term, and the exploration of new technologies which are necessary for long-term prosperity. Levinthal and March (1993) claim that most organizations tend to focus on the short- rather than the long-term and on adjusting to the immediate environment. On the latter point they comment:

Organizational learning oversamples successes and undersamples failures. . . . The undersampling of failures is also a consequence of organizational selection processes. Organizations promote successful people. . . . On average, successful people have drawn experiences that have been more favorable than they should expect to continue, and unsuccessful people have drawn experiences that have been less favorable than they should expect in the future. (p. 110)

This leads to the third concern, the problem of *unlearning*. Hedberg (1981) suggests that it is more difficult for organizations to discard knowledge than to acquire new information. Individuals and organizations like to hold on to documentation long after it has fulfilled its usefulness, and their routines for dealing with the world are historically embedded in organizational systems, structures, and value systems. When faced with rapid environmental change, the ability of an organization to unlearn may be crucial to its survival. According to Hedberg, unlearning can take place incrementally or abruptly. In the first case, new information is simply stored on top of old information, so that it becomes progressively harder to retrieve the old information. In the second case, an event such as a financial or market crisis triggers off a general questioning of established values and procedures—as well as a questioning of the value of individuals who hold to these old views.

In sum, the main contributions from this perspective are:

- the creation and dissemination of information;
- the notion of organizational knowledge;
- levels of learning are progressively desirable;
- informing;
- the holistic view.

The main problems are seen to be:

- the distorting effect of organizational politics;
- the tendency of managers to behave in “nonrational” ways;
- conflicts between short- and long-term agendas;
- unlearning.

Sociology and Organization Theory

From this perspective, the focus is on the broader *social systems and organizational structures* where learning may be embedded, and which may effect organizational learning. In comparison to the previous perspectives, authors of this persuasion are rather more critical of both the concept and process of organizational learning. Their writings can be grouped into four themes which can be labeled, “functional,” “contingency,” “constructivist,” and “critical” views.

The *functional* view addresses the question of why organizations do not learn as well as they might. The argument is that structural aspects,

especially where they come closer to the bureaucratic model, make it extremely difficult for organizations to respond appropriately to environmental changes (Hedberg, 1981). Others show how hierarchies and the power differences between levels can lead to reductions in the quantity and quality of information that gets passed up or down the organization (Thackrey, 1987; Easterby-Smith, 1990; Talbot & Harrow, 1993), or show how political conflicts and selective networks have a crucial impact on the way that the organization is able to make sense of what is going on both inside and outside its metaphorical "boundaries" (Pettigrew, 1973; Latour & Woolgar, 1979; Law, 1994). These issues are also recognized in other perspectives. But in contrast to, say, the management science view, such conflicts and structures are regarded as inevitable, and necessary, parts of organizational life, rather than as a series of undesirable behaviors that should be minimized as far as possible.

Coopey (1995) attacks the management science perspective which idealizes the free and open exchange of information on the grounds that it is politically naive. As Giddens (1979) and other commentators point out, most organizations have great difficulty in determining collective directions, and in dealing with the different aspirations of individual members. This results in continuous political activity in which individuals and groups mobilize structural and informational power to serve their own ends. In the case of the learning organization, where rules are likely to be reduced and turbulence increased, this political activity is likely to rise rather than fall, as has been observed by Kanter (1989).

The *contingency* view suggests that organizational learning means different things and operates in different ways according to the nature of the organization. Shrivastava (1983) demonstrates how different organizational structures and cultures lead to distinct learning processes. Two examples from his typology are the "bureaucratic" and "participative" learning systems. In the former case, formal management systems are designed to produce good information and to aid planning and control; organizational learning is therefore located within the structures of strategic and environmental planning systems. Information that is not found in such systems will not be considered significant, and access to this information will normally be restricted. By contrast, the participative learning system is structured around informal *ad hoc* committees and groups that exchange information with whoever is considered to be relevant. Learning is therefore recognized as the process that goes on within these informal transactions and meetings, and becomes the property of all members of the organization.

The *constructivist* view goes further in emphasizing informal, as opposed to formal, learning. Brown and Duguid (1991) refer to these respectively as "non-canonical"; and "canonical" working practices, and suggest

that training and socialization processes are likely to be ineffective if based on canonical practice, instead of on the more realistic non-canonical practice. Nicolini and Mezner (1995) take a broader, organizational perspective by looking at how knowledge is reconstructed following perceived discontinuities in organizational functioning. Such discontinuities result from both internal and external pressures, and learning usually leads to emergence of a new identity for the organization. Learning is therefore conceived as both the process and outcome of social construction.

The weakness of the constructivist view is that it pays scant attention to the differences of interests and power within the organization. The *critical* view makes a distinct contribution here by focusing on hierarchical differences and on the ability of individuals to present knowledge as valid and useful within the organization. Coopey (1994, 1995) notes the general problem of governance and asks: Who is to determine the overall direction of the learning organization, and whose knowledge should be privileged over others? Some authors argue that it should be top management who exercise general responsibility for direction (Garratt, 1987), but Senge (1990) argues for a much broader and decentralized process of decision making. If one adopts the hierarchical stance, then it only matters that the powerful people are learning the right things; if one adopts the decentralized stance, then there is the problem of uncertainty and increased political activity. Neither can be resolved easily, and that is why Nonaka (1988) argues for the importance of middle managers in linking together the strategic and operational learning processes of the organization.

Furthermore, Coopey (1995) identifies the danger that organizational learning will become packaged as an ideology of commitment, as another motivational tool. This is evident from Alvesson's (1993) observation of the way that software companies try to use strong ideological pressures to control the highly skilled systems engineers who otherwise have extremely high expert power in their organizations. Similarly, it can be illustrated by a quote from Robey et al. (1995, p. 37) where they examine the potential of organizational learning in aiding the implementation of re-engineering: "If the parties responsible for implementing a re-engineered design view their task as part of the organizational learning process, the problem of a successful implementation can be greatly increased." If taken to extremes, such ideologies can be used covertly to justify the continued obedience of lower members and to safeguard the power of senior members of the organization.

The primary contributions from this perspective are therefore:

- providing a fundamental questioning of the nature of learning in organizations, and the process of construction that underpins it;

- drawing attention to politics, conflict and power as normal realities of all organizations, and not something that can be avoided by the introduction of better information systems;
- raising the question about whose interests are served by the concept of organizational learning.

When viewed from other perspectives, each of these features can also be seen as problematic.

Strategic Perspective

From this perspective, the literature on organizational learning focuses on *competition*, and learning is judged according to whether it gives one organization an advantage over others. As Hamel and Prahalad (1993) comment, "being a learning organization is not enough; a company must be capable of learning more efficiently than its competitors" (p. 80). It is argued further that the key to this is through alignment: obtaining the best relationship between the organization and its environment (Fiol & Lyles, 1985).

The bulk of the literature takes what Whittington (1993) calls the "evolutionary" and the "processual" views of strategy. The *evolutionary* view is dominated by work on population ecology. The key question here is about the evidence that the ability to learn is a significant factor in the survival of numbers of organizations across large populations. Some authors take a pessimistic view of the possibility of any single organization gaining advantage through learning. For example, Hannan and Freeman (1988) take a Darwinian view of organizational survival and argue that most organizations can do little to change themselves in the face of environmental changes. If the environment changes, it is just a matter of chance and luck as to which existing organizations have the best fit with the new conditions.

The research of Pennings et al. (1994) into major expansion decisions for 462 Dutch firms takes a similar line. They conclude that success, as measured by the continued existence of the expansion, is more likely if the new venture is closely related to the core skills of the existing business and if that business also has a significant past experience of diversification activities. On the surface, this suggests that the die is cast by the existing attributes of the organization, and little can be done to change things; but there is also an implication, from the observation about past experience, that past knowledge of the context of an activity will help future performance.

Parke (1991) is more explicitly optimistic about the chances of individual companies. On the basis of studying strategic alliances over time he concludes first that the degree of fit and complementarity between partners is crucial (in other words, they should not be too alike, and each should bring distinctive competencies into the partnership), and second, that the

success of these ventures is dependent of the ability of each to adapt and learn from the other.

More recent work on population level learning (Miner & Haunschild, 1995) also takes the optimistic stance. From a consideration of the strategies of overall industries such as electronics in Japan, they find evidence of two kinds of learning: the direct transfer of experience from one company to another, and a general "collective" learning across organizations. They therefore view organizational learning as comprising both trial and error, and a cognitive process. This represents a move away from the Darwinian approach of traditional population ecologists, to a Lamarckian approach.

The *processual* view concentrates on the micro level, and throws light on how learning takes place within and between organizations. The relationship between learning and strategy is seen as reciprocal: strategic frameworks influence the perception and interpretation of information from the environment; and the learning style and capacity of the organization may in turn determine the strategic options that can be perceived (Fiol & Lyles, 1985).

The distinction between different levels of learning also reappears. Andreu and Ciborra (1996) adopt a resource-based view of the firm in considering how core competencies can evolve within a single firm. They see this as the product of iterative exchanges between external resources, work practices, capabilities, and core capabilities—which move progressively toward the strategic level. This parallels the distinction made by Fiol and Lyles (1985) between "lower level" learning which is routine and occurs within a given set of organizational rules and structures, and "higher level" learning which takes place within an ambiguous context, and involves changing the overall rules and norms that govern specific activities and behaviors. Similarly, Senge (1990) distinguishes between "adaptive" and "generative" learning, and Dodgson (1991) separates "tactical" and "strategic" learning. In each case, it is the lower level which is the normal state for an organization, and the higher state which is difficult to attain, but generally seen as more desirable.

There are two main threads of empirical research which provide further insights into strategic learning processes: studies on technology transfer, and learning within joint ventures. Dodgson (1991) looked at technology transfer and concluded that the ability to learn quickly is a key factor in the relative success of small and large firms in a rapidly changing environment, such as biotechnology. Elmes and Kassouf (1995) provide interesting examples of the way individual scientists talk about learning. Interviewees talked about people being "hungry" for information, of acquiring expertise from any source available including: scientific literature, conferences and seminars, meetings, patents, old associates at other firms, and strong academic ties. One manager talked of learning, "via networking like

crazy. We don't want to reinvent the wheel. We want to learn what's been learned out there. We don't want to make the same mistakes" (p. 409).

Elmes and Kassouf (1995) were also able to identify a number of themes about what prevented the organization learning as well as it might. The strongest of these was the pressure to meet aggressive deadlines. Competitive forces drove their companies to produce results as quickly as possible, and this meant that individuals rarely had the time to reflect on what they were doing, or to communicate effectively with their colleagues. Similarly, scientists experienced problems with vertical communication (top managers not listening to them properly, or explaining what was going on elsewhere).

Research into learning within joint ventures has become popular in the last few years. This has arisen partly because of the opening up of markets in China and Eastern Europe to investment from Western partners, and partly because of the impact that U.S./Japanese joint ventures located in the U.S. have had on the North American auto industry. There is surprising convergence from studies in different countries and using different methodologies that the most significant forms of learning are not product or technology specific, but are about the overall ways of doing business. Inkpen and Crossan (1995) argue that the most significant learning is tacit. This occurs best through direct experience, and hence there is a major problem in getting senior managers who do not have this direct contact to accept the insights of those who are close to the environment.

Lillrank (1995) provides an analysis of how organizational innovations and tools have been transferred from Japan to the U.S. He concludes that direct transfers of ideas and methods rarely work because of cultural and national differences. Rather, the principles need to be abstracted to a high level of generality and then translated back to fit the local circumstances and cultures. Lyles and Salk (1995) reinforce this view, and point out that the root of the problem may be a matter of cultural differences affecting both the management process and the way that learning takes place.

The main contributions from this perspective are:

- a strong belief in the competitive advantages that can be gained from an application of the principles of organizational learning;
- identification of the continuing debate over how far organizations are capable of adapting to changing environmental circumstances and niches;
- the importance of direct experience and the significance of the tacit knowledge that can result; and
- that exchanges of technical information are crucial among communities of high technology companies, but among joint-venture partners the exchange of general management practices is more important.

From this perspective, the main problems may be seen as self-inflicted, since they arise from the pressures due to competitive forces and the structural changes resulting from organizational growth. There are also suggestions from the joint-venture literature that there may be cultural limitations to organizational learning—and I will look at these in more detail later.

Production Management Perspective

Work produced from this perspective focuses primarily on the relationship between learning and organizational *productivity/efficiency*. Early research was conducted into the “learning curve”: the idea that the production costs of any product reduce in proportion to the cumulative number of units that have been produced (Buzzell & Gale, 1987). Garvin (1993) comments that although the learning curve is still used extensively in industries, such as aerospace and defense, the focus on a single measure of output overlooks other factors that may be more important.

But any quantified approach has limitations in that it tends to focus on the measurable and to emphasize outputs rather than contributing processes. Argote et al. (1990) argue that the assumptions of the learning curve do not always work in practice and that organizational knowledge can rapidly decay if it only involves internal recycling. From an historical analysis of learning between and within the 16 U.S. shipyards constructing Liberty Ships during the Second World War, they observed that production costs did not reduce over time within the same shipyard, but that if a new entrant came into the market it would rapidly achieve lower costs compared to most of the established operators. Although part of this may be due to the adoption of more recent technology by newcomers, they conclude that much of this was due to significant transfers of knowledge into the new shipyards. In contrast, within established yards production costs sometimes increased, and this they attribute to the tendency for knowledge to depreciate over time in the same organization.

This parallels some of the strategy literature in the suggestion that exogenous sources may be more significant than endogenous sources of organizational learning. At the same time, there has been a very interesting debate taking place between observers of the auto industry which hangs largely on measures of productivity and its rate of increase. The story starts with Adler’s (1993) comparison of the highly successful Toyota-General Motors joint-venture in California (NUMMI), with a GM plant that had collapsed several years earlier. Not only was the new plant on the same site, but the majority of workers, including the union hierarchy, were hired again for the new venture. Both plants were highly standardized, using Tayloristic principles of organization. The difference he ob-

serves is that the new plant was established through partnership with the trade unions, and that the package included empowerment of the workers, reasonable security for employees, and the encouragement of a “learning orientation” throughout the company.

In a further comparison of this plant with the Volvo plant at Uddevalla in Sweden, Adler and Cole (1993) claim that the far higher productivity in the NUMMI plant demonstrates a greater ability for organizational learning than in the more humanistic structure of Uddevalla. In the latter case, individual learning was greatly encouraged, both through the provision of training, and by giving financial rewards for increased expertise. However, the long work cycles and the establishment of craft-like variability in production tasks meant that it was very hard to generalize learning from one work team to others across the plant. In contrast, the standardization of the NUMMI plant meant that ideas developed in one part of the plant could easily be applied to other parts, and the short production cycles meant that such ideas could be isolated and captured.

The conclusions of Adler and Cole were challenged by Berggren (1993) on two main grounds. First, he points out that Adler and Cole took comparisons of productivity at one point in time rather than looking at the rate of improvement, which was very impressive at Uddevalla. Second, he criticizes their study for concentrating on the single dimension of productivity, and for not gathering data on the organizational processes that supported learning. Even if the differences in absolute productivity are considered as significant, the absence of process data makes it hard to infer that these can be accounted for by differences in organizational learning.

This debate between different production methods, essentially the Japanese lean production approach vs. the humanistic Swedish model, remains inconclusive. Its future outcomes will hinge both on substantive research results and on the methodologies that underpin this research.

For our present purposes the main contributions from this perspective are:

- the use of productivity as a criterion to assess organizational learning;
- the concept of the learning curve;
- the debate about endogenous and exogenous sources of learning;
- the impact of organizational design on the transfer of individual to organizational learning.

The problems identified by this perspective are the limitations in using single criteria to compare organizational configurations, and some of the methodological weaknesses of conducting comparative research. Surprisingly, there is very little consideration of potential cultural differences in

the comparative studies that have included a cross-national component—and this is something that will be considered in the next section.

Cultural Perspective

This perspective sees “culture,” both in its organizational and national manifestations, as being a significant cause and effect of organizational learning. However, given the number of authors who have alluded indirectly to it in the course of their studies, it is surprising that it has not been made more of an explicit focus. There are also a number of important cross-national studies of organizational learning (Nevis et al., 1995; Adler & Cole, 1993) which make virtually no reference to national culture at all.

Naturally there are many views of what constitutes culture. National culture can be seen as a relatively stable attribute of general populations. As Hofstede (1984, p. 21) puts it, culture is “the collective programming of the human mind which distinguishes the members of one human group from another.” Others prefer to see it as something less tangible which is continually being created and reinterpreted by members of the specific community. Moreover, cultural meanings are not the same for all members of a community; they depend on the respective positions of members of societies and their distinctive knowledge and experiences (Barth, 1989). Similarly, organizational culture can be conceived as something that can be determined by top managers and which permeates the whole organization (Deal & Kennedy, 1982), or as the product of continual struggles by groups of organizational members to impose values and identities on the roles of others (Carroll, 1995).

Most of the literature on organizational learning takes the generalized view of culture. It originated with comparisons between the U.S. and Japan because of concerns about national competitiveness. The view was that there were distinctive management secrets that gave Japanese companies an edge over their U.S. competitors, and if these characteristics were emulated and adopted by U.S. companies, they would be able to overcome the Japanese challenge (Ouchi, 1978; Pascale & Athos, 1981). One of the key characteristics of these Japanese companies was their ability to obtain information about markets and competitors very efficiently, and to share this information internally (Nonaka, 1988). This leads to the next question: whether this learning ability is an attribute of particular national cultures (in this case the Japanese culture), or whether it can be designed into organizations irrespective of national cultures.

Shibata et al. (1991), on the basis of a survey of management styles in over 300 Japanese companies, suggest that it is the former. Senior Japanese managers place considerable stress on the encouragement of innovation and

risk taking, on the facilitation of information flow, and on the involvement of organizational groups in decision taking. They conclude that these features fit very well with the “organizational learning paradigm.” This conclusion is supported by Sullivan and Nonaka’s (1986) comparison of 75 Japanese and 75 U.S. top managers which showed that the Japanese consistently showed greater commitment to “variety amplification,” and although some of the U.S. managers also espoused this view they conclude that the degree of consistency among the Japanese managers is most likely due to cultural factors.

More recent work from Nonaka takes a more balanced view of learning processes in the two countries (Hedlund & Nonaka, 1993). This looks at the way knowledge is communicated within and between companies. It is argued that internal communication within Japanese companies tends to be “tacit,” largely oral and based on shared understandings, which contrasts with the “explicit” articulation of information in U.S. companies. On the other hand, much of the information that flows into Japanese organizations is explicit and articulated (for example technical literature and patents), whereas in the U.S. much of this is conducted at a tacit level through the recruitment of specialists from other companies who bring with them personal experience and largely unarticulated knowledge.

The bulk of the “culture” literature has concentrated on the unidirectional transfer of ideas (largely from Japan to the U.S.), using the more generalized views of culture. Recently, European authors have started questioning this focus on transfer and whether the models in American literature are really appropriate to other cultures (Camus, 1994). For example, Ryder (1994) argues that French companies have stronger hierarchies and deeper beliefs in “scientific management” than their Anglo-Saxon counterparts. In these settings, the preferred solutions of the U.S. literature—about opening channels of communication and empowering teams—may no longer be relevant. It may also be the case that the conception (ontology) of learning is different within different cultural contexts. Authors who adopt a constructivist perspective (Lave & Wenger, 1990; Brown & Duguid, 1991; Nicolini et al., 1996) also argue that significant learning should not be divorced from the specific context in which it takes place. Indeed, learning becomes a product of a community rather than of the individuals in it, and as such cannot be transferred from one setting to another. This suggests that the nature and process of learning may vary in different situations and cultures. Coupled with the increasing globalization of business and management it would appear that there is a pressing need to develop more “localized” views of organizational learning.

The contributions from this perspective so far have been:

- to draw attention to the importance of values and beliefs;

- to show that culture may affect both the process and nature of organizational learning;
- to raise the question of whether some cultures may be considered as superior to others in their facilitation of learning.

The problems identified from this perspective are:

- the relativity of cultural beliefs; and
- that it may be very difficult to transfer ideas from one cultural setting to another.

THE LEARNING ORGANIZATION

The argument so far has been that there are different ways of thinking about organizational learning which are linked to distinct academic disciplines. Each of these perspectives is characterized by a particular ontological view and by a range of contributions and problems. The paper has summarized important contributions to these perspectives, and I have tried not to suggest either that individual authors can be categorized as belonging to a single perspective nor that the literature reviewed is in any way representative of that discipline as a whole. The review is only representative insofar as these contributions explicitly tackle processes of organizational learning.

The focus now shifts to look at the applied area of organizational learning, which is normally associated with the label of the *learning organization*. As suggested at the outset, most writings on the learning organization have a different purpose to those on organizational learning. They are centrally concerned with implementation, and in this sense, conceptual understanding is but a means to an end. There are other distinctions to writings on the learning organization. They are more committed to the achievement of a desirable end state; they are eclectic in evaluating ideas according to their applicability; and they usually derive from an action research agenda, where there is a close link between generating change and studying the processes and nature of that change.

The aim here is to examine the disciplinary roots behind different conceptions of the learning organization. My contention is that two main disciplines have dominated—management science and OD—and that main traditions in the literature can be distinguished according to the relative impact of these two disciplines. Others, such as strategy and culture, have also contributed, but in a subsidiary way. The links between these perspectives and key contributions to the literature on the learning organization are illustrated below in Fig. 1, and are described further in the rest of this section.

The *first tradition* starts from a management science perspective, and then adds insights from OD and other areas. For example, Nevis et al.

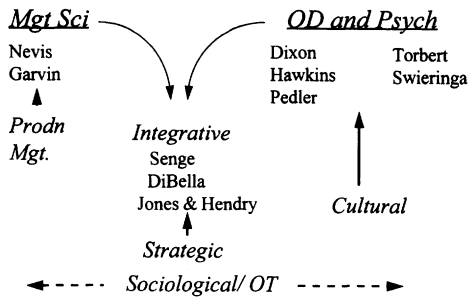


Fig. 1. Disciplinary origins of learning organization ideas.

(1995) start with a model of organizational learning that is adapted from Huber (1991) and which contains three elements: knowledge acquisition, knowledge sharing, and knowledge utilization. They then expound a set of ten factors which can facilitate the learning organization which include ideas such as “systems perspective,” “concern for measurement,” and “operational variety,” but also ideas drawn from OD such as a “climate of openness,” “involved leadership” and “continuous education.”

A similar contribution comes from Garvin (1993) who stresses the importance of systematic problem solving and ongoing experimentation. He criticizes some of the existing literature for being too utopian and impractical, and suggests that organizations should concentrate on some of the basic skills used in TQM, such as good measurement of learning processes and outcomes. In this case, there is some evidence of the concern for efficiency which features in the production management perspective.

Senge (1990) combines the systems variant of the management science perspective with a strong reliance on OD. He proposes five main “disciplines” which form the foundation of the “learning organization”: mental models, shared vision, personal mastery, team learning, and systems thinking. Mental models are the deeply ingrained assumptions that we hold about the nature of the world, and which inform the action that we take. Shared vision is the process whereby the personal views of key leaders are translated into forms that can be shared by all members of the organization. Personal mastery involves a commitment to lifelong learning and the discipline of continually challenging and clarifying personal visions. Team learning involves maximizing on the insights of individuals through dialogue and an awareness of the patterns of group behavior that can undermine learning. Finally, systems thinking is the conceptual “glue” which binds these different elements together, and which provides the tools that enable isolated actions to be seen as integrated patterns.

For Senge, problems occur in implementation, and several of his recent papers have considered ways of dealing with these. Thus, he emphasizes the need for strong commitment, especially at the top, if the learning organization is to become established (Kofman & Senge, 1993); the need to deal with the potential paradox of "empowerment" that results in unduly short-term thinking through enabling managers to understand the wider implications of local decisions via "collaborative action research partnerships" (Senge & Sterman, 1992); and the possibility of integrating the concepts of organizational learning into the normal planning systems of major companies (Senge, 1994).

The *second tradition* takes as a starting point the ideas about human development and emancipation which are implicit in OD. It also makes considerable use of the integrated learning models of Kolb et al. (1973) and Revans (1971), and there is some concern about the links between organizational learning and strategy. There is, however, a further distinction between cyclical and evolutionary models of the learning organization.

Cyclical models assume that organizational learning is an iterative process which requires the combination of different activities for it to work effectively, and although there is the idea of progress, there is no particular end point. For example, Dixon (1994) and Hawkins (1994) start with Kolb's learning cycle which involves iterations between theory and action, and reflection and experimentation. Pedler et al. (1989) provide a cyclical model which iterates between vision and action, and between the individual and collective levels of learning; and Nonaka (1994) provides a model which iterates between tacit and explicit knowledge creation, while moving from middle up to senior, and down to junior, levels of the organization. The notion of the tacit dimension is also picked up by Dixon (1994) where she argues that the underlying cultural conditions must be right for the development of the learning organization.

Evolutionary models, on the other hand, assume distinct learning stages or styles which are ordered progressively, and in most cases they rely on the levels of learning proposed by Bateson (1973) and Argyris and Schon (1978). Within this tradition, Torbert (1994) proposes eight stages in the development of personal and organizational effectiveness, and only the last two stages, which equate respectively to Learning III and triple-loop learning, constitute conditions for what he considers to be a genuine learning organization. Swieringa and Wierdsma (1992) develop an interesting adaptation of these three levels of learning, as shown below in Table II.

An important point to note is that there is no longer a logical distinction between these three levels as was the case in Bateson's original formulation, although it still shares with Argyris and Schon (1978) the assumption about the relative desirability of the higher stages.

Table II. Levels of Organizational Learning (after Swieringa & Wierdsma, 1992)

Level	Focus	Features of learning
Single-loop	Rules	Changes in existing organizational rules largely at program levels; general tightening and improvement in current procedures.
Double-loop	Insight	Rethinking of existing rules according to <i>why</i> things are being done; involves understanding reasons for current rules and then questioning these reasons.
Triple-loop	Principles	Questioning the rationale for the organization as a whole, particularly the mixture of internal desires and identity, and the relationships with the external environment.

Several recent publications have attempted to take a balanced view between the management science and OD perspectives. Jones and Hendry (1994) stress the importance of developing the overall learning capability of the organization and argue that this requires attention to both "hard" (formal training systems) and "soft" (tacit knowledge and informal learning) procedures. DiBella (1995) argues that the idea of capability goes beyond the prescriptive assumptions of most of the learning organization literature. Here, learning is conceived as a normal state for an organization, just as breathing is a normal state for a mammal.

In these cases one can also discern the influence of the strategy literature, notably that which takes a "resource-based" view of the firm. Nanda (1996) provides a comprehensive review of this literature, from which the key idea is that learning organizations have the capacity to improve their capabilities through experience. Burgoyne et al. (1994) also stress the linkage between learning and strategy although their point is that one of the key attributes of the learning company is when strategy itself is conceived as part of a learning process.

In sum, it can be seen that there is a strong functionalist drive to the literature on the learning organization: it is pragmatic, normative, and aspirational (Leitch et al., 1995). In addition to the dominant traditions of management science and OD, there is a little evidence of the influence of the strategic, production management, and cultural perspectives upon current theories. However, the sociological perspective seems to be both invisible and all-pervasive. It is invisible in the sense that authors do not reference it as an organized and legitimate body of thought with direct relevance to the concept of the learning organization; but it is all-pervasive in the sense that most of the issues identified from within this perspective are repeatedly recognized as key barriers to the implementation of the learning organization. As the field develops, it is likely that more notice

will be taken of subsidiary areas like strategy and culture, and it is to be hoped that insights from the sociological view will also be incorporated.

RESEARCH AGENDAS

It would be naïve to suggest that there is, or should be, any integrated research strategy in the field of organizational learning. The various perspectives and disciplines each have their own methodological traditions, and this is appropriate. Research agendas also differ between the areas of organizational learning and the learning organization. The former is driven by disciplinary interests and involves studying the phenomena of learning within organizational contexts and on acquiring knowledge about organizational learning; the latter has an action research agenda which concentrates on the creation and implementation of learning organizations.

Much of the existing research into *learning organizations* is based on case studies of organizations that are said to be successful, and these sometimes seem to rely more on public relations than on any rigorous and grounded studies. For example McGill et al. (1992) draw on companies such as Whirlpool and BP to emphasize the benefits of “generative learning,” without any acknowledgment, in the latter case, of the severe problems created by the cultural change initiative established in BP in the late 1980s. Shell is frequently used as an example of excellence as a “learning organization,” but most of the literature about this derives from a single source, the account presented by Arie de Geus, the former head of corporate planning at Royal Dutch Shell (de Geus, 1988).

The perspectives of senior managers give important insights into organization behavior; but *post hoc* analysis does have disadvantages as a basis for theory. Notably: (i) the circumstances leading to the success may have changed by the time the story becomes public; (ii) senior executives associated with particular innovations may well be keen to demonstrate the success of their contributions, and thus present events in a very favorable light; (iii) such stories are unlikely to include the perspectives of those (say, from lower levels of the organization) who are more critical of what took place; and (iv) it is rare for research rigor to be employed in the collection and interpretation of such data.

A second tradition is action research: where consultants study systematically the consequences of changes and initiatives that they themselves have a hand in generating. Much of the work produced by the Organizational Learning Center at MIT falls into this category. The strength is that it may lead to deep insight into organizations based on long-term relationships; the weakness is that it is unlikely to produce (publically) any strong critiques either of the methods used or of the outcomes claimed for them.

There are also concerns about the nature of research into *organizational learning*. For example, Huber (1991) comments that there is little in the way of substantial theory concerning organizational learning, of cumulative use of past research, or of cross-fertilization between research groups from different traditions. But change may be on its way, and there is a growing number of case studies that are starting to show good results. Empirical work in the production management perspective (Robey et al., 1995; Adler, 1993; Ciborra et al., 1995) is beginning to produce important insights as is the work of Nonaka and Takeuchi (1994) on knowledge creation. But it seems that more work from all perspectives will be important for the development of the field. Hawkins (1994) argues that the shortage of case study research into organizational learning is a major weakness, and Berggren (1994) suggested, as noted above, that the lack of longitudinal data in the Adler and Cole study was a fundamental flaw. Because they did not document processes over time they could only guess at the impact of different organizational and managerial structures on the outcomes of learning. Much more needs to be known about what happens when different parts of organizations learn from each other, and on how this varies between functions, levels, types of organization, and in different national and cultural contexts.

Looking toward the future, the research agenda may well vary according to perspective. From the psychological view, further work should be conducted into how individual and shared cognitive maps can change; from the management science perspective there could be more emphasis on looking for failure experiences as well as successes; the strategic view could concentrate more on the way organizational learning operates in practice—from the viewpoint of participants, rather than of top managers and their publicity agents; and from the cultural perspective it is important that further theorizing be done around cultural assumptions not dominated by the U.S.

In sum this is a call for more qualitative field work which studies success and failure. It is therefore likely that there will be problems of access to overcome. There should also be, as I have suggested above, more longitudinal designs, although some of these will have to be retrospective because of the problems of maintaining long-term relationships with companies that might be unhappy about the potential of negative publicity.

CONCLUSIONS

The argument of this paper is that there are a number of distinct disciplinary perspectives which have tackled organizational learning over the last few years, and each of these has its own ontology and methodology. Appli-

cation of these disciplinary perspectives leads to distinct contributions to the understanding into the nature and problems of organizational learning.

The body of literature that has concentrated on the creation of learning organizations is largely distinct from the disciplinary literature, but draws significantly from it, particularly from management science, psychology, and OD. Conversely, it is rare to find scholars of organizational learning who draw much from the learning organization literature. Some areas are underrepresented, and the field may well benefit from more attention being given to insights that can be gained from the cultural and sociological perspectives.

Despite the amount of interest in the topic at the moment, there is a limited amount of good empirical research into organizational learning. It may well take some time to build this up because of the time required to do longitudinal research into learning processes. There are both issues of commercial confidentiality and image that will make senior managers hesitate before providing access. In these cases, perhaps some compromises will need to be struck between the action research methods which provide easy access because they are part of legitimate consultancy interventions and the more objective research that is discipline-driven. Irrespective of disciplinary interests I think that international aspects of organizational learning should be a priority for the future. A starting point for such studies could be the work that is already taking place within different national contexts, such as Japan (Hedlund and Nonaka, 1993), China (Warner, 1992), France (Ramirez, 1994), and the U.K. (Burgoyne et al., 1994). Finally, I would follow Hawkins (1994) in making a plea for more attempts to conceptualize organizational learning not as another managerial lever that can be pulled by senior executives at their behest, but as a normal, if problematic, process in every organization involving reciprocal exchanges between individuals, groups, and other organizational entities.

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