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Introduction: Watersheds of Organizational Learning and Knowledge Management

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INTRODUCTION

The fields of organizational learning and knowledge management have developed quickly over the last decade, and the academic literature has demonstrated increasing diversity and specialization. Some people might therefore claim that it is foolhardy to seek to cover the full range of the literature within one volume. Our response is to highlight four features of the current literature which provide a general rationale for compiling this handbook.

First is the novelty and speed of development of the field. Across the patch there was very little activity before 1990, and in some sub-areas almost everything dates after 1995. The speed of development, coupled with the lead times of publishing, means it is hard to develop a cumulative sense to the field where studies and publications are able to build systematically on previous work. We have therefore encouraged the authors who have contributed to the handbook to locate their sub-fields within a time line which shows how the present position has evolved from prior work, and then to speculate on potential future directions.

The second feature is the increasing diversity and specialization of the field. This has led to tighter definitions and the isolation of problems such as the political implications of organizational learning and knowledge management; but it has also led to developments taking place in parallel which result in limited awareness of what is happening elsewhere at the same time. There is therefore a need to locate different sub-areas in relation to each other, so that overlaps and potential areas of synergy can be identified. In preparing the chapters of the book we have ensured that authors in related areas received copies of each other's drafts so that they could also identify potential commonalities and differences, whether they be overlaps of subject material, similar theoretical roots, or shared problem areas. This also implies a need for some mapping exercises, and several chapters (in addition to this one) aim to do just that.

The third feature is that debates and arguments have started to flourish largely as a consequence of this diversity. Debates have focused around the definition of terms and the meaning of concepts, the appropriateness of methods of inquiry, ways of influencing

learning processes within organizations, and the purposes to which we should put our knowledge of organizational learning and knowledge management. These are highly desirable because they lead to clarification of terms, sharpening of distinctions, and development of new ideas. Consequently, we have encouraged authors to identify ongoing debates in their areas; in a number of places we have juxtaposed chapters that represent different perspectives on particular contemporary debates.

Fourth, despite the growing diversity we have also been surprised at the number of citations that appear repeatedly across the chapters of the Handbook, which suggests that there still remains considerable commonality in the field. If we reach back to some of the earlier papers, there are several common points of departure, which may have become a form of “tacit knowledge” that underlies the work of most scholars. Accordingly, we devote much of this chapter to looking at the sources of key concepts, and to the works that have had a disproportionate influence on the evolution of the field. We see these as being similar to the watersheds of rivers which provide essential starting points for distinct streams, but which may subsequently become forgotten as the downstream rivers gather both strength and importance.

This opening chapter has three main sections. In the first section we offer a preliminary mapping of the field that is covered by the Handbook, which is elaborated in the chapters that follow. In the second section we present an analysis of the citations given by the chapters, and since we are interested in the origins of the field we have concentrated publications primarily dating from before 1996. One reflection of the newness of the field is that there are less than 800 citations to publications predating 1996, out of a total of over 2,200 citations across the 30 invited chapters of the book. In the third section we develop the theme of watersheds by focusing on the older publications, some of which score well in our analysis of citations, and all of which appear to have had a significant impact on the evolution of the fields of organizational learning and knowledge management.

THE FIELD AND THE SCOPE OF THE HANDBOOK

For reasons of space, the title of the Handbook refers to organizational learning and knowledge management; but two other important topics, “the learning organization” and “organizational knowledge,” are also covered here. At first glance they may all seem very similar, but there are a number of important distinctions which we will explain below (also see Vera and Crossan, in chapter 7). The distinction between the first two terms was clearly articulated by Tsang (1997) to the extent that *organizational learning* refers to the study of the learning processes of and within organizations, largely from an academic point of view. The aims of such studies are therefore primarily to understand and critique what is taking place. On the other hand, the *learning organization* is seen as an entity, an ideal type of organization, which has the capacity to learn effectively and hence to prosper. Those who write about learning organizations generally aim to understand how to create and improve this learning capacity, and therefore they have a more practical and performative agenda. We have gathered together papers in part II of this volume that reflect different aspects of the domain covered by these two terms.

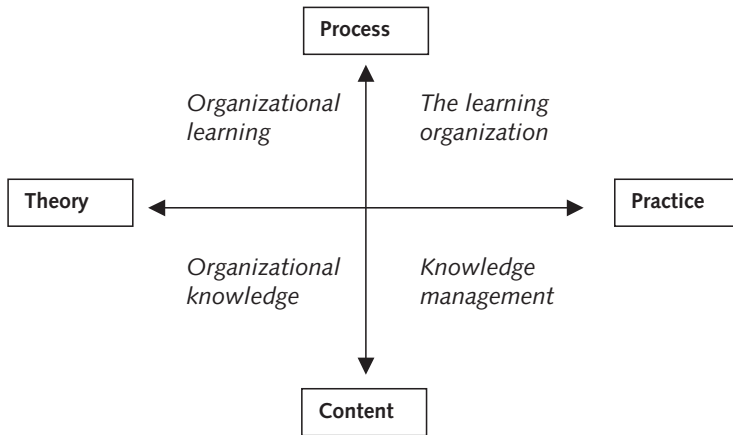


FIGURE 1.1 Mapping of key topics in the Handbook

A similar distinction can be made between the terms *organizational knowledge* and *knowledge management*. Those who write about the former often adopt a philosophical slant in trying to understand and conceptualize the nature of knowledge that is contained within organizations. Hence many of the discussions relate around distinctions between individual and organizational knowledge, or whether the distinction between tacit and explicit knowledge is useful. Those who write about the latter generally adopt a technical approach aimed at creating ways of disseminating and leveraging knowledge in order to enhance organizational performance. The role and design of information technology is often central to such discussions. Part III of the Handbook considers issues in the domain of organizational knowledge and knowledge management.

In figure 1.1 we offer an initial mapping of these four terms. We have used the dichotomies of theory–practice and content–process to organize the mapping. The first of these dichotomies follows the concerns of academics against those of practitioners, as described above. Even this is not necessarily straightforward. For example, a critical study of a learning organization would fit into the organizational learning box, and a study of the way knowledge is constructed within corporate knowledge management systems would belong to the organizational knowledge box.

The second dichotomy, the distinction between learning and knowledge, also seems fairly obvious: knowledge being the stuff (or content) that the organization possesses, and learning being the process whereby it acquires this stuff. Again, things are not quite so simple, as several of the chapters will demonstrate. For example, some chapters build on the paper by Cook and Brown (1999) which distinguishes between the epistemologies of possession and practice. In this case “possession” fits well with the view of knowledge as content, but the epistemology of practice (or knowing) fits more closely with the process of learning from experience. We mention these potential limitations in passing because we still believe that it is valuable to start with some clear organizing principles, as an initial

map for the reader. But we would hope that those who get to the end of the book will become very clear about the inadequacies of such dichotomies!

There are also a number of themes and issues which cut across the whole field and therefore touch on all four quadrants of figure 1.1. Some of these are fundamental issues about the nature of knowledge (Tsoukas, chapter 21) and the processes of learning (Carroll et al., chapter 29); others relate to the role played by politics (Cross and Prusak, chapter 23), culture (Taylor and Osland, chapter 11), emotion (Fineman, chapter 28), forgetting (Martin de Holan and Phillips, chapter 20), social identity (Child and Rodrigues, chapter 27) and organizational identity (Corley and Gioia, chapter 31).

Many of the chapters review and update key concepts such as organizational capabilities (Zollo and Winter, chapter 30), knowledge creation (von Krogh, chapter 19; Bettis and Wong, chapter 17), communities of practice (Plaskoff, chapter 9), stickiness (Szulanski and Capetta, chapter 26) and absorptive capacity (Van Den Bosch et al., chapter 14). Not only is it possible to locate these concepts on the general map of figure 1.1, but it is also worth noting that they are often informed by different disciplinary and ontological assumptions (Easterby-Smith, 1997). That is why we have grouped a number of chapters into part I, which considers the disciplinary perspectives underlying current developments in the field. We therefore hope that these chapters will enable readers to locate more clearly the different chapters in subsequent parts of the book.

This brings us to the next section of our initial chapter. On the grounds that a knowledge of the past is useful in making sense of the present, our aim here is to consider some of the formative influences in the field from a historical perspective. Thereby we hope to explain both similarities and differences between distinct parts of the field.

MAJOR SOURCES

If we start with the four terms in figure 1.1, although all of them are relatively new, some are newer than others. Thus the idea of knowledge management only emerged in the mid 1990s, whereas the first references to organizational learning appeared as far back as the early 1960s (Cyert and March, 1963; Cangelosi and Dill, 1965). But all four areas draw on literature and ideas that are older than their immediate concerns, and in a number of places there are overlaps between these initial sources.

Moreover, the field as a whole has been characterized by sudden surges of interest in particular topics, often followed soon after by rapid decline. (See Scarbrough and Swan, chapter 25, for further discussion of fads and fashions). These surges can often be explained by the changes in the business or technological environment. But literature also plays a significant part, and a number of books or papers have managed to capitalize on latent interest which then creates a major sub-industry in its own right. One obvious example is the book by Senge (1990) which is one of the most cited texts in this volume, and amongst sources in this general field, within the Social Science Citation Index (SSCI), it is second only to Cyert and March. Although Senge was not the first person to coin the term "learning organization," it was the publication of his book which led to international awareness of the learning organization across both academic and practitioner communities. Thereafter, many large companies started claiming that they were learning organizations, or that

they were aspiring to this status, and academics rushed to identify the characteristics of learning organizations, or to critique and deconstruct the very concept. As such, the publication of Peter Senge's book represents a watershed, in the same way that Peters and Waterman (1982) represented a watershed for academics, consultants and practitioners in the previous decade.

Our aim now is to examine systematically the chapters in this book to see if there are patterns that can be discerned. We do this by looking at all the citations for publications that predate 1996, where the content of the item has some relevance to the fields of organizational learning and management. In a few cases we have included references that are more recent because, as with knowledge management, the topic is so new that hardly any references exist before 1996.

In table 1.1 we list the authors of books or papers according to how many of the chapters in this handbook have cited them. For each cited work we give the author names and date, but we do not provide full bibliographical details at the end of this chapter because all are cited in subsequent chapters. The full citations for many of these papers can be found in chapter 2, and if not there, we indicate the next chapter in which details can be found.

There are a few points to note about this table. First, the list provides most of the names one would expect to see. If we take the total number of citations for authors then the leading figures in the field are James March, Ikujiro Nonaka, Chris Argyris, Peter Senge, and George Huber, along with the pairs of Brown and Duguid, Nelson and Winter, Cohen and Levinthal, and Kogut and Zander – no surprises here. Indeed the impact of these authors is also reflected in the SSCI which gives counts for each of these publications in excess of 250. The highest scores in the SSCI, each around 2,000, are achieved by Cyert and March (1963), Senge (1990) and Nelson and Winter (1982), as of July 2002.

Second, the dominance of the top publications is balanced by considerable diversity once one gets down to the level of detail. Thus, although the top 13 were cited by at least one-third of the authors contributing to this handbook, nearly half of the papers were only cited once or twice. This is because many of the authors are working in specialist areas which have limited overlap with others. And finally, the newness of the field is indicated by the fact that there are very few publications (only 12) which are cited more than twice and which appeared before 1980 (these have been highlighted in bold type in table 1.1). These older publications seem particularly interesting since they have stood the test of time and are continuing to influence leading contemporary scholars, and we will look further at some of them in the next section of the chapter.

WATERSHEDS

As mentioned above, we are using the term “watershed” to indicate a significant turning-point in the development of the subject area. In making sense of key watersheds we need to take account of (1) the absolute frequency of citation; (2) the timing of each publication; (3) the topic of the paper that does the citing; and (4) the text in which the citation is embedded. Given the natural tendency of academics to cite more recent work, there is

TABLE 1.1 Frequency of citations in this Handbook

<i>16 hits</i>	<i>15 hits</i>
Nonaka and Takeuchi (1995)	None
<i>14 hits</i>	<i>13 hits</i>
Brown and Duguid (1991)	Cohen and Levinthal (1990)
Nelson and Winter (1982)	Huber (1991)
	Kogut and Zander (1992) (ch. 5)
<i>12 hits</i>	<i>11 hits</i>
Levitt and March (1988) (ch. 3)	Senge (1990)
March (1991)	
<i>10 hits</i>	<i>9 hits</i>
Argyris and Schön (1978)	Grant (1996) (ch. 5)
<i>8 hits</i>	<i>7 hits</i>
Cyert and March (1963)	Leonard-Barton (1995) (ch. 11)
Daft and Weick (1984)	
Davenport and Prusak (1998) (ch. 4)	
Fiol and Lyles (1985)	
Hedberg (1981) (ch. 8)	
Nonaka (1994)	
Szulanski (1996) (ch. 12)	
<i>6 hits</i>	<i>5 hits</i>
Barney (1991) (ch. 5)	Cook and Yanow (1993) (ch. 3)
Lave and Wenger (1991)	Dewey (1916, 1933, 1938)
Miner and Mezias (1995)	Duncan and Weiss (1979) (ch. 8)
Nahapiet and Ghoshal (1998) (ch. 12)	Lyles (1988) (ch. 13)
Walsh and Ungson (1991)	Orr (1990)
	Penrose (1959) (ch. 15)
	Polanyi (1958/1962) (ch. 12)
	Simon (1991) (ch. 5)
	Weick (1995)
	Weick and Roberts (1993)
	Winter (1987) (ch. 5)
<i>4 hits</i>	<i>3 hits</i>
Argote, Beckman and Epple (1990) (ch. 20)	Allen (1977)
Boland and Tenkasi (1995) (ch. 4)	Argyris (1977)
Hamel (1991) (ch. 12)	Bohn (1994) (ch. 4)
Henderson and Clark (1990) (ch. 15)	Candelosi and Dill (1965) (ch. 7)
Inkpen and Crossan (1995) (ch. 12)	Cohen and Levinthal (1989) (ch. 13)
Kim (1993)	Darr, Argote and Epple (1994) (ch. 13)
Kogut (1988) (ch. 7)	de Geus (1988) (ch. 7)
Lave (1991)	Dougherty (1992) (ch. 10)
Leonard-Barton (1992) (ch. 7)	Dougherty (1996) (ch. 18)
March, Sproull and Tamuz (1995) (ch. 17)	Garvin (1993) (ch. 8)
Nicolini and Meznar (1995)	Hamel and Prahalad (1989) (ch. 15)
Spender (1996) (ch. 15)	Hayek (1945/1949) (ch. 5)

TABLE 1.1 *Continued*

Tsoukas (1996) (ch. 4)	Lave (1988)
Zander and Kogut (1995) (ch. 15)	Lipman and Rumelt (1982) (ch. 15)
	Lyles and Schwenk (1992) (ch. 5)
	March and Simon (1958) (ch. 18)
	Nevis, diBella and Gould (1995) (ch. 3)
	Pisano (1994) (ch. 7)
	Prahalad and Bettis (1986) (ch. 12)
	Prahalad and Hapsleigh (1990) (ch. 15)
	Ring and Van de Ven (1992) (ch. 21)
	Saxenian (1990) (ch. 12)
	Stehr (1994) (ch. 19)
	Williamson (1975) (ch. 21)
<i>2 hits</i>	<i>1 hit</i>
71 further papers	241 further papers
Total number of hits included in analysis: 797 Total number of citations in the Handbook: 2218	

Note: Bold type indicates publications appearing before 1980.

a good case for giving extra weight to some of the older works which have been cited, especially where they are identified by authors working in different fields.

On this basis we may identify three main groups of literature as the timeline moves forward: (1) *classic* works, which pre-date the identification of the ideas of organizational learning and knowledge management per se; (2) *foundational* works, which represent some of the first writings that set the agenda for subsequent work; and (3) *popularizing* works, which have acted as the most visible watersheds in the development of the field. It is important to note in passing that we do not regard the third term as being in any way pejorative; indeed, some of the “popularizing” works were highly scholarly and all of them managed to generate streams of extremely valuable work. It is not possible to give a single time-band within which the three groups of literature appeared because different sub-areas have emerged at different times and at different rates; hence, the relevant watersheds come at slightly different times. We start with classic works, which are presented for the whole field; we then consider separately the time lines within each of the four sub-areas defined at the outset of this chapter.

Classic works

Here we identify four main authors who have had a significant influence and who were active before the earliest mentions of terms such as organizational learning appeared: John Dewey, Michel Polanyi, Edith Penrose, and Frederick Hayek. They are not the most frequently cited in the present volume, partly because they have been overlaid by more recent authors (and, as academics, we are encouraged to focus more on recent publications than on classic works). Nevertheless, each of them has a substantial rating in the SSCI (running to several thousand citations for Dewey, Polanyi, and Hayek). We comment briefly here on

their contributions primarily in the light of chapters within this Handbook, and in a few cases we will also refer to other key works in the field, including those listed in table 1.1.

Dewey is the only one of these authors who explicitly focused his attention on learning. His ideas of learning from experience fit most easily into models of individuals learning within organizations (DeFillippi and Ornstein, chapter 2), and the notion of iterations between experience and reflection is frequently seen to underlie action learning, which is one of the key tools of the learning organization (Pedler et al., 1989). Dewey's view that learning takes place through social interaction and yet cannot be passed from person to person as if it were a physical object is also seen to underlie the social learning perspective (Elkjaer, chapter 3). Other authors who take a social constructionist approach to organizational knowledge (Cook and Brown, 1999; Nicolini and Mezner, 1995) rely on Dewey's heritage, and Nonaka and Takeuchi (1995) acknowledge the contribution of Dewey's philosophical contribution to "pragmatism" in asserting that there cannot be a clear distinction between the observer and the observed.

Polanyi is best known for his distinction between tacit and explicit knowledge. The key idea of "tacitness" has parallels to Dewey's experiential learning, because it is something that is held within the individual. Naturally, there are many different interpretations of what this all means. One version of tacit knowledge is that it is conscious, but not articulated; another version is that it is unconscious and hence unarticulable, as Tsoukas discusses (chapter 21). Polanyi's ideas are based on philosophical analysis and argument, rather than on any empirical investigation, and of course, some would argue that the notion of tacit knowledge cannot be examined empirically because it is unconscious.

The influence of Polanyi is most evident in contemporary discussions about the nature of organizational knowledge. The idea of tacit knowledge is important for those trying to understand the roots of competitive advantage because it is the unexpressed knowledge and experiences of organizations which provide the unique competencies that cannot easily be replicated by competitors (Barney, 1991). While tacit knowledge may give unique advantages to a company, it also poses problems because it cannot easily be moved across cultural boundaries (Makino and Inkpen, chapter 12), nor is it easy to move between different parts of the same organization (Szulanski and Capetta, chapter 26).

Penrose is cited less frequently, but her ideas on the significance of the internal (human) resources of the firm are fundamental and, as she puts it, "the dominant role that increasing knowledge plays in economic processes" (1959: 77). Chakravarthy, Doz, McEvily, and Rau (chapter 15) note the importance of "excess resources" within an organization which can lead to innovation, which parallels the need for slack to allow experimentation. There are many other points made by Penrose which mirror those made both by her contemporaries and by recent authors. Thus, in discussing the role of top teams, she comments that "the administrative group is more than a collection of individuals; it is a collection of individuals who have had experience in working together, for only in this way can teamwork be developed" (1959: 46). And "success depends upon a gradual building up of a group of officials experienced in working together" (1959: 52). These views anticipate the ideas of social constructionists who emphasize that organizations know more than the sum of the knowledge of individuals within them; it also emphasizes the role of experience and the fact that "Knowledge comes from formal teaching and from personal experience" (1959: 53), which is very close to the distinction that Polanyi was developing at the same time between explicit and personal (tacit) knowledge.

It is not surprising that the work of Hayek is seen to underlie the thinking of those who adopt an economics perspective on organizational learning and knowledge. In particular, his view that one of the fundamental problems of economics is to use the knowledge there is initially dispersed around different individuals in a way that contributes to producing good decisions for the organization or society as a whole (see Foss and Mahnke, chapter 5). But he has also had a wider influence, possibly because his 1945 paper was extensively quoted by March and Simon (1958). Here, the emphasis that he places on the knowledge held by individuals naturally focuses attention on “the knowledge of the particular circumstances of time and place” (Hayek, 1949: 80), which may be seen to anticipate the current attention given to “situated” knowledge. Moreover, it starts to provide a methodological justification for the use of qualitative methods that are sensitive to contextual factors, such as narrative method, in trying to understand processes of organizational learning (Bartel and Garud, chapter 16).

Not only are the contributions of these four authors still recognized by contemporary scholars, but we can also see that their ideas overlapped with each other in several respects. But all of this predates the invention of the idea of organizational learning, which we will discuss in the following section.

Organizational learning

The idea that an organization could *learn* in ways that were independent of the individuals within it was the key breakthrough, which was first articulated in Cyert and March (1963). Evidently the book was the product of much discussion and debate which had been going on among the team at Carnegie Tech during the 1950s (Augier, 2001) and it was foreshadowed, but not explicitly, by March and Simon (1958). Cyert and March propose a general theory of organizational learning as part of a model of decision making within the firm, and emphasize the role of rules, procedures, and routines in response to external shocks and which are more or less likely to be adopted according to whether or not they lead to positive consequences for the organization. A number of specific ideas were outlined in their book, which were subsequently developed further by other scholars. Noteworthy points in the book are: the idea that it is through “organizational learning processes [that] . . . the firm adapts to its environment” (1963: 84); the view that “the firm learns from its experience” (1963: 100); and an early version of the distinction between single and double-loop learning: “An organization . . . changes its behavior in response to short-run feedback from the environment according to some fairly well-defined rules. It changes rules in response to longer-run feedback according to some more general rules, and so on” (1963: 101/2).

The book by Cyert and March could perhaps be described as *the* foundational work of organizational learning. But others made fundamental contributions in the early days. Cangelosi and Dill (1965) produced the first publication in which the words “organizational learning” appeared in the title, and although the paper is based on tendentious data, it already makes a distinct contribution to debates in the field because it starts to argue against the neo-rationality underlying the Cyert and March model. It is suggested that the model may be appropriate for established organizations in stable circumstances, but that it has limited relevance to organizations developing within dynamic circumstances.

Thus, Cangelosi and Dill propose a model based on tensions between individual and organizational levels of learning, which is similar to the notion of organizational learning being a discontinuous process (Argyris and Schön, 1978), and is reflected in the contemporary work of Crossan et al. (1999).

The book by Argyris and Schön (1978) was very important since it laid out the field as a whole very clearly, and the distinction between organizations with and without the capacity to engage in significant learning (Models II and I) received a great deal of attention. In it, the authors take a different critique of the rationalist assumptions of Cyert and March by pointing out that human behavior within organizations frequently does not follow the lines of economic rationality. Both individuals and organizations seek to protect themselves from the unpleasant experience of learning by establishing defensive routines. During the 1970s and 1980s there were a number of other *foundational* works, such as Hedberg (1981), Shrivastha (1983), Daft and Weick (1984) and Fiol and Lyles (1985), which made important contributions to the definitions of terminology, and to deeper perspectives on organizational learning, such as the distinction between learning and unlearning.

Perhaps the most significant *popularizing* force in the study of organizational learning was the publication of the Special Edition of *Organization Science* in 1991. This contains a number of highly cited articles including March (1991), Huber (1991), Epple et al. (1991), and Simon (1991) which have been very influential, and have essentially set the academic research agenda for much of the 1990s. These papers follow, in the main, the neo-rationalist tradition which suggests that it is desirable to maximize the efficient use of knowledge in organizations, while recognizing that there are substantial, largely human, obstacles in its way. Many of the chapters in the current volume build explicitly upon their foundations (for example, Salk and Simonin, chapter 13; Van Den Bosch et al., chapter 15; and Szulanski and Cappetta, chapter 26).

However, it is also interesting that the same issue of *Organization Science* included a paper by Brown and Duguid (1991) which has come to represent an alternative tradition that regards the social processes of organizational learning as pre-eminent. This tradition has been fuelled by the work of Lave (1988), Orr (1990), Lave and Wenger (1991), Cook and Yanow (1993) and Nicolini and Mezner (1995). In the current volume it is evident that it underpins the work of authors such as Hayes and Walsham (chapter 4), Taylor and Osland (chapter 11), von Krogh (chapter 19), Cross and Prusak (chapter 23), and Bartel and Garud (chapter 16). From the early 1990s these two traditions have developed largely independently and have had increasing difficulty in communicating with each other. We hope, therefore, that in this Handbook there is sufficient coverage of both traditions to encourage better mutual understanding and a new dialogue between the two communities.

The learning organization

The idea of the learning organization is of more recent provenance. It emerged towards the end of the 1980s largely on the basis of European work, with UK authors such as Garratt (1988) and Pedler et al. (1989) making early contributions, although the paper by de Geus (1988), which was published in the *Harvard Business Review*, brought the concept to wider attention. Nevertheless, the major watershed was the book by Senge (1990) which

attracted enormous interest particularly because companies and consultants were searching for new ideas to replace the largely discredited concepts of corporate excellence (Peters and Waterman, 1982). Senge's book was both a *foundational* work and a *popularizer* because it rapidly became a key source for academics as well as an inspiration for practitioners. His ideas were highly attractive because they provided the potential for renewal and growth, with an underpinning of both technical and social ideas drawn from the systems dynamics developed by Jay Forrester at MIT, the psychodynamic organizational theory developed by Chris Argyris, and the process consultation of Ed Schein.

Despite the huge success of Senge's initial book, the idea has not been widely adopted by the North American academic community,¹ and it has continued to be primarily a European affair (for example, Swieringa and Wierdsma, 1992; Burgoyne et al., 1994; Pearn et al., 1995; and Probst and Büchel, 1997). The few academics who write in the USA on this issue, for example, Dixon (1994) and Torbert (1994) are often influenced by European ideas, such as the work of Revans (1980) on action learning. In the present volume, DiBella (chapter 8) provides a valuable updating and development of the concepts related to the learning organization by proposing a more flexible method than that originally laid down by Senge. Plaskoff (chapter 9) describes strategies for implementing learning in organizations using ideas drawn from the communities of practice literature, and Edmondson and Woolley (chapter 10) stress the importance of evaluating interventions because the success of learning innovations may vary considerably in different parts of the same organization.

Given the lack of a strong North American academic tradition, looking at the "learning organization," it is not surprising that some of the best critical literature on the subject has come from European authors (Coopey, 1995; Coopey and Burgoyne, 2000; Snell and Chak, 1998). The chapters in this volume by Scarbrough and Swan (chapter 25) and by Fineman (chapter 28) also follow this tradition.

Organizational knowledge

Organizational knowledge as a subject of study has been around for a long time, but primarily within the economics community. Thus, as we have noted above, the "classical" influence of economists such as Hayek and Penrose, and the philosopher Polanyi, has been significant. One of the major *foundational* works, also from an economics perspective, is Nelson and Winter (1982), which is particularly strong on the importance of "tacit knowing" as a basis for individual and organizational competence. Other foundational works emerged in the early 1990s, especially from two special issues of the *Journal of Management Studies* on knowledge work (Alvesson, 1993; Starbuck, 1992, 1993); the elaboration of six different forms of organizational knowing by Blackler (1995) was an important foundational work.

But the key *popularizing* influence was Ikujiro Nonaka, who produced a series of papers and a highly respected book (Nonaka and Takeuchi, 1995), that set the standard for the emergent field with a rich mixture of concepts and field data. Key ideas expounded in the book include: the notion of knowledge creation through transformations of tacit and explicit knowledge; the importance of national culture and philosophy to understanding the construction and communication of knowledge; the interrelationship between the

policy domain and the operational levels in the creation of knowledge; and the general principle that most dichotomies, such as tacit/explicit and mind/body, are false.

The influence of Polanyi is therefore strongly evident in the works of dominant figures like Nelson and Winter, and Nonaka; his ideas are also central to recent debates about the nature of organizational knowledge (Spender, 1996) as well as the contributions in this Handbook by von Krogh (chapter 19), Szulanski and Capetta (chapter 26), Makino and Inkpen (chapter 12), Tsoukas (chapter 21), Calhoun and Starbuck (chapter 24), and indirectly in the work of Van Wijk et al. on knowledge networks (chapter 22). But it is also possible to see the influence of Hayek and other neoclassical economists in Nonaka's discussion about the problem of resolving the perspectives of the policy and operational domains – which, Nonaka argues, can be solved through the process of knowledge conversion.

Knowledge management

The idea of knowledge management has arrived very recently; indeed, as Davenport and Prusak (2000) comment, it was still in its infancy only in 1998. Thus, we are not able to see a linear development over time in this area; development has been rapid and chaotic, even though it is still possible to discern some decisive factors. To some extent, knowledge management has gained academic legitimacy on the back of Nonaka's work, but the driving force in the corporate world has come from major consultancy companies seeking to capitalize on the enormous potential of information technology in a period following disenchantment with the methods and prescriptions of re-engineering (Hammer and Champy, 1993; Grint and Case, 1998). The idea is pretty simple, since it starts with the neo-economic view of the strategic value of organizational knowledge and then uses familiar IT software such as databases and electronic conferencing to facilitate the acquisition, sharing, storage, retrieval, and utilization of knowledge. As such, the conceptual logic follows the technical view of organizational learning as expounded by Huber (1991) and colleagues.

However, there are now critiques being mounted of knowledge management initiatives precisely on the grounds that they ignore the social architecture of knowledge exchange within organizations (Hansen et al., 1999), and it is not surprising that some of these are coming from the “social” school of organizational learning theorists (for example, Brown and Duguid, 2000). Given the novelty of the area, it is hard to offer definitive influences other than Nonaka and the twin traditions within the literature on organizational learning. Perhaps the key formative work will come to be recognized as the book by Davenport and Prusak (1998) which has received eight citations among the 30 invited chapters in this Handbook, and at the time of writing had already clocked 150 hits in the SSCI. Naturally, both of these authors influence the contributions by Hayes and Walsham (chapter 4) and Alavi and Tiwana (chapter 6).

CONCLUSIONS

In this opening chapter we have offered a general mapping of the field covered by this Handbook and have also tried to demonstrate some of the inter-linkages both over time

and between parallel, but apparently independent, areas of development. It has also been possible to identify some significant influences, which predate the invention of the concepts of organizational learning and knowledge management, and which might be seen as providing a common heritage, or similar watersheds.

It should be clear by now that the different sub-areas of the field are at different stages of maturity. Some of them are major rivers, which have flown gently for a long time; some are shorter streams, which flow very quickly; and others are sudden torrents, which emerge almost overnight – and which could disappear again equally quickly. The chapters which follow in this book attempt to locate current research perspectives and issues in their areas within a general time-line, which includes reviewing past trends and speculating briefly on future directions. All of the chapters are original, and most have been commissioned and written specifically for this Handbook. Those that are located within more established areas naturally have more material to draw on which is directly relevant to their current interests; those in the newer areas are often engaged in delineating their fields for the first time and trying to locate them in relation to older traditions.

It is our hope that many of the chapters will eventually become seen as “foundational works” because, in the former case, they manage to provide clear maps and overviews of their areas, and, in the latter case, they are able to establish the agendas for future research. As for the Handbook as a whole, we hope that it will be seen as a major statement of the state of the field at the start of the 21st century, and in the final chapter we speculate, based on some further research, about where it might be heading next.

NOTE

1. Even though James March uses the term “learning organization” in March (1988), it is without the normative implications that the term subsequently adopted following the work of Senge (1990).

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