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Organizational Learning:
Where Do We Stand? Where Do We Want to Go?*

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Abstract

The field of organizational learning has developed dynamically but is not ready for closure. This article reviews the cultural contexts in which research on organizational learning has been conducted since the 1960s, and the intellectual traditions that underpin the field. It traces changes in the types of organizations studied and in the range of agents of organizational learning attended to by scholars. The processes and models that have shaped the discussion over the past decades, and changes in the tone or color of the way organizational learning has been treated are also highlighted. Trends in organizational practices are identified as well. On the basis of this broad stocktaking exercise, key challenges for future research on organizational learning and knowledge creation are outlined.

Stocktaking and agenda setting are key responsibilities in the research process. It is instructive to undertake such exercises in the spirit of an iterative learning process, particularly since when highlighting certain elements we unwittingly cast a shadow on other equally interesting facets. This is particularly necessary in the field of organizational learning, which is rich and lively with debates among and between scholars from a wide and growing number of disciplines as well as practitioners from many different kinds of organizations. The dynamic development of organizational learning as a field of inquiry is not ready for closure but rather for more organized and collaborative exploration. There is still a great deal of territory to be charted and the diversity of approaches enhances the discovery.

Having worked in the field of organizational learning and knowledge creation for about a decade, we have developed a view of how research in this area has progressed and where some key challenges lie. We have conducted research in the area and have engaged in several stocktaking and agenda setting exercises (see also Dierkes and Albach 1998; Berthoin Antal 1998, and Berthoin Antal, Dierkes, Child, and Nonaka, forthcoming). Since this background and experience is what shapes the way we see the field today, it is worth looking at them briefly before engaging with our ideas.

The contexts within which we have built our knowledge of the field have been the research program on organizational learning at the Science Center Berlin (WZB), the "Kolleg" on Organizational Learning in Various Environmental Conditions" and

ongoing engagement with practitioners in organizations seeking to understand and improve their learning processes. At the WZB, we have conducted a number of international research projects over the past years, covering such diverse questions as a) can learning models be generated across such widely different cultures as China, Germany and Israel? b) how do organizations learn to downsize and what is the impact of that process on their memory? c) how do specific groups of actors (expatriates; consultants) contribute to organizational learning? The "Kolleg" was founded in 1994 under the auspices of the Gottlieb Daimler and Karl Benz Foundation in Germany, which has successfully used the technique of bringing together a mix of scholars and practitioners to explore questions over several years through regular discussions and joint research endeavors. The members of the "Kolleg" on Organizational Learning" originated from 11 different countries and came together biannually for two or three days from 1994-1998 (see <http://duplox.wz-berlin.de/oldb/.html>).

At the WZB we used the opportunity of editing the 1998 Yearbook to look at the state of the art of organizational learning and to push the boundaries of the field into new types of organizations and into cultural contexts which had not yet received much attention (Albach, Dierkes, Berthoin Antal, Vaillant 1998). Within the framework of the "Kolleg" we undertook two types of stocktaking. In order to provide an orientation to the existing literature, we first produced an *Annotated Bibliography of Organizational Learning* with several members of the "Kolleg" (Dierkes, Alexis, Berthoin Antal, Hedberg, Pawlowsky, Stopford and Vonderstein,

2000). Second, we embarked on the preparation of the Handbook of Organizational Learning and Knowledge, and encouraged the authors to give voice to multiple perspectives rather than to seek to come to agreement (Dierkes, Berthoin Antal, Child, Nonaka, forthcoming).

I. Mapping the field

There are a number of significant changes that have occurred during the development of the field that we would like to reflect on before looking at the implications for a research agenda. The categories in which these can be traced are:

- 1) the cultural contexts in which research has been conducted;
- 2) the intellectual traditions that underpin the research;
- 3) the relationship of theory to practice
- 4) the type of organizations studied
- 5) the processes and models of organizational learning
- 6) the agents of organizational learning studied
- 7) the tone or color in which organizational learning is treated
- 8) the trends in organizational learning practices.

Although we recognize that defining periods in time can be done in different ways depending on one's perspective, we suggest that it is useful to trace the development of organizational learning in terms of four periods: origins (1960s-1970s), the early phase (1980s), the past decade (1990s), and emerging

challenges. The use of decades is practical but should not be interpreted too strictly, since the boundaries between thinking and publication at the beginning or end of decades are fluid.

1. The cultural contexts

One of the most striking achievements is the shift from the purely Anglo-Saxon origins of the research to a much broader cultural range. The early writings stemmed from scholars in the United States and their concepts assumed universal applicability. Not until the late 1980s and early 1990s did researchers from various western European countries and Japan join the field and explore organizational learning processes in organizations in their cultures (see for example Dierkes 1988 for an early German-language publication). During the 1990s research extended into Eastern and Central Europe, because the collapse of the Eastern Bloc and the challenge of transformation placed organizational learning high on the agenda of organizations and researchers alike. Research has also started to extend into organizational learning in different Asian economies. The challenge ahead lies in expanding research to a greater variety of countries and conducting more internationally comparative research projects. Not only will this allow scholars to test the reach and limits of concepts developed to date. It will also permit the generation of new concepts that can then provide new ways of looking at processes not only in their countries of origin but also in the U.S., Western Europe, and Japan.

2. The intellectual traditions

Another major step forward in the field can be seen in the intellectual traditions feeding into it. At the outset, publications came predominantly from management scientists with a grounding in psychology, who, dissatisfied with existing models dominated by assumptions of rationality in organization theory and in the theory of the firm, drew on concepts from psychology to describe processes of decision making and learning. The field of organizational learning soon attracted scholars from other areas, like sociology and organization studies, leading to the generation of a large variety of models. They, too, often borrowed from psychology to describe organizational learning. Later, scholars used concepts from a wider range of disciplines, including anthropology. During the late 1990s interest in knowledge management emerged and has come to expand the intellectual territory.

The process of including other disciplines has not yet reached its limits. The interest in knowledge management has been closely linked to discussions about competitiveness, which may be a factor in starting to attract economists to the field. With these scholars more attention is likely to be paid to the resource-based view of the firm and the notion of competences. The strong tradition of economists in research on innovation may also serve to stimulate the rediscovery of relevant findings in this area that had been generated by other disciplines in earlier decades as well (e.g. Burns and Stalker 1961). Furthermore, we hope that more contributions from political scientists and historians will enrich the field. With their entrance should come the recognition of early thinking that, while not conducted under the banner of organizational learning, offers stimulating insights for the field.

For example, Mary Parker Follett may be seen as precursor to the integration of conflict as a dimension of organizational learning, and Joseph Schumpeter as a forerunner in theory building on knowledge creation.

Our sense is that to date this mixed disciplinary community has not yet capitalized sufficiently on its current diversity, nor on its heritage. The challenge lies in building transdisciplinary approaches based on a solid understanding of how each discipline can contribute to shedding light on the processes of organizational learning and knowledge creation. Furthermore, we believe that the insights gained through research on organizational learning and knowledge creation can flow back into the disciplines to stimulate fresh thinking there as well.

3. The relationship of theory to practice

The relationship between theory and practice has shifted over the past decades. The early work was conceptual thinking that was solidly rooted in case study experiences. Subsequently, however, a division emerged between largely conceptual writing and attempts to satisfy demand for immediate practical advice. Pressure intensified in the late 1980s and during all of the 1990s for 'recipes' for success. Practitioners became involved in the field. Managers opened their companies for case studies and some tried to turn their companies into 'learning organizations.' This period was a heyday for consultants. Quite a few academics took on two hats and engaged in consulting. Ideally, such engagements should allow in-depth research because consultants gain extensive access to people and data in organizations during interventions and they can be present at meetings to

which external researchers are very rarely admitted. However, few theoretically meaningful studies have been published after consulting interventions, possibly because time pressures cut projects short or because companies have kept the research results for themselves. A further factor impeding theory-building in such constellations is that the freedom to research is difficult to combine with the politics and economics of consulting contracts. When research needs or findings conflict with the interests of the employer, they tend to be sacrificed or the consultant leaves the project. Not only has theory building suffered, the expectations of practitioners have often remained unfulfilled. Hopes of rapid change and smooth, almost effortless transferability of best practices from other organizations proved illusory. In future, project designs and forms of financing will need to be used that permit longer-term studies to be conducted of organizational learning processes. Rigorous experiments with action research in which academics and reflective practitioners collaborate to develop theory grounded in practice and applications grounded in theory would be one promising route to be taken.

4. The types of organizations studied

The concept of organizational learning has been applied predominantly to companies in the private sector. This has not always been the case, however. The earliest writings were based on experiences in governmental agencies and educational institutions as well as in companies. Strangely, this original work was essentially forgotten in the intervening period and only in the past few years has an active interest been taken by practitioners in other types of organizations, such as government organizations, international agencies and unions. Researchers, too, have recently turned their attention to a wide variety of organizations for their analyses. These range from organizations outside the private sector, like public administrations to increasingly fluid conceptions of organizations like social movements, industry networks, imaginary organizations, and *ba*, the space within which organizational learning and knowledge creation can flourish (Nonaka and Reinmüller 1998). The inclusion of networks and non-private sector organizations into the field is not simply a quantitative change. It challenges some of the basic tenets of theory building about processes of organizational learning and knowledge creation that have been developed solely on the basis of experiences in individual companies. Such research is in its infancy and much more will be needed in the coming years.

5. The processes and models of organizational learning

The way in which organizational learning has been conceptualized and modeled has undergone significant change over the past decades. Early conceptions of organizational learning were based on behavioral approaches, with a certain

amount of recognition of cognitive processes and evolutionary concepts. Some of these models have been criticized for being too mechanistic or too passive. Gradually insights from cognitive learning theories as well as from organizational culture research enriched conceptualizations of organizational learning. Models came to include the role of interpretation and sensemaking processes, leading recently to an awareness of political processes entailed in competing multiple interpretations and contested learning. Research on perceptual filters revealed that these enable certain information to be seen while blending out other signals (Berthoin Antal, Dierkes, Haehner, 1997).

The key challenge to models of organizational learning is to recognize the embeddedness of learning processes. Organizational learning was originally treated either as an outcome of behavior and engrained into organizational memory through rules, routines and repertoires, or it was treated as a separate process from work that needed to be stimulated if desired. Current thinking argues for a revision that places learning more squarely in its context as a process.

The nature of learning processes is probably the issue on which scholars still diverge the most strongly. Numerous authors find phase models of organizational learning processes—starting usually at knowledge acquisition, through diffusion and sensemaking, to action and then storage—to be useful ways of conceiving of learning. Nonaka has taken issue with this way of depicting organizational learning processes ever since he started publishing in the field (Nonaka and Takeuchi 1995). He proposes a spiral model of conversions that support the creation of

knowledge. More recent work suggests that the phase model and the spiral model can complement each other in processes of inquiry into organizational learning (Berthoin Antal, Lenhardt and Rosenbrock, forthcoming). The emerging challenge for research lies in developing models that can treat learning and knowledge creation as embedded processes and can shed more light on situated cognition and action.

6. The agents of organizational learning

Another area in which a change can be perceived over time since the beginnings of learning in the field is around the question of the agents of organizational learning. When the "Kolleg" started meeting in the mid-1990s a criticism levied at the field was that it was too narrowly focused on an elitist view of organizations. Theories of organizational learning at the time reflected an exclusively top-down view of organizational processes. The work by Nonaka and Takeuchi (1995) in Japanese companies had made this bias in the Anglo-Saxon publications that dominated the field evident by bringing to light an alternative pattern of agency for organizational learning in which the role of middle managers became more visible: the middle-up-down model. A far greater variety of types of actors have been studied in the past decade, including some who are not permanently based inside the organization, like unions and consultants (Berthoin Antal and Krebsbach-Gnath 1998). The fact that leadership is not limited to a few top managers but rather a factor to be distributed and multiplied across the organization is also gaining recognition. The case study by Berthoin Antal, Lenhardt and Rosenbrock (forthcoming) concurs with earlier findings in innovation research by documenting

the need for a constellation of roles in organizational learning and knowledge creation processes, distributing leadership among members in different levels of the organization. An additional advance in the literature is the insight that all the members of an organization, whether they are at the Board level or low in the hierarchy, can not only promote but also impede organizational learning and knowledge creation.

Nevertheless, the significance of senior management should not be underplayed. It is crucial to recognize that a wide variety of agents play a much more important range of roles than was originally recognized in the literature, but this should not be allowed to marginalize senior management's responsibility and potential impact. Stopford (forthcoming) shows that top managers must take an active and purposeful role in shaping and guiding the evolution of organizations. This view is confirmed by Dierkes, Marz and Teele (forthcoming), who emphasize the responsibility of top management for articulating a clear vision that can orient the direction of learning and knowledge creation in an organization. This specification of the responsibility of top management does not, however, presage a return to the original simplistic elite view of organizational learning. The ability to build relationships across the organization is becoming increasingly important to achieve goals. The development of a vision by senior management is most effective when the process involves members of the organization at different levels (Krebsbach-Gnath 1995). The recent multiplication of techniques for achieving these aims is striking. The emerging challenge to research in this area is to explore the range of agents of learning as they interact in different constellations of

organization, including networks, communities of practice and imaginary organizations.

7. The tone and color of the treatment of organizational learning

There has been a notable shift in the tone, or color, of the discussion about organizational learning. Most of the publications in the first three decades treated learning as a politically neutral process with a positive, rosy, outcome for organizations and for their members. Although Argyris and Schön (1978) introduced the concept of defensive routines to recognize the role of fear and defensiveness that individuals may experience when having to challenge their mental models, few scholars followed up on these ideas until the 1990s. Until then critical responses to a process were treated as resistance that had to be overcome. The existence of a darker side of learning came when some authors started to point out that learning may not only be positive, because it can also result in the development of undesirable behavior or incorrect knowledge (e.g., Levitt and March 1988). In the past few years there has been growing recognition that emotions, power, and conflict could influence learning but there has been almost no empirical research, possibly because each of these factors were seen as antithetical to learning.

It is striking that although the concern about elitism and the topic of leadership have been on the research agenda for several years, the issue of power in organizational learning is only beginning to move out of silent shadows (Coopey 1995; LaPalombara forthcoming). It may be symptomatic of the dynamics of the field that some of the most interesting insights about power are being generated in

research on interorganizational learning. The negative impact of asymmetric distribution of power on the ability and willingness of different partners to share knowledge is brought out particularly well in studies of such organizations. Findings from research on interorganizational learning can lead to significant breakthroughs for theory-building by taking the research out of the trap of extrapolating from theories of individual learning. Far more research is needed to achieve a deeper understanding of organizational learning and knowledge creation as political and emotional processes, in which conflicts are a natural phenomenon.

8. Trends in organizational learning practices

Yet another dimension worth tracing over the past decades is the change in organizational learning practices. There used to be a sense that learning simply happened, intuitively: organizations either succeeded and survived, or they failed. The organizational development activities launched primarily in the U.S. and the UK, can now be seen to be precursors of organizational learning, as well as the quality circles and quality of work programs of the later 1970s and 1980s that also were introduced in Germany and Sweden. But at the time, they were not treated under the banner of organizational learning. To the extent that learning was invested in directly by organizations, it took the form of training and development courses for individuals. Conscious attempts to introduce organizational learning practices did not emerge in the U.S. or Europe until the late 1980s, at which time Japanese practices became the object of intense attention from managers as well as scholars. A few companies were forerunners in experimenting with ways of

improving their ability to understand and manage their environment, like Royal Dutch Shell's scenario work. The popularization of organizational learning came on the back of attempts to introduce rapid and radical change programs, like turnaround management, reengineering and organizational restructuring. Learning as a strategic intent was put on the agenda in the last decade, with various organizational and structural techniques. Benchmarking as a means of exploring different practices and learning from the experiences of others became a widespread practice. Some organizations have experimented with new methods like dialogue and Open Space Technology events. With the advent of knowledge management has come the recent institutionalization of learning roles in the form of the Chief Learning Officer or Chief Knowledge Officer, and corporate universities have mushroomed. The extent to which these practices actually help organizations achieve learning goals will depend firstly on how willing they are to engage in more than running after fads or re-labeling old practices with new names. Secondly, it will depend on how earnestly and critically they engage in assessing their experiences. The effectiveness of the learning methods will therefore depend on the ability of organizations to treat them as opportunities for developing their learning skills.

II. Research agenda

Here we propose a few overarching research themes for future research in order to advance the field as a whole. These themes grow out of our current map of the development of the field, and our perceptions are influenced by our own research interests and experiences. We have opted for a selective rather than a

comprehensive approach to formulating a research agenda. Observers who draw a different map are likely to come up with other research priorities.

1. Learning and Knowledge Creation under Significantly Different Conditions

Considerably more research will need to be conducted in the coming years than has been done to date on organizational learning and knowledge creation processes that occur under significantly different conditions. The empirical findings that are generated by means of rigorously designed comparative research can move from the level of interesting insights generated in separate settings to cumulatively sound theory that holds for a greater range of settings. Some possibilities for such research include:

- a) Studies conducted in different cultures and regions of the world by research teams whose members have been trained in their countries. Such internationally comparative research needs to become more than the collection of studies conducted in parallel in different countries, as has been too often the case to date. The integration of different professional perspectives from the outset of the project design, through the field work and in the analysis of research results ensures that cultural biases are brought out into the open and challenged. In our experience the cooperation in each phase, including a mix of 'native' and 'naive' perspectives during field work for data collection significantly improves the quality of the research. For such studies to be genuinely collaborative from the outset, funding organizations will need to internationalize as well. Too many funding bodies currently limit their financing to the research conducted in their

own country, so that team members must apply to different bodies and then work according to different time tables and conditions set by the funding organizations.

- b) The incipient research available on organizational learning and knowledge creation outside the private sector and in new configurations of organizations in the private sector provides ample evidence that comparative studies between different kinds of organizations will contribute significantly to advancing our understanding of the processes involved. Thoughts about the impacts of different organizational structures and forms of ownership on organizational learning remain largely speculative. Recent studies on organizational learning in societies undergoing transformation provide some insights into the role of privatization. However, not until comparative research has been conducted in different economic settings on organizations before and after privatization or on companies providing the same goods and services under private versus public ownership will the impact of forms of ownership be understood. Another type of comparison needed is between stable organizational structures and temporary organizational forms, which are becoming increasingly common as companies create joint ventures and acquire new units, then de-merge and dissolve them. Such research would help elucidate the role of time in organizational learning and knowledge creation and it will shed more light on how memory is built and accessed under different structural conditions.
- c) The effects of different conditions in the market and the industry remain to be studied. Comparisons of learning processes in organizations operating in industries characterized by very different rates of change would be helpful in this

regard. For example, the Catholic Church is an institution epitomizing consistency and very slow rates of change whereas companies in the fashion industry thrive on rapid change. What kinds of learning and knowledge creation processes do the two types of organizations have in common and in which do they differ? Such studies could also compare the role and nature of learning at different stages of the organizational life cycle. In a similar vein, it would be instructive to compare learning processes in organizations that operate as monopolies with those that operate under oligopolistic conditions. Closely linked with these issues is the need to explore the effect of different governance systems on organizational learning. Considering the emphasis placed in research to date on building trust and commitment over time as preconditions for learning a provocative question for study would be: How and what do organizations learn under the pressures of Wall Street? It would be valuable also to study the impact of the growing role of institutional investors and of global financial markets on organizational learning and knowledge creation. Such research would require far closer cooperation between the disciplines, including economists and historians, than has been the case so far.

2. Organizational Learning and Knowledge Creation as Political Processes

A second overarching area of research we believe needs attention in the coming years is organizational learning and knowledge creation as political processes:

- a) Too little is known about how different subgroups within organizations compete in interpreting lessons from the past as well as signals in the current environment, or about how they fight for attention and for resources in converting

information into organizational knowledge and action. Such research is needed not only within but also between organizations, because there, too, power differences exist. Concepts from political science like log rolling and coalition building may help to draw out political processes from the shadows of in which they risk being hidden by technocratic conceptions of knowledge management.

- b) Research on organizational learning as a political process would also explore the role of gender, a dimension that has not yet been studied in this context, although its relevance for other organizational processes has proven to be significant both politically and theoretically. For example, since many occupations and networks remain largely segregated by gender within and between organizations, it is likely that those dominated by women create and store different bodies of knowledge than those dominated by men, and they may well engage in different processes of learning and knowledge creation. If so, do the networks or communities of practice dominated by women change their strategies when they are more powerful than others in an organization?
- c) The consequences of ideologies for organizational learning and knowledge creation represent another key political issue. Such research could build on existing work about visions within organizations and overarching visions at the industrial or national level, as well as on studies about learning processes under conditions of societal transformation. It would need to go much further and deeper than available research in order to explore continuity and change under different ideological labels. Projects in this area should examine how ideologies are used to legitimize certain areas and actors for knowledge creation and how other topics and actors are repressed and silenced. The outcomes of such

research could also provide insights into the timing of organizational learning and knowledge creation by delving into the constellation of factors that influence agenda setting.

3. The Role of Luck in Organizational Learning

A third research area of a quite different nature that we are curious about is the role of luck or chance in learning. Considering all the research that has already been conducted and the amount of consulting that has been done in the area (including by academics), it is somewhat surprising that there is still a general feeling that companies do not learn enough and they do not learn fast enough. Could it be that there are limits to planning, organizing and analysis, even for organizational learning and knowledge creation? Numerous recommendations have been made to promote organizational learning and knowledge creation, ranging from changing top management, to introducing new structures and roles like Chief Knowledge Officers. Knowledge bases are obtained through various means, including expensive acquisitions of new organizational units. Nevertheless, the process often becomes stuck. When problems are encountered, they are often attributed to bad luck, unfortunate circumstances, or bad timing. But is the provision for a category labeled 'chance' simply a way of avoiding the matter, an easy way out for questions that cannot be easily resolved? By consciously examining the role of chance or luck, both good and bad, that is attributed by people to explain success and failure in learning processes, new factors might come to light that have hitherto been masked, or the dynamics between known factors might become clearer. Such research could be conducted by collecting

stories that circulate in and around organizations. Analyses of these stories could reveal patterns worth looking into further. Another approach would be to draw on research conducted on creativity and the role of serendipity in research and development processes. This would once more expand the boundaries of the field of organizational learning and bring in new bodies of research.

4. The Need for Methodological Diversity and Experimentation

If research on organizational learning and knowledge creation is to make significant progress in the coming years the community of scholars and practitioners will need to make good use of the diversity of lines of thinking at their disposal. Research methodologies that build on this diversity of perspectives are required. To date, many publications have been largely conceptual, many have been case studies, usually based on interviews with a limited number of people in organizations. Almost no large scale survey work has been done, probably because it is still too early to formulate appropriate questions for such surveys and possibly because survey instruments that do justice to contextual differences are difficult to design and analyze. As is typical in so much research on organizations, little longitudinal research has been done, but maybe a rapprochement with historians will make collaboration on such projects more frequent.

But it is not enough to call once more for a mix of methods in research, which all too often leads to the accumulation of research findings that are difficult to compare and integrate. An approach we propose is more in keeping with the diversity of intellectual streams in the field is one in which projects are designed to generate competing stories about a particular situation. Such research can build

on the models provided by Allison (1971) and Morgan (1986) who showed how much value can be drawn out of looking at the same situation through different theoretical lenses or metaphors. For example, the entrance of a company into a new industry can be explored as a story about how a visionary leader enabled his organization to learn how to enter into the new field. Alternatively, it can be studied as the story about how the company was enabled to learn through the acquisition of a new unit in the relevant business area. Or how the company only just caught up with industry trends when it moved into learning about the new business area. An equally interesting angle is to trace how, once the company was pushed into the new field that entailed a completely different concept of knowledge management, it started to learn to restructure itself. By exploring each of these stories and pitting them against each other rigorously, a research team can explore the dynamics of how the outcome of organizational learning is shaped by different groupings in the organization. Such groups interpret information, build networks, and interact in promoting their learning agendas, and in so doing how they compete for resources to legitimize their intentions and achievements and secure their vision for the future while submerging alternatives. Within a framework of competing stories, multiple theories would throw light on different but overlapping elements of the picture: Views about power from sociology and political science; resource based theories from economics; creativity theories; leadership concepts from management and political science; theories of knowledge acquisition and knowledge creation, as well as ideas relating to time, windows of opportunity, and, yes, possibly also luck.

References:

- Albach, H. and M. Dierkes (1998). "Lernen über Organisationslernen" In: H. Albach, M. Dierkes, A. Berthoin Antal, and K. Vaillant (eds.) *Organisationslernen: institutionelle und kulturelle Dimensionen*. WZB Jahrbuch 1998. Berlin: edition sigma:15-30.
- Allison, G.T. (1971). *Essence of Decision. Explaining the Cuban Missile Crisis*. Boston: Little, Brown and Company.
- Argyris C., and Schön, D. (1978). *Organizational Learning. A Theory of Action Perspective*. Reading, MA: Addison-Wesley.
- Bateson G. (1972). *Steps to an Ecology of Mind*. New York: Ballantine Books.
- Burns, T. and Stalker G. (1961). *The Management of Innovation*. London: Tavistock.
- Berthoin Antal, A., Dierkes, M. and Haehner, K. (1997). "Business Perception of Contextual Changes: Sources and Impediments to Organizational Learning." *Business and Society*, 36/4:43-46.
- Berthoin Antal, A. and Krebsbach-Gnath, C. (1998). "Consultants as Agents of Organizational Learning." WZB Discussion Paper No. FS II 98-109.
- Berthoin Antal, A. (1998). "Die Dynamik der Theoriebildungsprozesse zum Organisationslernen." In: H. Albach, M. Dierkes, A. Berthoin Antal, and K. Vaillant (eds.) *Organisationslernen: institutionelle und kulturelle Dimensionen*. WZB Jahrbuch 1998. Berlin: edition sigma:31-52.
- Berthoin Antal, A., Lenhardt, U., and Rosenbrock, R. (forthcoming). "Barriers to Organizational Learning." In: M. Dierkes, A. Berthoin Antal, J. Child, I. Nonaka (eds.) *The Handbook of Organizational Learning and Knowledge*. Oxford: Oxford University Press.
- Berthoin Antal, A., Dierkes, M., Child, J., and Nonaka I. (forthcoming). "Organizational Learning and Knowledge: Reflections on the Dynamics of the Field and Challenges for the Future." In: M. Dierkes, A. Berthoin Antal, J. Child, I. Nonaka (eds.) *The Handbook of Organizational Learning and Knowledge*. Oxford: Oxford University Press.
- Coopey, J. (1995). "The Learning Organization. Power, Politics and Ideology". *Management Learning*. 28/4:475-495.
- Dierkes, M. (1988). "Unternehmenskultur und Unternehmensführung." *Zeitschrift für Betriebswirtschaft*. 58/5:554-575.
- Dierkes, M., Alexis, M., Berthoin Antal A., Hedberg B., Pawlowksy P., Stopford J., Vonderstein, A. (eds.) (2000). *The Annotated Bibliography of*

- Organizational Learning*. 2nd edition. Berlin: edition sigma. (First edition also available under: <http://duplox.wz-berlin.de/oldb/bibliography.html>).
- Dierkes, M., Marz L., Teele, C. (forthcoming). "Visions as Catalysts for Organizational Learning—The Case of Technology." In: M. Dierkes, A. Berthoin Antal, J. Child, I. Nonaka (eds.) *The Handbook of Organizational Learning and Knowledge*. Oxford: Oxford University Press.
- Hedberg, B. (1981). "How Organizations Learn and Unlearn." In: P.C. Nystrom and W. Starbuck (eds.) *Handbook of Organizational Design* (Vol. 1) Oxford: Oxford University Press:3-27.
- Kolb, D. (1984). *Experiential Learning. Experience as the Source of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall.
- Krebsbach-Gnath, C. (1995). *Organisationslernen. Theorie und Praxis der Veränderung*. Wiesbaden: Deutscher Universitätsverlag.
- LaPalombara, J. (forthcoming). "Power and Politics in Organizations: Public and Private Sector Comparisons.' In: M. Dierkes, A. Berthoin Antal, J. Child, I. Nonaka (eds.) *The Handbook of Organizational Learning and Knowledge*. Oxford: Oxford University Press.
- Levitt, B. and March, J. (1988). "Organizational Learning." *Annual Review of Sociology*. 14:319-340.
- Morgan, G. (1986). *Images of Organization*. Newbury Park/London: Sage.
- Nonaka, I. and Takeuchi, H. (1995). *The Knowledge-Creating Company*. New York: Oxford University Press.
- Nonaka, I. and Reinmüller, P. (1998). "The Legacy of Learning. Toward Endogenous Knowledge Creation for Asian Economic Development." In: H. Albach, M. Dierkes, A. Berthoin Antal, and K. Vaillant (eds.) *Organisationslernen: institutionelle und kulturelle Dimensionen*. WZB Jahrbuch 1998. Berlin: edition sigma:401-432.
- Polanyi, M. (1966). *The Tacit Dimension*. Garden City, NY: Doubleday.
- Stopford, J. (forthcoming). "Organizational Learning as Guided Response to Market Signals." In: M. Dierkes, A. Berthoin Antal, J. Child, I. Nonaka (eds.) *The Handbook of Organizational Learning and Knowledge*. Oxford: Oxford University Press.

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