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Afleveradres Post IRC Int. Water and Sanitation Centre
Documentation Unit

Postbus 82327
2508 EH Den Haag

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NL
Fax 070-304 4044
Email woerden@irc.nl
Ftp
Ariel
Telefoon 070-304 4005

Factuuradres IRC Int. Water and Sanitatation Centre
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2508 EH Den Haag

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The Interorganizational Learning Dilemma: Collective Knowledge Development in Strategic Alliances

Rikard Larsson • Lars Bengtsson • Kristina Henriksson • Judith Sparks
Department of Business Administration, School of Economics and Management, Lund University, P.O. Box 7080, S-220 07 Lund, Sweden
Department of Business Administration, School of Economics and Management, Lund University, P.O. Box 7080, S-220 07 Lund, Sweden
Department of Business Administration, School of Economics and Management, Lund University, P.O. Box 7080, S-220 07 Lund, Sweden
California State University Long Beach, c/o 10205 Seabury Lane, Los Angeles, California 90077

Abstract

Alliances are volatile key components of many corporations' competitive strategies. They offer fast and flexible means of achieving market access, scale economies, and competence development. However, strategic alliances can encounter difficulties that often lead to disappointing performance. The authors suggest that the way partners manage the collective learning process plays a central role in the success and failure of strategic alliances.

Present understanding of interorganizational learning primarily focuses on how the individual organization can be a "good partner" or try to win the internal "race to learn" among the partners. The interorganizational learning dilemma is that (1) being a good partner invites exploitation by partners attempting to maximize their individual appropriation of the joint learning, and (2) such opportunistic learning strategies undercut the collective knowledge development in the strategic alliance.

The authors develop a framework for understanding the dilemma through consideration of trade-offs between how collective learning is developed in alliances and how the joint learning outcomes are divided among the partners. They create a typology of five different learning strategies based on how receptive as well as how transparent an organization is in relation to its partners. The strategies are: collaboration (highly receptive and highly transparent); competition (highly receptive and nontransparent); compromise (moderately receptive and transparent); accommodation (nonreceptive and highly transparent); and avoidance (neither receptive nor transparent). Interorganizational learning outcomes are proposed to be the interactive results of the respective partners' type of adopted learning strategy.

By synthesizing strategic alliance, organizational learning, collective action, and game theories, the framework contributes to understanding the variety in alliance development, performance, and longevity. Interorganizational learning is likely to be hindered by lack of either motivation or ability to absorb and communicate knowledge between the partner organizations. The dynamics of power, opportunism, suspicion, and asymmetric learning strategies can constitute processual barriers to collective knowledge development. In contrast, prior related interaction between the partners, high learning stakes, trust, and long-term orientation are likely to empower the collective learning process.

Comparison of previous case studies and surveys of interorganizational learning provides partial empirical support for the proposed framework. The comparison also indicates several omissions in previous research, such as failure to consider either how receptive or how transparent the partners are, the interaction between their learning strategies, and their dynamic processes over time. Because these omissions are due partly to the methodological limitations of traditional case studies and cross-sectional surveys, the authors suggest a bridging case survey design for a more comprehensive test of their interactive, dynamic, and situational framework.

(*Interorganizational Learning*; *Strategic Alliances*; *Collaboration*; *Competition*; *Compromise*; *Receptivity*; *Transparency*; *Partner Specificity*)

Strategic alliances have become a cornerstone in many corporations' attempts to achieve competitive advantages by gaining market access, scale economies, and competence development through collaboration (e.g., Astley and Brahm 1989, Hamel et al. 1989, Lorange and Roos,

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1992, Ring and Van de Ven 1994). These collective benefits can be created faster, at less cost, with greater flexibility, and with less risk than "going it alone" (Balakrishnan and Koza 1995, Borys and Jemison 1989, Ohmae 1989, Parkhe 1991, Porter and Fuller 1986). However, the actual performance of strategic alliances seems to be much more disappointing (e.g., Harrigan 1988, Kogut 1988b, Porter 1987) than the often rosy picture painted, particularly in the practitioner-oriented literature (Nilsson 1995).

A key to a better understanding of the promises as well as the pitfalls of strategic alliances can be found in the benefits and difficulties of organizational learning among the cooperating firms (Doz 1996). Most of the various motives for creating strategic alliances are linked to the partner organizations learning how to improve their operations through cooperation in different ways (Dodgson 1993, Hagedoorn 1993, Huber 1991, Kogut 1988a, Pucik 1988). At the same time, there are indications that strategic alliances may suffer from particular learning problems, such as the risk of uncontrolled information disclosure and asymmetric diffusion of core competencies to partner firms (Bresser 1988, Hamel 1991, Inkpen and Beamish 1997).

Although the rapidly growing fields of research on organizational learning and strategic alliances have begun to identify their mutual relevance, our understanding of the *interorganizational learning* that occurs among cooperating firms has clearly been limited by the lack of shift in the level of analysis (cf. Powell et al. 1996). Having made the quantum leap from individual to organizational learning at a relatively early stage (Argyris and Schön 1978, Cyert and March 1963), management research has only recently begun to make the corresponding leap to collective learning among organizations. Research on the ecology of learning organizations (Levitt and March 1988, Miner and Haunschild 1995, cf. Argote et al. 1990) and interpartner learning in strategic alliances (Hamel 1991, p. 185) creates the groundwork for an interorganizational learning theory, yet the primary unit of analysis is still the individual organization that learns from competitors or is locked in a "race to learn" with its partners. As some recent empirical studies of learning in alliances begin to indicate, interorganizational learning further accentuates the need to consider strategic, interactive, and dynamic elements of this higher-level phenomenon (Doz 1996, Inkpen and Crossan 1995, Lane and Lubatkin 1998).

Hamel (1991) has pointed out the dangers for firms in following the conventional advice on how to be a "good partner" in strategic alliances. Firms instead need to focus on the appropriation of joint knowledge since partners with competitive intent, low transparency, and high receptivity tend to be favored in the "race to learn" over the partners with collaborative intent, high transparency, and low receptivity. However, while high receptivity (i.e., absorption of knowledge) contributes to the interorganizational learning, the competitive intent and low transparency (i.e., openness toward partners) merely favor the individual partner's relative appropriation of the joint learning. At the same time, the nontransparent withholding of information inhibits the collective learning, and the nonreciprocal intent by one partner undermines the willingness to cooperate by the other partners. In a similar way to the prisoner's dilemma of collective action (Axelrod 1984, Hardin 1982) and game theory (Parkhe 1993b), narrow organizational rationality in learning can create a dysfunctional interorganizational learning dilemma where the pursuit of an organization to maximize its appropriation of the joint outcome of collective learning undercuts the process of creating these joint learning outcomes.

The purpose of this paper is to develop a process-oriented conceptual framework of interorganizational learning that can shed light on this relevant dilemma for strategic alliances and its implications for their successes and failures in developing collective knowledge. We suggest that it is possible to go beyond the poor choice of either exploitable "good partnership" or self-defeating learning races by simultaneously considering (a) the integrative dimension of how joint outcomes are interactively produced (which tends to be neglected in learning races); (b) the distributive dimension of how the joint outcomes are divided between the interacting parties (which "good partners" tend to forget); (c) the dynamic process between knowledge producing and capturing partners; and (d) the longitudinal context of the learning situation in which the corporations are jointly embedded and have historical as well as possible future interactions. Most previous research on learning in alliances seems to lack at least two or three of these four issues. Thomas (1976, 1979) related the integrative and distributive dimensions to five interaction strategies in his powerful conflict behavior framework. By synthesizing this and Hamel's (1991) interpartner learning framework with the game theory of the prisoner's dilemma (Axelrod 1984, Parkhe 1993b), an interactive, dynamic, and contextual model of collective learning in strategic alliances is developed to explain negative as well as positive learning processes among cooperating organizations.

Interorganizational Learning In Strategic Alliances

Collective strategies in the shape of different types of alliances are often mentioned as one of the means to acquire knowledge and increase the competence of an organization (Balakrishnan and Koza 1995, Hagedoorn 1993, Huber 1991, Pucik 1988). Virtual enterprising and outsourcing are resulting in increasingly interwoven organizations with relatively diminishing technical cores and expanding boundary-spanning roles. Attempts by organizations to relate to their environments in cooperative ways have been characterized as joint learning experiences (Doz 1988) and ". . . vehicles by which knowledge is transferred and by which firms learn from each other" (Kogut 1988a, p. 184). There has been some recent conceptual as well as empirical research on how organizations exploit these learning opportunities in various strategic alliances (Dodgson 1993, Inkpen and Crossan 1995, Osland and Yaprak 1995). However, few have attempted to extend organizational learning theory to an interorganizational level (cf. Lane and Lubatkin 1998). The lack of connection to learning is also found in the more general interorganizational research (e.g., Galaskiewicz 1985, Oliver 1990).

Strategic alliances represent looser and therefore less obvious learning entities than individual organizations, but this does not mean that organizations cannot learn collectively. While the individual organization learns by changing its actual routines (Argyris and Schön 1978, Bengtsson and Ohlin 1993, Levitt and March 1988) or potential repertoire thereof (Hedberg 1981, Huber 1991), a strategic alliance of two or more organizations can learn by changing its interorganizational routines or repertoire of possible joint activities. Interorganizational learning can then be viewed as the collective acquisition of knowledge among a set of organizations. In a similar way to networks with ". . . symbiotically interdependent, yet semiautonomous organizations that interact to construct or modify their collective environment, working rules, and options" (Astley and Van de Ven 1983, p. 251), strategic alliances develop their collective knowledge by constructing and modifying their interorganizational environment, working rules, and options. This interorganizational learning can be further specified as distinct from organizational learning by including the learning synergy or interaction effect between the organizations that would not have occurred if there had not been any interaction.

Although interorganizational learning is a key motive for the formation of strategic alliances, the process of collective knowledge development can be plagued by management problems. While management-related research on strategic alliances frequently uses high dissolution rates as indicators of poor performance or learning failures to justify the study of such problems, this may be misleading. For example, high-performing alliances may be terminated early due to conflicting interests, changed priorities, quickly accomplishing their intended goals, or one of the partners having won the learning race (cf. Hennart et al. 1998). Rather than attempting to explain directly overall alliance effectiveness (which ultimately needs to be evaluated against the more or less inaccessible unique set of motives for each alliance), we prefer to focus on the collective learning process as a key component in the performance of strategic alliances, since learning represents not only prevalent leading motives in itself, but is also required for the partners to know how to cooperate effectively in order to realize many other desired alliance benefits and avoid the various difficulties (Doz 1996).

The "Good Partner" Fallacy

Collaboration among more or less autonomous organizations is likely to require different management skills than those typically developed in traditional hierarchical firms. Numerous suggestions have consequently been made as to how firms should manage cooperation in strategic alliances through different ways of sharing power, lateral communication, openness, conflict resolution, venture autonomy, trust, and so forth (Harrigan 1986, Lei and Slocum 1992, Thorelli 1986). In other words, if the alliance members merely follow the common practical advice to become good cooperative partners, then the alliance problems will be solved and the allegedly poor performance improve (Kanter 1994, Killing 1983).

Hamel's (1991) study of interpartner learning in international strategic alliances questions such advice, since it neglects the appropriation of the joint learning. He found that the firms behaving as "good partners" with high transparency and collaborative intent tended to be exploited by the more selfish partners with lower transparency and more competitive intent. Competitive partners are more able to win the learning races at the expense of "good partners" who are left behind as the competitive partners leave the alliance after having absorbed as much as possible while giving as little as possible (Inkpen and Beamish 1997, Khanna et al. 1994). Hence, being a "good partner" may actually invite opportunistic behavior that can undermine the strategic alliance (cf. Williamson 1985) and partners should therefore manage their transparency in the alliance interface in order not to lose the learning race.

The Learning Race Fallacy

Hamel's observation is indeed an important corrective to overly naive cooperative advice that disregards the opportunistic benefits of competitive learning within the alliance. However, the competitive learning strategy of taking more than one is giving (i.e., own receptivity being greater than own transparency) can also be self-defeating. If all partner firms reduce their transparency, there will be little joint information for anyone to receive and learn from. As an illustration, imagine two metaphorical races to learn: one collaborative where the participants pace one another towards a world record, and one where the participants are allowed to improve their individual chances of winning by tripping up the others.

Competition is a productive form of coordination of independent economic activities since it energizes and rewards the actors to spend maximum efforts in trying to outperform their respective competitors. If the economic activities instead are interdependent, as for example in an interorganizational learning situation, then competitive efforts to win at the expense of others can detract and disturb efforts to produce a better joint outcome (cf. Pondy 1970, Parkhe 1993a).

The Interorganizational Learning Dilemma

Combining these cooperative and competitive learning fallacies, we arrive at the traditional dichotomy between collaboration and competition. Hamel's (1991) point regarding "good partnership" is supported in general by transaction-cost theory (Williamson 1985), where benevolent collaboration can invite and reward opportunism. While collective action (Axelrod 1984, Hardin 1982) and game theories (Parkhe 1993a, 1993b) recognize this fallacy, they also emphasize that competition can undermine joint outcomes. This results in the trade-off between the common interests in efforts spent on producing a greater joint outcome and conflicting interests in efforts spent on securing a greater individual part of this joint outcome. Walton and McKersey (1965) conceptualized this trade-off in terms of the integrative and distributive dimensions of bargaining. Crudely put, the integrative dimension refers to the making of a joint pie and the distributive dimension to the division of the joint pie between the actors (Thomas 1976).

As long as the size of the joint pie is constant, the interaction becomes a zero-sum game in which only competitive efforts are rewarded (e.g., Jarillo 1988). However, pies need to be made, so most socio-economic interaction involves the individual trade-off decisions of each actor regarding how much of his/her limited efforts are to be spent on collaborating and internally competing, respectively. While the collective focus on integrative collaboration would produce a plus-sum game where all actors can win, the focus on distributive competition actually results in a minus-sum game due to the diversion of productive efforts to distributive infighting (cf. Thurow 1980). Collective action and game theorists have used the prisoner's dilemma to capture this breakdown of collective rationality (Axelrod 1984, Cable and Shane 1997, Hardin 1982, Parkhe 1993b).

The interorganizational learning dilemma stems from it being individually rational for an organization to pursue the maximum organizational share of the joint learning by taking more knowledge than it gives. At the same time, this relative withholding of knowledge reduces the total amount of joint learning from which the organization attempts to appropriate its share. The competitive learning strategy will result in gaining more knowledge and power relative to the other more transparent partners, but this exploitation is likely to turn the other partners into competitive learners too. The likely result is then that there will hardly be any joint learning at all due to neither organization being willing to contribute to the learning process.

Therefore, an interorganizational learning theory needs to address the benefits of collective learning (e.g., Doz 1988, Kogut 1988b) as well as the organizational appropriation of this collective learning (Hamel 1991, Khanna et al. 1994), and in particular how the integrative and distributive dimensions of interorganizational learning interact. Such a theory requires a framework of different organizational learning strategies and how they interact to produce collective learning outcomes in a similar way to the prisoner's dilemma in game theory (Parkhe 1993a, 1993b). We need, however, to go beyond mere abstract game-theoretic calculations to capture the rich and socially embedded learning dynamics among organizations (cf. Granovetter 1985). The wide range of more or less complex strategic alliances from traditional buyer-supplier relationships (Heide and John 1990) to emerging virtual corporations built on trust and integrity (Savage 1990) calls for a framework with requisite variety to account for differences in learning motivation, ability, processes, outcomes, and longevity in collective knowledge development in strategic alliances.

An Interorganizational Learning Framework

We develop here such a framework by first combining Hamel's (1991) receptivity and transparency dimensions of interpartner learning with Thomas' (1976) conflict behavior model to create a typology of five learning strategies of individual organizations. Second, a dyadic 5 ×

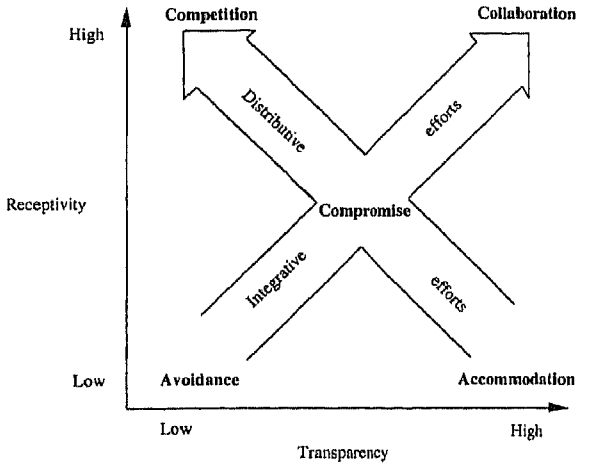
5 matrix of interorganizational learning outcomes is developed based on the combination of adopted learning strategies of the interacting partners. Third, several barriers to collaborative learning are suggested, including a set of process propositions for how previous learning strategy combinations can limit subsequent strategy adoption and learning outcomes. Fourth, several situational variables are proposed to empower interorganizational learning by embedding the strategic alliance in a conducive context for overcoming the barriers.

Interorganizational learning can be achieved by transferring existing knowledge from one organization to another organization, as well as by creating completely new knowledge through interaction among the organizations. Both transfer and creation of knowledge require simultaneous transparency and receptivity at some level among the organizations. If no organization is transparent, no existing knowledge is disclosed and thereby cannot be received by the others or used collectively to generate new knowledge—nor can transparency be utilized without the receptive ability and motivation to absorb the disclosed or generated knowledge.

Interorganizational learning is therefore a joint outcome of the interacting organizations' choices and abilities to be more or less transparent and receptive. We note that our view of the dimensions of transparency and receptivity, each having both motivational and ability aspects differs from Hamel (1991) who views intent as a separate dimension from the transparency and receptivity dimensions, which he instead views as the opportunity and the capacity to learn, respectively. As a first step of the proposed framework, a typology of different learning strategies of individual organizations in collective organizational action in terms of these different levels of transparency and receptivity is developed. Thomas' (1976, 1979) seminal conflict behavior framework provides a suitable categorization based on the related dimensions of assertiveness and cooperativeness, making up five categories of interactive behavior: collaborating, competing, compromising, accommodating, and avoiding. From a learning point of view, transparency represents the cooperativeness of disclosing knowledge to the other organization and receptivity corresponds to the assertiveness of absorbing the disclosed knowledge. The resulting learning strategy typology using these labels is shown in Figure 1.

A highly receptive learning strategy requires the organization to assert both intent and ability to absorb knowledge. Similarly, an organization can only cooperate in the learning interaction by contributing its transparency to the extent that it is willing and able to do so. While these statements may appear trite, it is important to note

Figure 1 Individual Strategies for Interorganizational Learning (Elaborated from Thomas (1979))



that having highly assertive and cooperative intent is insufficient to achieve high receptivity and transparency because the abilities to absorb and disclose new knowledge might be lacking (cf. Cohen and Levinthal 1990, Polanyi 1948, Szulanski 1996). The adoption of learning strategies is therefore limited by both the organization's motivation and capacity to assert its receptivity, as well as by its motivation and capacity to cooperate by being transparent.

Collaboration and competition are highly assertive learning strategies that aim to absorb as much new knowledge as possible. That is, they both attempt to achieve high receptivity. They differ in cooperativeness by either competitively withholding or collaboratively providing transparency. In contrast, neither the avoidance nor accommodation learning strategy asserts any receptivity. The former nonassertive type refuses to cooperate by not disclosing information, while the latter is obliging by offering transparency. By using transparency as well as receptivity as the two definitional dimensions, these five types of learning strategy cover both of these essential sides of interorganizational learning that otherwise tend to be partly neglected.

Thomas (1976, 1979) further points out the relationship between these behavioral types and Walton and McKersie's (1965) integrative and distributive dimensions. The integrative dimension concerning the total joint outcome ranges from minimal avoidance to maximal collaboration, while the distributive dimension concerning one party's share of the joint outcome ranges from the extreme giving of an accommodating strategy to the extreme taking of a competing strategy. Thus, concern

for maximizing interorganizational learning corresponds to the integrative efforts along the main diagonal of increasing transparency as well as receptivity. The distributive dimension lies along the off-diagonal with asymmetric transparency and receptivity.

As long as collaboration and competition are viewed as a one-dimensional dichotomy, their respective emphases on maximizing either the integrative or the distributive efforts in strategic alliances tend to cloud the important fact that both the integrative and distributive dimensions exist simultaneously in all organizational interaction. While the collaborative learning fallacy is to neglect the distributive dimension of knowledge appropriation among the individual partner organizations, the competitive learning fallacy is to neglect the integrative dimension of joint knowledge development. By considering both the integrative and distributive dimensions simultaneously, the present typology of learning strategies goes beyond this limited, traditional choice between either collaboration or competition. Instead, it captures variation and potential trade-offs along both the learning dimensions of transparency and receptivity as well as both the interaction dimensions of integration and distribution in a parsimonious way as illustrated in Figure 1.

These advantages are further accentuated by the second step in the development of the framework, namely extending the unit of analysis from merely the individual organization's learning strategy to the joint development of knowledge in *dyadic* alliances. Here the interactive character of the typology enables us to address the partner interplay that constitutes the dynamic learning process in strategic alliances. We will limit the present framework to the dyad as our prototype for interorganizational learning for the sake of clarity and simplicity.

Dyadic Interorganizational Learning Outcomes

To utilize the basic logic of collective action and game theory, we need to develop a strategy-contingent pay-off matrix analogous to the prisoner's dilemma. Starting with the interorganizational learning that occurs through transfer of knowledge from one organization to the other, high transfer of knowledge is proposed in the situations of one organization having high transparency and the other high receptivity. If one organization has high transparency and the other only moderate receptivity as, for example, the combination of collaboration and compromise strategies (see Figure 1), the transfer is limited to the moderate amount of knowledge that the other organization is able to absorb. Conversely, the transfer between one moderately transparent organization and one highly receptive organization is limited to the moderate amount of knowledge that is disclosed.

The creation of new knowledge is proposed to be a function of the total amount of knowledge that is disclosed and absorbed among the organizations. Hence, both the transparency and receptivity of each of the interacting organizations need to be considered simultaneously in order to predict the amount of new, interorganizationally created knowledge. The more mutually transferred knowledge, the more opportunities to generate new knowledge through combining different pieces of existing knowledge (Schumpeter 1943). Moderate mutual transfers and high one-way transfers of knowledge are likely to limit the creation of new knowledge to moderate levels, while only moderate one-way transfers will result in merely low creation. The suggested degree of knowledge transfer and creation are summarized in Figure 2 (simplified to indicate only moderate and high amounts).

Figure 2 describes the proposed dyadic interorganizational learning outcomes in terms of a game theory pay-off matrix that is based on the respective learning strategies of two organizations. Any combination that involves at least one of the organizations adopting the avoiding strategy of neither transparency nor receptivity is likely to eliminate the possibility of any significant interorganizational learning. This is illustrated by the nine blank learning strategy combinations to the extreme left and bottom in Figure 2.

The joint outcome is maximized by two organizations with collaborative strategies that enable high mutual

Figure 2 Proposed Interorganizational Learning Outcomes

Organization A's learning strategy \ Organization B's learning strategy	Avoidance	Accommodation	Compromise	Competition	Collaboration
Collaboration		B—>A + c—>a	b—>a, a—>b + c—>a&b	A—>B + c—>b	B—>A, A—>B + C—>A&B
Competition		B—>A + c—>a	b—>a		B—>A + c—>a
Compromise		b—>a	b—>a, a—>b + c—>a&b	a—>b	b—>a, a—>b + c—>a&b
Accommodation			a—>b	A—>B + c—>b	A—>B + c—>b
Avoidance					

Sample legend: A—>B = High transfer of existing knowledge from A to B;
b—>a = moderate transfer of existing knowledge from B to A;
+ c—>a&b = moderate creation of new knowledge (c) that is appropriated by both A and B.

transfer as well as high creation of knowledge. Combinations between compromise and collaboration strategies are expected to result in moderate levels of mutual transfer and creation of knowledge. Finally, combinations involving one accommodating or competitive strategy are proposed to lead to asymmetric outcomes consisting of merely one-way transfer and appropriation of new knowledge.

The outcome matrix in Figure 2 is more complex than the traditional prisoner's dilemma, which has only the collaborative and competitive options—nor is the partial outcome matrix of these four top-right-hand quadrants identical to the prisoner's dilemma, since the average outcome of one organization is higher for collaboration than for competition (cf. Cable and Shane 1997). Furthermore, the absence of the "sucker's pay-off" for collaborating when the other competes eliminates the deterring punishment of being "cheated" when choosing collaboration. Given that the three additional strategies further accentuate the advantage of the collaborative strategy, the face value of Figure 2 actually suggests that there should not really be much of an interorganizational learning dilemma.

However, there are several other factors that are likely to make the interorganizational dilemma a very real one. First, receptivity is constrained by the organization's availability of organizational slack (Cyert and March 1963) as well as its absorptive capacity (Cohen and Levinthal 1990). Argyris and Schön (1978) suggest that organizational learning is typically limited to single-loop learning which can hinder the absorption of disclosed knowledge that is, for example, quite unrelated to previous knowledge of the organization. Even if information is available, it may make little sense to a recipient organization which does not share the experience of the context in which the knowledge is being created (cf. Nonaka 1994).

Second, receptivity is also limited by the strength of the intent to learn (Hamel 1991). That is, the organization can lack the motivation to assert its receptive abilities due to disinterest, neglect or other priorities. The adoption of a "teacher" attitude in an alliance, for example, is likely to motivate receptivity less than those partners with "student" attitude.

Third, transparency can be more difficult than simply "opening up." Essential knowledge might be tacit (Polanyi 1948), "sticky" (Szulanski 1996), and socially embedded in context-specific relationships (Badaracco 1991, Granovetter 1985), making it hard to learn even from organizations that attempt to be transparent. The degree of transparency may also be restricted by the social context, such as foreign languages, customs, and traditions that disturb communication between partners of different countries of origin (Peterson and Schwind 1977). Previous research has so far focused on absorptive capacity as a limiting ability factor of interorganizational learning (Kumar and Nti 1998, Lane and Lubatkin 1998, Levinson and Asahi 1995); but this refers only to the receptive ability of partners. In addition to the absorptive capacity, we also need to address the "communicative capacity" of partners as a corresponding ability factor limiting the transparency side of interorganizational learning.

Fourth, organizational members are seldom rewarded or culturally motivated to have as much concern about another organization as for their own (cf. Kerr 1975, Schein 1985). Even though it may be viewed as advantageous for their own organization to collaborate, it still faces the probable folly of hoping for transparent collaboration while the existing organizational culture and reward system favor more taking and less giving; that is competition.

These first four factors represent motivational and ability barriers to receptivity and transparency that can hinder organizations from adopting the otherwise desirable learning strategy of collaboration. Even though they are limiting the individual organization's adoption of collaboration, we see them as primarily *partner-specific* barriers, since they can be expected to vary depending on particular constellation of partners (Larsson et al. 1998). Rather than, for example, viewing the receptivity as a general characteristic of Partner A (which would limit learning in any of its alliances in the same way irrespective of which other partners were included, cf. Kumar and Nti 1998), Partner A can have higher receptivity in an alliance with previously related Partner B than with unfamiliar Partner C. Due to such partner specificity, it is possible for organizations to affect these barriers not only through their own motivation and abilities, but also by the selection of other partners.

Fifth, Hamel (1991) adds a very important piece of the learning puzzle, namely power dynamics. By beating the partner organization in the race to learn, the bargaining situation is changed to the benefit of the faster learner (Inkpen and Beamish 1997, Khanna et al. 1994). What was previously a desired contribution by the slower organization is, once internalized by the faster organization, no longer "on the table", and the slower organization is forced to make greater contributions in order to get what it still desires/has not yet internalized. The power pay-off of winning the race to learn alters the pay-off matrix of Figure 2 in favor of the competitive strategy of being more receptive than transparent. Viewed as a process, collective knowledge development thus becomes a trade-off

between different learning strategies to which there is no self-evident solution.

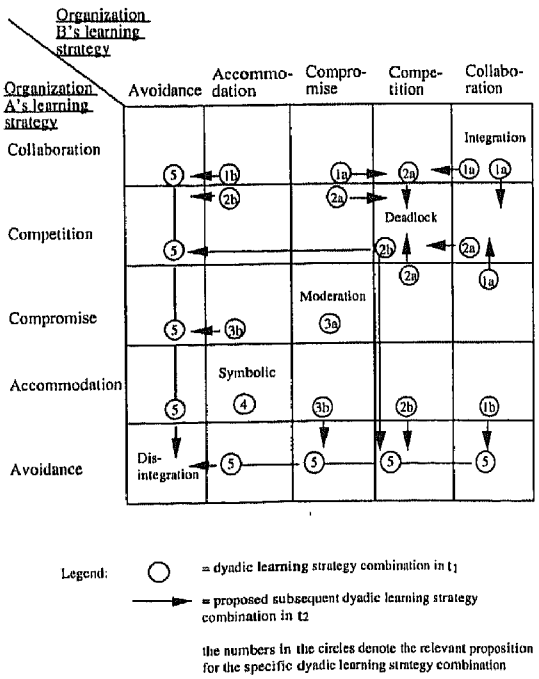
Finally, the addition of the time dimension highlights that very few of the learning strategy combinations seem to be stable. Instead, there are many possible interorganizational learning dynamics that lead from mutual collaboration towards disintegration of the learning interaction (cf. Roth 1996).

Dynamic Barriers to Interorganizational Learning

Figure 3 illustrates a pattern of negative dynamics towards decreasing transparency and receptivity, and thereby the ultimate disintegration of the dyadic interorganizational learning relationship by mutual avoidance. The overall logic is that the dyadic learning outcome in time period 1 (t_1) is not only an interactive result of the adopted learning strategies, but also affects the adoption of learning strategies in t_2. These dynamics are systematized into a set of propositions below. (Circled numbers in Figure 3 refer to the relevant proposition for each initial dyadic learning strategy combination; arrows show which new combination is likely to develop.)

While propositions tend to be bound only to certain types of the phenomenon in question, we prefer to use what can be called processual boundary conditions to specify the applicability of our propositional framework. We consider the "shadow of the past" (i.e., prior learning interaction) of a strategic alliance as a more relevant demarcation of our predictions of subsequent learning interaction than, for example, whether the alliance is horizontal or vertical, equity or nonequity, R&D or market-oriented, and so forth (cf. Doz 1996, Gulati 1995). Although such content considerations may be important, our process view suggests that we can gain explanatory ability by specifying certain previous combinations of learning strategies in t_1 as the processual boundary conditions for each of our proposed learning interaction outcomes in t_2. This follows path-dependency research (e.g., Cohen and Levinthal 1994, Teece et al. 1997) where historical choices of a firm affect future choices through, for example, the bounds put on the firm's future internal absorptive capacity. While we prefer to maintain the broad potential of the framework to cover various content types of alliances, our propositions will be limited to ongoing alliance processes in order to avoid the complicating issues of initial partner selection and alliance formation.

Figure 3 **Proposed Dynamic Barriers to Interorganizational Learning**



Only three of the symmetric combinations along the main diagonal of Figure 3 are suggested to be generally stable, with only one of them (labeled "moderation") resulting in at least moderate amounts of joint learning. The other two symmetric combinations (labeled "integration" and "deadlock"), as well as all the asymmetric, off-diagonal combinations, are generally likely to face difficulties in achieving and in particular maintaining productive interorganizational learning relationships, due to their mostly nonreciprocal and exploitative nature.

The integrative combination of mutual collaboration provides maximum transparency, receptivity, and thus interorganizational learning. In order to achieve high levels of joint learning, personnel from the two organizations must work together closely to facilitate the transfer not only of more easily transferable, migratory knowledge but also of context-specific, embedded knowledge (Badaracco 1991, Larsson et al. 1998). As the joint learning becomes more significant, the temptation of giving less and taking more becomes greater. Furthermore, it is sufficient if one of the collaborating organizations suspects the other of trying to delimit access to certain knowledge or otherwise win the learning race. The mere feeling of being tapped for more information than one receives (e.g., as Western managers in Japan expressed in Hamel's (1991) study) provides reasons for suspicion. Then it becomes individually rational to "strike first" by changing to a competitive strategy in order to either exploit the other before it exploits the first or at least avoid the "sucker's" power loss by creating a competitive deadlock.

The asymmetric contribution of a combination of the collaborative and compromise strategies can also be expected to escalate to asymmetric exploitation through competitive temptation. The compromising organization is here faced with the high transparency of its collaborative partner, and to the extent that the moderate level of receptivity is self-imposed rather than a result of limited ability, it would be tempting to absorb the additional knowledge that is disclosed by the other organization. In this way, the first organization actually turns to the semi-competitive strategy of higher receptivity than transparency, unless it also increases disclosure, which may be difficult or less tempting. International alliances are often formed around technology-market knowledge transfer, where technology can be more migratory than embedded market knowledge (Badaracco 1991) with the possible result of asymmetric learning in favor of the local partner (Inkpen and Beamish 1997).

The "friendly exploitation" of the collaborating and accommodating dyad is likely to dissolve sooner or later as the stakeholders of the accommodating organization can hardly view this altruistic giving without taking as a desirable state of affairs.

PROPOSITION 1. *If one organization adopts Collaboration in t_1, then the other organization that adopts:*

(a) *Collaboration or Compromise in t_1, will tend to adopt Competition in t_2;*

(b) *Accommodation in t_1, will tend to adopt Avoidance in t_2.*

The asymmetric exploitation of a collaborative organization by a competing partner is the least stable interorganizational learning outcome. Unless the exploitation is well disguised, the "suckered" organization will counter rapidly by also adopting a competitive strategy to halt the knowledge "hemorrhage". A compromising organization that is partially exploited by a competing partner is also likely to turn towards a competitive response of reducing its disclosure.

The resulting competitive deadlock between two receptive but nontransparent organizations produces minimal interorganizational learning. Given that there will be hardly any joint pie for which to compete, the organizations are bound to find their distributive efforts wasted, and therefore turn to the avoidance strategy. Nor is an accommodating organization likely to allow itself to be blatantly exploited by a competing partner, although it may at first appear as a case of symbiosis between extreme giver and extreme taker.

PROPOSITION 2. *If one organization adopts Competition in t_1, then the other organization that adopts:*

(a) *Collaboration or Compromise in t_1, will tend also to adopt Competition in t_2;*

(b) *Competition or Accommodation in t_1, will tend to adopt Avoidance in t_2.*

Perhaps the most stable joint learning outcome is symmetric compromise strategies. Here there is a conscious moderation of the trade-off between the integrative and distributive dimensions rather than over-emphasis on one and under-emphasis on the other. The many joint ventures in the auto-industry often seem to be of a selective nature, where competitors are collaborating on specific development of technologies (cf. Badaracco 1991). The joint learning is less significant than the integrative collaboration and therefore less tempting to exploit, and the compromising organizations are more guarded and therefore less easy to exploit. In contrast to many international alliances, the venture between General Motors and Toyota (Lorange and Roos 1992) shows a more balanced transfer of management and market knowledge which may have been less tempting to turn into a competitive learning race. By the very nature of compromises, they were aware that something needed to be given in order to create something to be taken. On the other hand, the partial exploitation of an accommodating organization by a compromising partner can be expected to end at some point by avoidance of the one-sided, altruistic knowledge transfer.

PROPOSITION 3. *If one organization adopts Compromise in t_1, then the other organization that adopts:*

(a) *Compromise in t_1, will tend to continue adopting Compromise in t_2;*

(b) *Accommodation in t_1, will tend to adopt Avoidance in t_2.*

Another possibly stable outcome is the symbolic interorganizational learning of two accommodating organizations. They can continue to have an amiable relationship without accomplishing much, but also without being exploited. However, the more instrumentally oriented the partners, the less stable the symbolic outcome, since at least the most instrumental would tend towards either capitalizing on the offered transparency or avoiding the interaction. Finally, the most basic dynamic is that the adoption of the avoiding strategy by one organization will result in minimal joint outcome, and thereby motivate the other organization to suspend learning efforts, that is, to also adopt the avoiding strategy, with disintegration of the dyadic learning as the result.

PROPOSITION 4. *If one organization adopts Accommodation in t_1, then the other organization that also*

adopts Accommodation in t_1 will tend to continue adopting Accommodation in t_2.

PROPOSITION 5. *If one organization adopts Avoidance in t_1, then the other organization will also tend to adopt Avoidance in t_2.*

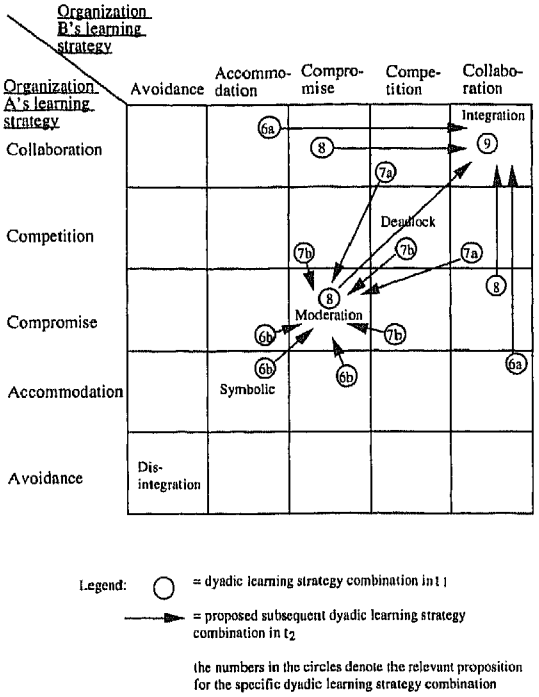
This overall negative pattern of Propositions 1–5 represents a set of dynamic barriers that hinder and undermine the achievement and maintenance of productive interorganizational learning. They stem to a large extent from the fact that it is easier for strategic alliance partners to decrease rather than to increase their transparency and receptivity. Learning "defection" through reduced receptivity and transparency is only limited by the forbearance of respective partners (cf. Buckley and Casson 1988, Parkhe 1993a), while learning cooperation is limited by both possible lack of motivation and possible lack of ability. To make things worse, these motivational and ability barriers may also be confused by interacting partners, such as a sincere but failed attempt to open up by one organization being interpreted by the other organization as an opportunistic attempt at not disclosing information (cf. Inkpen and Crossan 1995).

Empowering Interorganizational Learning Dynamics

The barriers discussed in the previous sections provide possible explanations for frequent learning difficulties and failures in strategic alliances (cf. Harrigan 1988, Kogut 1988b). While the negative game-theory-driven pattern creates an impression of interorganizational learning as a continuous and slippery uphill battle in Figure 3, there are also more constructive dynamics as proposed in Figure 4 that can account for alliance learning successes. We contend that certain situational factors can empower strategic alliances to overcome these game-theoretic barriers and will therefore introduce a set of dynamic propositions where interorganizational learning outcomes are contingent upon not only the previous learning strategy combination but also several potentially facilitating factors.

Empowerment has traditionally been an organizational development concept for enabling employee motivation (Thomas and Velthouse 1990). A more strategic human resource concept of empowerment is "the competitive advantage that a company can gain through developing and being developed by its people" (Eneroth and Larsson 1996, p. 6). In this interorganizational context, we refer to empowerment as enabling both the motivation and ability of strategic alliance partners to develop their collective knowledge. Thus, interorganizational learning can be empowered by factors that enhance the receptivity and/or transparency of the interacting organizations

Figure 4 Proposed Empowering Interorganizational Learning Dynamics



(Hamel 1991). Such learning empowerment is likely to be most difficult for those organizations that adopt avoiding strategies which lack the intent and/or ability to both assert receptivity and cooperate through transparency. We will therefore limit our propositions to the other four learning strategies, which are more apt to be situationally empowered.

Accommodating organizations are more promising candidates for learning empowerment, since they only lack the interest in and/or absorptive capacity of new knowledge that is ventured by more or less cooperative partners. The friendly and partial exploitation of accommodating organizations by collaborating and compromising partners can be elevated towards moderation and even integration if the accommodating organizations can increase their will and ability to absorb the knowledge disclosed by their partners. Thomas (1976, 1979) suggests that assertiveness increases with the stakes involved in the interaction. Accommodating organizations may be motivated to become more receptive by a greater joint learning pie (cf. Parkhe 1993a, 1993b), especially in areas of their particular interests and high future potential. This empowerment through increasing *learning stakes* can be

driven by self-generated interest as well as by compromising and especially collaborating partners that prefer to maximize the joint learning by making it reciprocal.

The ability of accommodating organizations to assert receptivity can be increased by joint R&D (Cohen and Levinthal 1990) and joint problem-solving in functional areas like marketing, production, and personnel (Chandler 1990). The greater the extent of their *prior interaction in related areas*, the greater the knowledge base for future learning, that is, the greater their absorptive capacity (Levinson and Asahi 1995). Collaborating partners are probably more able and willing to empower accommodating organizations to increase their receptivity, and thereby also to adopt collaboration (i.e., the integration learning combination). The "merely" moderate receptivity and transparency of compromising partners are likely to limit the empowerment of accommodating organizations to also adopt the compromise strategy (i.e., the moderation combination).

PROPOSITION 6. *If one organization adopts Accommodation in t_1 and the other organization adopts:*

(a) *Collaboration, then the higher the learning stakes and the greater the prior related interaction, the more likely the Accommodating organization will also adopt Collaboration in t_2;*

(b) *Compromise or Accommodation, then the higher the learning stakes and the greater the prior related interaction, the more likely the Accommodating organization(s) will also adopt Compromise in t_2.*

On the other hand, organizations adopting the competition learning strategy already assert their receptivity, but lack cooperative transparency. According to Thomas' conflict framework, commonality of interest furthers cooperativeness. Given the inherent conflict of interest in the distribution of the joint learning, merely emphasizing commonality of interest is hardly sufficient to turn competitive learning strategies to collaboration. However, game theory logic rests on the behavioral assumption of opportunism (Williamson 1985) and the environmental assumption of uncertainty regarding the other player's move (Axelrod 1984). These assumptions neglect the potential importance that the cultural and organizational context might have on interorganizational learning. Researchers have often questioned the assumption of opportunism and pointed out the role *trust* might have in economic transactions (Bradach and Eccles 1989, Maitland et al. 1985), such as being an effective lubricant between transacting economic actors (Arrow 1974). The role of trust seems to vary culturally (Fukuyama 1995), and is especially emphasized in some Oriental (Thorelli 1986) and European (Collin and Larsson 1993) cultures. Parkhe (1993a) also notes management style differences between consensus-oriented European and Japanese managers and conflict-oriented American managers.

The concept of trust has been widely researched in relation to individual actions, interpersonal relations, economic transactions, and social structures (Hosmer 1995). Although trust is generally discussed on the interpersonal level (Madhok 1995), it has also been extended to the interorganizational level in terms of being an important deterrent to opportunistic behavior between organizations and a substitute for hierarchical governance with market and efficiency implications (Aulakh et al. 1996, Bradach and Eccles 1989, Gulati 1995, Parkhe 1993b, Zucker 1986).

The literature on interorganizational trust suggests that it has two dimensions: one structural, referring to the "calculative" trust based on the rational motivation of participating in value-adding resource complementarity, mutual hostages, reputation effects, etc.; and one behavioral, referring to the "pure" trust based on the well-intended beliefs and optimistic expectations that another firm will perform positive actions and avoid negative actions towards one's own firm (Hosmer 1995, Madhok 1995). Rather than engaging in the debate whether calculative trust can be viewed as trust, we follow Gulati's (1995) example and Madhok's (1995) reasoning that both these dimensions are interrelated and mutually relevant to interorganizational issues, and therefore best treated in conjunction.

Strategic alliances are typically based on the calculative trust that the partners will forebear jeopardizing all future joint benefits (i.e., the learning stakes) by opportunistic behavior that can break up the alliance. The economic potential of the alliance itself acts in this way as a mutual hostage which curbs the partners' ability to act opportunistically (Aulakh et al. 1996). However, this calculative interorganizational trust does not prevent partners from trying to outrace the others or get away with covert opportunism, especially as the "shadow of the future" diminishes over time (cf. Axelrod 1984). Pure interorganizational trust is thus increasingly needed to ensure the fair continuation of the alliance by limiting the will of partners to opportunistically exploit the others, even when they think they can get away with it (Ring and Van de Ven 1994).

Given that learning in strategic alliances is best served by having both these structural and behavioral dimensions of trust reinforcing each other, we define interorganizational trust as the mutual confidence among the members of two or more organizations in the forbearance of opportunistic exploitation of one organization by another based on both calculation and good intentions. The

greater the overlap of calculative and pure trust, the greater the mutual confidence.

Interacting organizations need to trust each other not to succumb to competitive temptation in order to collaborate. The lack of interorganizational trust is therefore a barrier to organizational knowledge creation (cf. Dodgson 1993, Nonaka 1994). Strategic alliances that have established high levels of interorganizational trust among their members and managed to avoid being invaded by opportunistic actors (cf. Williamson 1985) should therefore enjoy an interorganizational learning advantage over other alliances.

The *long-term time orientation* of the alliance in question (Heide and John 1990; Parkhe 1993a, 1993b) is probably a key element in not only the development of interorganizational trust, but also in the reduction of the competitive temptation that arises from a limited "shadow of the future" with a restricted number of prisoner's dilemma games (cf. Axelrod 1984). While long-term orientation can motivate greater transparency, partners can also be empowered to increase their ability to be transparent by *prior related interaction*. While previous joint experience can enhance the absorptive capacity of partners, it can also enhance the communicative capacity to contribute less accessible information in strategic alliances. As partners share their interorganizational context over time, they should become more adept at explicating tacit and embedded knowledge to one another in a partner-specific manner, while new partners would find the same knowledge more opaque.

Unfortunately, whereas an initially competitive organization may learn to trust more cooperative partners due to their offered transparency, the resulting initial exploitation of these partners is likely to undermine their trust in the competing organization. Hence, asymmetric exploitation faces a difficult process to establish mutual interorganizational trust, instead of entering the downward spiral of competitive deadlock, avoidance, and disintegration. The cooperating partners need to safeguard against continued exploitation by establishing deterring punishments for opportunistic "cheating" (cf. the organized crime solution to the prisoner's dilemma through the code of silence). This creates, however, problems of monitoring and administering punishments other than self-defeating competitive retaliation or avoidance. Perhaps the best safeguard is that the partners meet half-way by adopting compromise strategies. Here the cooperating partners partly restrain and partly maintain their transparency to avoid continued asymmetric exploitation without giving up the possibility of joint learning in return for increased transparency from the previously competitive partner. A competitive deadlock is probably even more difficult to empower since the interacting parties have every reason to distrust one another from initial exploitation attempts. Still, the balance between the opening strategies may provide some foundation to "start again" with moderated taking and giving, especially if the reciprocal failure to open up can be attributed to mutual misunderstanding (cf. Inkpen and Crossan 1995).

PROPOSITION 7. *If one organization adopts Competition in t_1 and the other organization adopts:*

(a) *Collaboration, then the higher the interorganizational trust, the long-term orientation, and the greater the prior related interaction, the more likely the organizations will both adopt Compromise in t_2;*

(b) *Compromise (or Competition), then the higher the interorganizational trust, the long-term orientation, and the greater the prior related interaction, the more likely the Competing organization(s) will also adopt Compromise in t_2.*

Compromising organizations have already opted for a balance between moderate receptivity and transparency. To achieve full learning integration, they need to partly increase their intent and/or capacity to learn, thereby creating higher learning stakes as well as interorganizational trust and long-term orientation. This partial, dual-learning empowerment can be expected to be mostly facilitated by collaborating partners that already offer high transparency, and are ready to absorb increased transparency from the compromising partners. The moderation combination between compromising organizations may also move toward integration, but the lack of a collaborative leader might require a stronger set of favorable circumstances. Building on Parkhe's (1993a) reasoning, once the joint adoption of collaborating strategies is achieved, this learning integration is more easily sustained in situations of high long-term orientation and interorganizational trust that reduce the competitive temptation to opportunistically withhold one's own transparency.

PROPOSITION 8. *If one organization adopts Compromise in t_1 and the other organization adopts Collaboration or Compromise, then the higher the learning stakes, the interorganizational trust, and the greater the prior related interaction, the more likely that both organizations will adopt Collaboration in t_2.*

PROPOSITION 9. *If both organizations adopt Collaboration in t_1, then the higher the interorganizational trust and the long-term orientation, the more likely the organizations will both continue to adopt Collaboration in t_2.*

Finally, all these proposed empowering interorganizational learning dynamics are likely to be enhanced by

increased awareness of the processual nature of the prisoner's dilemma in which they are involved (cf. Levinson and Asahi 1995, Parkhe et al. 1993). The experience of a joint learning failure through a downward spiral of asymmetric exploitation, deadlock, avoidance, and disintegration is perhaps more easily attributable to the other partner(s) or external circumstances than to one's own strategies. However, it is precisely this narrow individual rationality that results in repeated failures in interactive situations (cf. Levinthal and March 1993). Learning ultimately boils down to developing new understanding and inquiring into existing frameworks of interpretation and overcoming such incomplete sense-making (Fiol 1994, Ring and Van de Ven 1994, Senge and Fulmer 1993). From an interorganizational viewpoint, collective enactment will benefit from also understanding the learning strategies of the interacting organizations. Strategic alliances that approach the interorganizational learning dilemma with an awareness of collective rationality, as manifested in the "TIT FOR TAT" strategy (i.e., initial collaboration combined with credible retaliation against competitive opportunism, (Axelrod 1984)) or flexible organizational designs with "room for surprises" (Doz 1996, p. 76), are more likely to learn interorganizationally how to jointly maximize contribution to and appropriation of collective learning. In other words, interorganizational double-loop learning (cf. Argyris and Schön 1978, Hedberg 1981) rests upon a collective awareness of how one's own and other partners' learning strategies interact over time.

Some Empirical Evidence

The value of this proposed conceptual framework is ultimately determined by empirical testing. Before discussing such opportunities for future research, we will make a number of comparisons with previous empirical studies. First, it is possible to explore the framework's explanatory ability by tentatively reanalyzing some existing case studies of learning in strategic alliances, and by comparing the learning dynamics and situations with our propositions. This is unfortunately not possible in Hamel's (1991) study, since the nine alliance cases are not clearly distinguishable due to anonymous and intertwined case descriptions. While his overall findings of asymmetries in transparency and receptivity pre-ordaining asymmetric learning still support our framework, this is hardly surprising given that this framework is developed as a synthesis including Hamel's inductive theory of interpartner learning.

Ariño and de la Torre's study (1998) of the development of a North American-French alliance demonstrates well a negative path of learning dynamics according to Propositions 1(a), 2(a), 2(b), and 5. After starting out with mutual collaboration, the joint venture became asymmetric as one of the joint products began competing for shelf-space and consumer attention with one of the main products of one of the partners. This partner became wary of its ally exploiting their relationship, and was therefore reluctant to provide further access to knowledge. A downward spiral of suspicion, reduced transparency, and loss of interest led ultimately to the dissolution of the alliance.

Turning to Faulkner's (1995) case study of several international strategic alliances, we find mostly positive learning dynamics (which can be expected given his selection of ongoing alliances with an average age of more than ten years). The computer alliance between ICL and Fujitsu is an example of mutual collaborative learning strategies that were maintained over time through trust-building and increasing commonality of interest (including equity) according to Proposition 9. The alliances between The Royal Bank of Scotland and Banco Santander, as well as between Honda and Rover, both displayed reciprocal patterns of initial compromise learning strategies that were empowered towards mutually collaborative learning through increasing interaction, learning stakes, and interorganizational trust following Proposition 8.

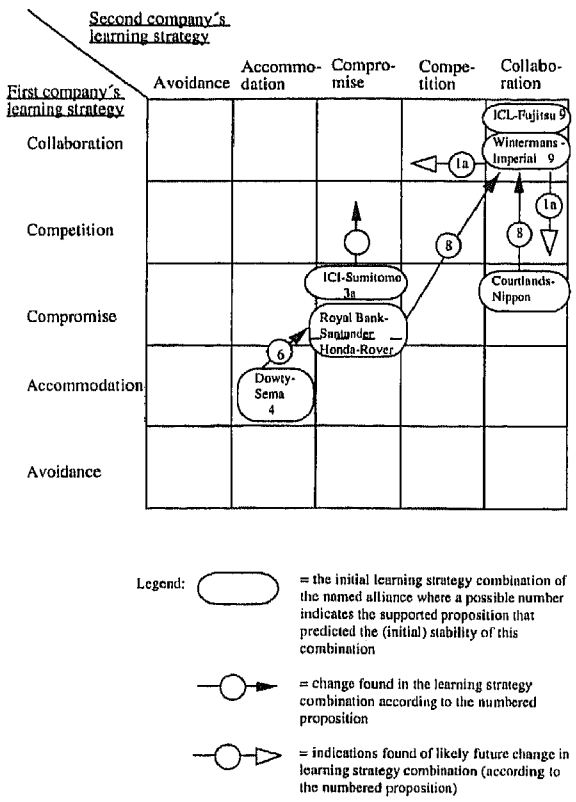
The empowering impact of these situational factors is even clearer in the case of the Courtlands Coating-Nippon Paint alliance. Here an initial partial exploitation between a compromising and a collaborative learning strategy had begun to deteriorate when a new joint R&D and marketing venture increased the commonality of interest and future learning stakes, which also resulted in more reciprocal learning collaboration. In terms of our framework, the initial prediction of deterioration in Propositions 1(a), 2(a), and 2(b) was turned around by the enhanced empowering context of Proposition 8.

The pharmaceutical joint venture between ICI and Sumitomo is a less clear-cut case. On the one hand, it has achieved its limited objectives for more than 20 years in what could be seen as a stable alliance of mutual compromise learning strategies (i.e., Proposition 3(a)). On the other hand, ICI was first legally forced to seek a local partner in Japan. With a change in the law ICI felt that the transfer pricing was unfavorable, and built its own manufacturing facility in Japan and began increasingly to distribute products outside the joint venture. While this beginning deterioration of mutual compromise is not predicted by the present framework, it suggests that even the proposed stability of reciprocal compromising learning strategies can be undermined by conflicting interests and lack of interorganizational trust. The tobacco alliance between Wintermans and Imperial Tobacco had at the time

of the study been mutually collaborative (Proposition 9), but there were signs of increasing conflict of interests as the cigar market further matured, making competition more likely in the future (Propositions 1(a) and 2(a)).

A final comparison with the dyadic alliances studied by Faulkner (1995) is the Dowty-Sema joint venture. It started as a largely symbolic learning strategy combination of two transparent, but nonreceptive (i.e., accommodating) companies serving as a "shop front" for the United Kingdom Ministry of Defense. Proposition 4 correctly predicted the initial survival of this symbolic learning combination, and the gradually empowering context of increasing interaction and long-term orientation resulted in more and more compromise and collaboration over the studied ten-year period according to Proposition 6(b). These mostly contextually-driven, empowering interorganizational learning dynamics are displayed by arrows and applicable propositions in Figure 5. We see that each case tends to support one or a couple of propositions and the seven alliances together begin to support a greater part of the framework, albeit in a largely anecdotal and selection-biased way.

Figure 5 Empirical Evidence from Previous Case Studies (Faulkner 1995)



While strategic alliances are increasingly being studied quantitatively, few surveys focus on the interorganizational learning that occurs in them. For example, Slowinski, Seelig and Hull (1996) carried out a seven-year longitudinal study of 50 alliances covering dynamic aspects, but not interorganizational learning per se. Parkhe's (1993a, 1993b) work on cooperative behavior in strategic alliances from a game-theoretic perspective is quite relevant to our partial prisoner's dilemma approach, but it does not focus on learning either. Parkhe et al. (1993) also found that managers in international strategic alliances perceive the pay-off structure from interfirm relationships to be similar to the pay-off structure in the prisoner's dilemma game. This is about as close as we get in finding evidence related to our game-theory-based propositions on interorganizational learning, although the evidence does not directly address learning in alliances. The few studies with relatively larger samples that we have found on this specific phenomenon are mostly quite recent. (See summaries in Table 1.)

Bleeke and Ernst (1991) as well as Littler and Leverick (1995) focus on what characterizes successful alliances. The McKinsey consultants Bleeke and Ernst report a study of 49 cross-border alliances, where they found that partners need to be flexible, to exceed initial expectations and objectives, and to have a long-term orientation towards the collaboration. Their findings seem to be similar to those of Littler and Leverick (1995), who surveyed 106 firms with different levels of experience in collaborating in product development. In addition to meeting expectations and objectives, this latter study also found that commitment and mutual trust were important factors determining the success of the collaboration. Both studies focus on motivational barriers to transparency and how these could be overcome by motivational empowerment. While neither study is longitudinal and therefore cannot directly support any of our propositions, they still point towards the importance of different empowerment factors, such as learning stakes, interorganizational trust and long-term orientation in order to create good partnership dynamics.

Inkpen and Crossan (1995) studied American parent firms and their learning from 40 joint ventures. Focusing on parent receptivity and the barriers to learning from joint venture operations, they found that most learning does not transfer from the individual and group level to the organizational level due to lack of management intent and lack of institutionalized mechanisms for knowledge transfer between the joint venture and the parent.

Powell et al. (1996) address prior interaction as a key

Table 1 "Large-Sample" Studies of Interorganizational Learning

Study	Sample/ Unit of Analysis/ Data Source	Main Results	Learning Dimensions				
			Transparency	Receptivity	Interactivity	Time	Context
Bleeke and Ernst (1991)	49 cross-border alliances/Alliance & Firm/Archival and interviews	Cross-border alliances are most successful in geographical and related businesses expansion, when companies are equally strong and have flexible expectations	Motivational barriers and empowerment			Dynamic barriers and empowerment	Long-term orientation
Littler and Leverick (1995)	106 focal firms involved in collaborative product development-/Alliance-Firm/Survey	Successful collaborations tended to be more careful in establishing the parameters of the collaboration (e.g., selection of partners, mutually agreed objectives) than less successful collaborations.	Motivational barriers and empowerment		Yes, some		Commitment and mutual trust
Inkpen and Crossan (1995)	40 joint ventures/Individual, group, organization in focal parent/Interviews	A rigid set of management beliefs associated with an unwillingness to unlearn past practices severely limit the effectiveness of interorganizational learning		Motivational barriers and ability barriers		(Dynamic barriers)	Learning stakes
Powell, Koput, and Smith-Doerr (1996)	225 biotech firms 1990–1994/Network-Focal firm/Archival	In a rapidly evolving industry, collaboration often yielded unanticipated gains from serendipitous findings. Firms' external ties enhance inflow of knowledge and firms become more adept at collaborating with diverse firms.		Ability barriers and empowerment	Yes, on network level	Dynamic barriers and empowerment	Learning stakes
Lane and Lubatkin 1998	69 alliances in the biotech/pharmaceutical industry/Alliance-Firm/Archival, survey, experts	The ability of a firm to learn from another is jointly determined by the similarities in relevant basic knowledge, knowledge processing systems and dominant logic between the firms.		Ability barriers and empowerment			

issue in interorganizational learning in their longitudinal network study of 225 biotech firms and their ties with other firms and institutions in the industry. They observe that biotech firms already collaborating tend to collobor-ate even more and become better at collaborating, in support of our Proposition 9. It remains to be seen if this is a general pattern, or if it is more specific to the industry, given that the biotech firms appear to be more or less forced to engage in interorganizational learning in order to survive. It is at least a good indication of the likely importance of high learning stakes in this evolving industry, and that the perceived risk of being excluded from important knowledge transfer may serve as a safeguard against competitive cheating.

Finally, Lane and Lubatkin (1998) focus on certain partner similarities that enhance interorganizational learning in an alliance in a cross-sectional study of 69 biotech and pharmaceutical firms. Their findings suggest that differences or similarities in knowledge base, knowledge processing, and dominant logic act as ability barriers or ability empowerment in interorganizational learning.

Although these initial empirical comparisons show some promising support, the existing empirical research suffers from not simultaneously considering: (a) both the motivation and the ability to learn jointly; (b) both the transparency and the receptivity of learning strategies (e.g., resulting in only addressing the absorptive capacity but not the communicative capacity of partners); (c) both the integrative and the distributive dimensions of the joint development and appropriation of learning; (d) both the synchronic (i.e., one point in time) and the diachronic (i.e., over time) interactivity between partners of the learning alliance; and (e) the context in which this dynamic learning process unfolds. While most researchers would probably agree that all these issues can be crucial for interorganizational learning, the fact that most studies omit most of them is not due to any simple-minded neglect, but rather to the staggering empirical complexity of studying all these trade-offs at the same time.

This raises the methodological concern that the reviewed empirical evidence is limited either to few case observations with little generalizability, or to few surveyed aspects of the framework. The empirical testing of our propositions with traditional methods would appear to face significant difficulties. On the one hand, interorganizational learning in strategic alliances constitutes a complex and dynamic phenomenon that tends to be best captured in longitudinal, in-depth, idiographic case studies that unfortunately limit the number of observations from which to generalize. On the other hand, the opportunity and value of the statistical generalizability that nomothetic surveys offer are diminished by the limited number of aspects that are obtainable through typically more superficial and snapshot questionnaires or archival data sets (Tsoukas 1989, Bengtsson et al. 1997).

We believe that one effective way to proceed with a direct empirical test of the framework is to utilize the *case survey method* that is able to bridge this idiographic-nomothetic research gap (Larsson 1993, Yin and Heald 1975). By (1) collecting a relatively large sample of existing case studies relevant to the research question; (2) designing a relatively complex instrument for systematic conversion of the qualitative case descriptions to quantitative variables; (3) having multiple raters to code the cases and measuring interrater reliability; and (4) statistically analyzing the coded data, it is possible to combine the benefits of longitudinal case studies of complex processes and statistically generalizable, cross-sectional analysis of large-sample surveys.

Given the complex and dynamic nature of the proposed framework and the prevalent existence of strategic alliance case studies, we consider the case survey a quite promising method for a more comprehensive empirical testing of our propositions on interorganizational learning. Future research should therefore extend and formalize the case re-analysis above by collecting a larger sample of relevant case studies, and developing an extensive coding instrument for operationalizing the transparency, receptivity, joint learning outcomes, prior related interaction, learning stakes, interorganizational trust, and time orientation of the alliance partners during different phases of the partnering processes. Several raters should then code the cases (preferably including as many as possible of the case authors themselves to access their primary data and allow secondary validation of the case codings; see Larsson 1993) to measure inter-rater reliability and test the propositions statistically.

Conclusions

Organizations are likely to learn most together when all choose collaborative learning strategies of high transparency and receptivity. However, the emphasis of "good partner" advice on the integrative dimension of maximum joint learning tends to overlook the distributive dimension of the extent to which the individual organizations appropriate this joint learning. In turn, the opportunistic preference for competitive learning strategies for maximizing individual appropriation undermines the joint learning outcomes due to the restriction of transparency. This interorganizational learning dilemma highlights the need to consider trade-offs between the integrative and distributive dimensions. If the whole strategic alliance is going to be empowered by learning how to learn jointly, this

elevated double-loop learning requires strategies for balancing the common integrative as well as conflicting distributive interests. Thomas' (1976, 1979) conflict framework distinguishes between situations characterized by either commonality of interest (in which either collaboration or accommodation is chosen depending on the level of stakes involved) or conflict of interest (in which either competition or avoidance is chosen). However, prisoner's dilemmas are characterized by simultaneous high commonality and high conflict of interest, although the commonalities are not realized through narrow individual rationality. To the extent that the compromise position of intermediate commonality and conflict of interest can be extrapolated to the high-stakes situation of simultaneous high commonality and conflict, the compromise learning strategy seems again to be the most viable approach to the interorganizational learning dilemma.

The compromise strategy still leaves some interorganizational learning potential unrealized in order to avoid competitive temptation and/or suspicion in situations of unrestricted transparency. The optimization of interorganizational learning can then be viewed as a trade-off between the forsaken joint learning opportunities of the compromise strategy and the costs for implementing collaborative safeguards against competitive temptation and suspicion. Hence, the collective knowledge development in strategic alliances will benefit from the creation of effective safeguards of collaborative learning strategies that emphasize long-term orientation, interorganizational trust, and collective awareness.

The primary contribution of the proposed interorganizational learning framework is a synthesis of theories on strategic alliances, organizational learning, collective action, and games to further our understanding of how alliances succeed and fail in developing collective knowledge. While Porter and Fuller (1986) note that learning alliances are more prone to survive, as opposed to alliances merely aiming to gain access, our conceptual framework suggests that learning alliances might also easily dissolve under game-theoretic conditions. However, when modifying the strategic options as well as the behavioral and situational assumptions of game theory logic, the framework also suggests the possibility of stable and high-performing partnerships.

The barriers, interactivity, dynamics, and situational factors of the framework also highlight that the strategy of good transparent partnership is not only dangerous from a competitive point of view, but also far from sufficient to generate own learning for the good partner in question. (It requires that the transparency offered is absorbed by the other partner and that this, in turn, leads the other partner to reciprocate transparency, and finally that the first good partner then absorbs this offered knowledge in return.) While being a receptive learner is a more direct strategy, it still requires a willing partner with sufficient communicative capacity to result in actual learning for the receptive partner in question.

Considering both partners' transparency as well as receptivity should be a substantial step forward in understanding and managing the learning alliance, but given the processual nature of learning interactions, we also need to include the dynamic interplay over time. In addition to "the shadow of the future" in prisoner's dilemmas, there is also a "shadow of the past" since previous learning interactions are likely to influence present and future interactions in strategic alliances. Furthermore, the situational context in which these learning dynamics are embedded and unfold should not be neglected due to its seemingly pivotal influence in terms of either hindering or facilitating learning alliances.

The partially supportive empirical comparisons above indicate that few studies focus on more than one of these transparency versus receptivity, integrative versus distributive, time, and contextual dimensions. While these omissions suggest that much remains for future empirical research in this area, this should not be surprising given the methodological limitations of traditional surveys and case studies. It is much easier to develop and argue for a multi-dimensional, interactive, dynamic, and contextual framework conceptually than to test it empirically. We suggest that the case survey method is a suitable way to bridge these idiographic and nomothetic limitations, by providing a large enough case sample for statistical testing with sufficiently in-depth and longitudinal data to capture the multi-aspect process of interorganizational learning in strategic alliances.

If further empirically supported, the developed framework provides several new and promising future research possibilities into the formation, integration, and dissolution of strategic alliances, such as the development of collaborative safeguards, communicative capacity (as a complement to absorptive capacity), interorganizational trust, and other possible empowering learning dynamics. This may be yet another way for human resource management to realize its strategic potential (Pucik 1988), since personnel training and development can be extended to an interorganizational role of enhancing the interactive learning abilities of alliance personnel. The framework can also be further refined beyond the processual boundary specifications by distinguishing between different types of strategic alliances (cf. Thorelli

1986). For example, the presently focused dyadic learning interactions can be extended to *N*-partner interorganizational dilemmas (cf. Cable and Shane 1997), and horizontal, vertical, and mixed alliances are likely to differ in terms of receptivity, transparency, and thereby also interorganizational learning strategies and processes.

Another issue for future research concerns a more complete coverage of the total alliance process from its antecedents and formation to its dissolution and subsequent repercussions for its partners. The framework developed here does include both historical (in terms of prior related interaction) and future factors (in terms of learning stakes and time orientation), but the longitudinal context of alliances is much richer than this. The "opening- and endgames" of alliances appear to be like fertile extension areas for the interorganizational learning framework, given its interactive, dynamic, and situational character (cf. Serapio and Cascio 1996). Alliances should not be viewed as if they occur in a vacuum, but as parts of organizations' strategic portfolio of evolving interorganizational relationships over time. These relationships are, in turn, embedded in an institutional context, which constrain certain developments and enable others in a coevolutionary way (cf. McKelvey 1997) beyond that which our framework has been able to address.

Finally, we have so far avoided partner selection issues in order not to further complicate the framework. At the same time, the *partner specificity* of the barriers to interorganizational learning clearly suggests practical as well as research implications. For example, rather than viewing the absorptive and communicative capacities as absolute attributes of partners irrespective of the particular constellation, the "mere" selection of partners with prior related interaction can enhance both these capacities for the specific alliance in question. Thus, partner-specific absorptive and communicative capacity are two important contributions to our understanding of interorganizational learning that go beyond the absorptive capacity for an individual organization to learn. To pursue this line of research, the concept of co-specialized assets which are needed to fully utilize acquired knowledge may be of special relevance (Teece 1987).

This partner specificity suggests that there is an interorganizational learning "chemistry" which is not only likely to gain from prior related interaction, but also selecting strategically related partners (to increase the learning stakes) with collaborative histories, valuable reputations, and long-term orientations. In a similar way to the knowledge insight that each interpersonal relationship is unique and not reducible to a sum of its parts, strategic alliances have unique partner-specific characteristics, which future research and practice can hopefully utilize in order to understand and manage this chemistry-like process towards greater collective knowledge development.

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