

**The Role of Trust
in Interorganizational Learning**

The Role of Trust in Interorganizational Learning

PROEFSCHRIFT

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As I reach the point, which for so many years seemed unreachable, I cannot but reflect on the four years that have brought me here. They were not easy. When the initial excitement about starting a new job in a foreign country faded away, the task ahead of me appeared to be insurmountable. Not having followed the CentER Master's program, I spent the first two years of my Ph.D. earning the required 40 credit points of course work. At the same time, from the pile of papers that flooded me desk I strived to form a coherent picture of the state-of-the-art literature and identify a gap I could try to fill. The third year was hardly a relief, as I entered the laborious process of fieldwork and data gathering. The final year was not much better either. Looking for a job and aiming to finish my dissertation in time, I found the 24 hours that a day offered insufficient. It is thus no surprise that throughout the four years, times of discouragement were not rare. Along the way, I was faced with a number of decisions, many of which I took without a clear idea of their consequences. When I look back, therefore it seems almost a miracle that finally all ends came together to a successful completion. Needless to say, the support I received from numerous people was invaluable.

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Table of contents

ACKNOWLEDGEMENTS	i
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CHAPTER 1

INTRODUCTION	1
1.1. KNOWLEDGE TRANSFER IN ALLIANCES: OPPORTUNITIES AND THREATS	1
1.2. TRUST: AN IMPORTANT YET ILLUSIVE FACTOR	3
1.3. UNIT OF ANALYSIS: JOINT VENTURE	4
1.4. EMPIRICAL CONTEXT: A TRANSITIONAL ECONOMY	5
1.5. RESEARCH METHOD: SURVEY	7
1.6. CONTRIBUTION	8

CHAPTER 2

LEVELS OF INTERORGANIZATIONAL TRUST:

CONCEPTUAL AND EMPIRICAL CONSIDERATIONS	11
2.1. INTRODUCTION	11
2.2. INTERORGANIZATIONAL TRUST	13
2.3. LEVELS OF INTERORGANIZATIONAL TRUST	14
2.3.1. Critical evaluation	15
2.3.2. Re-defining the two levels of interorganizational trust	18
2.3.3. Strategic-level trust.....	20
2.3.4. Operational-level trust	21
2.4. EMPIRICAL CONSIDERATIONS	23
2.4.1. An alternative approach to measuring interorganizational trust at two levels.....	26
2.4.2. Modes of trust production at the operational level.....	28
2.4.3. Modes of trust production at the strategic level.....	30
2.5. EMPIRICAL ILLUSTRATION	33
2.5.1. Sample and model	33
2.5.2. Variables, data diagnostics and the method.....	37
2.5.3. Results	42
2.6. CONCLUSIONS	44

CHAPTER 3

THE ROLE OF TRUST IN INTERORGANIZATIONAL LEARNING.....	47
3.1. BACKGROUND.....	47
3.2. LEARNING BETWEEN ALLIANCE PARTNERS.....	48
3.3. INTER-PARTNER TRUST AT THE OPERATIONAL AND STRATEGIC LEVEL	52
3.4. TRUST AS A DETERMINANT OF INTERORGANIZATIONAL LEARNING	54

3.4.1. Effect of operational level trust on knowledge flows between organizations	55
3.4.2. Effect of strategic-level trust on collaborative arrangements	56
3.5. TYPES OF TRUST AND LEARNING BETWEEN ALLIANCE PARTNERS	57
3.5.1. Modes of trust production at the operational level.....	58
3.5.2. Modes of trust production at the strategic level.....	61
3.6. DISCUSSION AND LIMITATIONS	66
3.6.1. Causality of trust and learning	67
3.6.2. Limits to trust-driven knowledge sharing.....	68
3.6.3. Operationalization issues	68
3.7. CONCLUSIONS	71

CHAPTER 4

THE EFFECT OF STRATEGIC-LEVEL TRUST ON INTERORGANIZATIONAL LEARNING 73

4.1. BACKGROUND	73
4.2. LEARNING BETWEEN ALLIANCE PARTNERS.....	74
4.3. INTERPARTNER TRUST AT THE STRATEGIC LEVEL.....	76
4.3.1. Effect of strategic-level trust on collaborative knowledge arrangements	77
4.4. SOURCES OF TRUST.....	79
4.4.1. Sources of trust production at the strategic level	79
4.5. DATA AND METHOD	83
4.6. RESULTS	93
4.8. CONCLUSIONS AND LIMITATIONS	97

CHAPTER 5

DETERMINANTS OF INTERORGANIZATIONAL KNOWLEDGE SHARING: OPERATIONAL-LEVEL TRUST AND COLLABORATIVE ARRANGEMENTS... 101

5.1. BACKGROUND	101
5.2. INTER-PARTNER KNOWLEDGE TRANSFER.....	103
5.2.1. Knowledge sharing.....	104
5.2.2. Collaborative arrangements	104
5.3. INTERPARTNER TRUST AT THE OPERATIONAL LEVEL.....	105
5.3.1. Effect of operational level trust on knowledge sharing.....	106
5.4. SOURCES OF TRUST AT THE OPERATIONAL LEVEL.....	108
5.5. EFFECT OF COLLABORATIVE ARRANGEMENTS ON KNOWLEDGE SHARING .	111
5.6. DATA AND METHOD	113
5.7. RESULTS	117
5.8. DISCUSSION	121
5.9. CONCLUSIONS AND LIMITATIONS	124

CHAPTER 6	
CONCLUSIONS.....	127
6.1. THEORETICAL MODEL AND EMPIRICAL APPROACH: A SUMMARY	127
6.2. DISCUSSION OF FINDINGS	129
SAMENVATTING	135
REFERENCES	141
APPENDIX 1	153

List of Tables

Table 2.1. CONCEPTUALIZATIONS OF INTERORGANIZATIONAL TRUST.....	15
Table 2.2. LEVELS OF INTERORGANIZATIONAL TRUST RECONCEPTUALIZED.....	22
Table 2.3. ITEM DESCRIPTIVE STATISTICS.....	38
Table 2.4. RELIABILITY OF THE CONSTRUCTS.....	40
Table 2.5. INTER-CONSTRUCT CORRELATIONS AND SQUARED CORRELATIONS.....	41
Table 2.6. DISCRIMINANT VALIDITY ASSESSMENT FOR PAIRS OF CONSTRUCTS.....	41
Table 2.7. MODEL ITEM LOADINGS.....	42
Table 2.8. ESTIMATED CAUSAL PATHS AND MODEL FIT INDICATORS.....	43
Table 4.1. DESCRIPTIVE STATISTICS FOR COMPOSITE VARIABLE ITEMS.....	88
Table 4.2. CONFIRMATORY FACTOR ANALYSIS (CFA) RESULTS.....	89
Table 4.3. INTER-CONSTRUCT CORRELATIONS AND SQUARED CORRELATIONS.....	90
Table 4.4. DISCRIMINANT VALIDITY OF PAIRS OF TRAITS.....	91
Table 4.5. DESCRIPTIVE STATISTICS AND CORRELATIONS.....	93
Table 4.6. PARAMETER ESTIMATES.....	93
Table 5.1. DESCRIPTIVE STATISTICS AND CORRELATIONS.....	118
Table 5.2. PARAMETER ESTIMATES.....	119

List of Figures

Figure 2.1. STRUCTURAL EQUATIONS MODEL.....	36
Figure 3.1. CONCEPTUAL MODEL OF THE EFFECT OF TRUST ON INTERORGANIZATIONAL KNOWLEDGE TRANSFER.....	66

Chapter 1

Introduction

1.1. Knowledge transfer in alliances: opportunities and threats

Competitive advantage of an organization has its source in the idiosyncratic resources it holds (Barney, 1991). To sustain such advantage, new resources need to be acquired and the existing ones further developed (Kogut & Zander, 1992). For businesses that are not capable of creating all the necessary resources on their own, collaboration is often the only way of survival and growth (Dussauge, Garrette & Mitchel, 2000). Learning in an interorganizational context involves management of three knowledge processes: transfer, transformation and harvesting (Tiemessen, Lane, Crossan, & Inkpen, 1996). While *transfer* refers to “the movement of knowledge between parent firms” be it directly or via an alliance (Tiemessen et al., 1996: 387), *transformation* involves creation of new knowledge through the alliance’s independent activities and *harvesting* the flow of the newly created knowledge from the alliance back to the parent organizations (Berdrow & Lane, 2003: 17). Although all three processes are undeniably important, this dissertation focuses on knowledge transfer only and accordingly terms like interorganizational “learning”, “knowledge transfer” and “knowledge flows” are used interchangeably.

Strategic alliances are considered to be a particularly suitable context for partners to access and share each other’s knowledge-based, organizationally embedded, i.e., tacit resources that lie at the core of competitive advantage (Hall, 1992; Inkpen, 1997; Powell, Koput, & Smith-Doerr, 1996). Yet tacit knowledge, being unarticulated and highly intuitive, does not yield itself easily to transfer (Martin & Salomon, 2003; Kale, Singh, & Perlmutter, 2000; Polanyi, 1962). Therefore, understanding the process of inter-organizational tacit knowledge flows and factors that affect that process is key from the point of view of

sustaining and developing organization's competitive advantage. This issue constitutes the focus of this dissertation.

Yet, transfer of knowledge between alliance partners creates not only opportunities for the cooperating firms (Hamel 1991; Kogut 1988)—knowledge sharing in strategic alliances involves considerable risk as well. There is risk of expropriation, if one of the partners should use the rightfully obtained knowledge opportunistically, in ways contrary to the letter or spirit of the alliance contract. There is also risk of knowledge leakage, where the partners, intentionally or unintentionally, acquire knowledge that was not intended to be shared. Even if the alliance partner is not a potential competitor (i.e., the linkage is of vertical rather than horizontal nature), the risk of spillover may still be high, if such competitors are part of the partner's network. In such case core competence can leak to a competitor indirectly via the alliance partner (Nooteboom, 1999). Finally, since the value of tacit knowledge cannot be reliably evaluated prior to its transfer (Hennart, 1988), partners may engage in (costly) transfer of knowledge that does not meet their expectations.¹ Given these risks, trust between partners emerges as an important factor affecting their mutual knowledge transfers. Trust mitigates partners' fear of the other's opportunistic behavior (Kale et al., 2000; Dyer & Chu, 2003) and thus increases their willingness to grant each other access to knowledge (Dirks & Ferrin, 2001; Kale et al., 2000). Partner trustworthiness can also be used by the knowledge acquirer as a proxy for quality of the knowledge whereby the need to check its authenticity and veracity is decreased (Bhatt, 2000).

Besides granting an opportunity for partners to access each other's knowledge, strategic alliances are also argued to constitute a context, which is highly conducive to skill building and knowledge sharing (Powell et al., 1996). From the point of view of social learning theory, learning is situated in the context of social activity and practice, (Plaskoff, 2003; Elkjaer, 1999, 2003) and is accomplished through "observation and emulation of skilled practitioners and socialization" (Easterby-Smith & Arujo, 1999: 5). Learning is thus a process of social construction (Brown & Duguid, 1991) that depends crucially on the conditions under which it takes place (Powell et al., 1996). The social activity of learning is fraught with risks. Undertaking learning may require admitting an error or asking for help, which can signal incompetence and negatively affect one's image (Edmondson, 1999). Brown & Starkey (2000) argue that individuals may resist learning also because it might challenge their existing

¹ Involvement of go-betweens can be a solution to the valuation problems. Having established relationships with both partners, go-betweens can help them assess the value of each others' knowledge before they commit significant resources to the transfer (Nooteboom, 1999).

concepts of self. Finally, individuals who view knowledge as a source of power may resist sharing it (Kim & Mauborgne, 1998; Szulanski, 1996) or even erect barriers to prevent its incidental leakage. Trust between individuals can help them be more open to the influence exerted by others, feel more comfortable admitting need for learning and more secure in sharing their knowledge.

1.2. Trust: an important yet illusive factor

Admittedly, the positive impact of trust on knowledge sharing (McEvelly, Perrone, & Zaheer, 2003) in both *intra*-organizational (e.g., Kostova, 1999; Makino & Inkpen, 2003; Tsai & Ghoshal, 1998) and *inter*-organizational context (Geringer, 1988; Dyer & Chu, 2003; Inkpen, 1997; Hedlund, 1994) has been suggested in prior research. Yet, conceptualizing and empirically tapping interorganizational trust is far from straightforward. Interorganizational relations constitute a very specific context where those who frame the strategic intentions of collaborating organizations are often distinct from those who actually implement them—a consideration that is rarely reflected in research on strategic alliances (Salk & Simonin, 2003). A variety of theoretical and empirical approaches to interorganizational trust are to be found in the literature; Chapter 2 of this dissertation presents a critical review of research in the area. It also proposes an alternative conceptualization of interorganizational trust, and a measurement method that relies thereupon. In accordance with extant literature (for example Currall & Inkpen, 2002), chapter 2 assumes knowledge sharing to be one of the dimensions of inter-partner trust.

However, although knowledge sharing is without a doubt a manifestation and, thus, a good proxy for trust in a relationship², the two *are* conceptually distinct and the strong positive relationship between them, though intuitive, should not be taken for granted. In particular, in an interorganizational context where the inherently individual level concepts of trust and knowledge sharing can not be applied indiscriminately, there is need to understand exactly why high level of trust between partners leads to greater knowledge transfer between them. To that end, this dissertation moves beyond the familiar, yet relatively ambiguous, concept of interorganizational trust and identifies two distinct levels of that trust. It formulates

² Most studies that consider open communication as a dimension of trust, focus on exchange of partner-specific information between partners (e.g., opinions, decisions, plans, programs, expectations, goals, motives or evaluation criteria (e.g., Currall & Judge, 1995; Barclay & Smith, 1997)). The relevance of substantive knowledge flows in this respect, however (e.g., technological, managerial, marketing), has also been acknowledged (for example, Currall & inkpen, 2002).

a model illuminating mechanisms through which trust at each of those levels affects knowledge transfer in a unique way. In specific Chapter 3 develops the model theoretically, while Chapters 4 and 5 undertake to test its predictions. All the three chapters consider interorganizational knowledge transfer to be an outcome of inter-partner trust (rather than a dimension or a proxy, as is the case in chapter 2).

1.3. Unit of analysis: joint venture

Strategic alliances are not a homogenous category; they encompass a broad range of contractual forms, from arm's-length contracts to equity joint ventures (Gulati & Gargiulo, 1999). Some contractual forms are argued to be better suited for the transfer of tacit knowledge between partners than others. According to transaction cost theory, the market for tacit knowledge is likely to fail since its value cannot be reliably evaluated before its transfer (Hennart, 1988). Therefore, equity joint ventures (JVs), by combining features of markets and hierarchies, are considered to be superior conduits of tacit knowledge compared to contract-based agreements (Gulati, 1995; Kogut, 1988; Mowery, Oxley & Silverman, 1996). In particular the necessity to replicate difficult to grasp, company specific, experiential knowledge is posited to be the reason for markets being displaced by joint ventures.

Similarly, representatives of the resource-based view argue that equity JVs are “more effective conduits for the transfer of complex capabilities than are contract-based agreements” (Mowery et al., 1996). This is because success of tacit knowledge exchanges depends strongly on the quality of communication between the partners and their “intimacy” level (Szulanski, 1996). JVs, by offering a high level of intimacy and intensity of interactions between partners, are, therefore, especially suitable for transferring organizationally embedded, highly ambiguous, tacit knowledge (Lane & Lubatkin, 1998).

For all the above reasons, equity JVs were chosen to be the empirical context in which this dissertation's predictions regarding the effect of inter-partner trust on tacit knowledge transfers, are tested. The term “joint venture” is used to refer to all equity alliances, whether they involve creation of a separate entity or a minority stake held by one company in another (cf. Hennart, 1988). Attempts to empirically investigate the effect of trust on interorganizational learning have been few so far. Moreover, they do not always corroborate the theoretical predictions. Lane, Salk and Lyles (2001), for example, in their study of

Hungarian international joint ventures (IJVs) found inter-partner trust to be positively associated with IJV performance rather than directly with learning. Predictions of the model proposed in chapter 3 are tested on a sample of 149 international joint ventures operating in Poland. Chapters 4 and 5 present the results of these analyses.

1.4. Empirical context: a transitional economy

Most research on the inter-partner learning in strategic alliances has been carried out in the context of developed market economies. Generalizability of the findings to the transitional economy context has not been ascertained. Yet, the economic policies of the past have left a profound imprint on those economies, causing some significant contextual differences between established market economies and those in transition (Steensma & Lyles, 2000). Lack of research on interorganizational learning in the context of transitional economies is particularly taunting, since inter-partner learning in this context appears to be especially important.

First, the political and economic transformation that affected Central and Eastern European countries in the early 1990's has left many of the local enterprises impotent of competing under free market circumstances. They "developed in economies with monopolistic, state-dominated industries and are not likely to have the management, manufacturing, and marketing capabilities needed to survive in a market-based economy" (Lane et al., 2001: 1140). The lack of skills necessary to compete in a free-market economy is particularly serious considering that a number of these countries, Poland included, have just joined the European Union. In order to be competitive in the common market, the local companies need to catch up with their European rivals in terms of new technologies and market-oriented management practices. In that context collaboration with a foreign partner is considered to be an effective learning strategy (Child & Markoczy, 1993; Markoczy, 1993). Transition-economy organizations view foreign partners as rich reservoirs of new competencies and tend thus tend to be more appreciative of the knowledge supplied by the foreign partner compared to local firms in Western economies who "have historical confidence in their administrative and managerial heritages" (Lyles & Salk, 1996: 898). In fact, the survival of the transition economy IJV has been found to depend critically on the continued learning from the foreign parents (Lane et al., 2001: 1140).

Learning in transitional economy JVs seems to be of high relevance also from the foreign partner perspective. Growing competition in the maturing markets forces Western multinationals to expand into the transitional economies of Eastern Europe. Problems in navigating those uncertain markets incite the multinationals to seek local partners, to supply them with valuable local knowledge about government relations, laws and customs (Steensma & Lyles, 2000). Finally, international joint ventures between local and foreign partners and the inter-partner learning that they enable are also important from the point of view of transitional economies as a whole. Such IJVs are posited to be beneficial to the transitioning economies not only because of their positive effect on economic stability and global competitiveness but also because of the role models and insight into management imperatives they provide (Steensma & Lyles, 2000). For all these reasons, a transitional economy context, such as Polish, appears to be a very suitable empirical setting for the investigation of interorganizational knowledge transfers between alliance partners.

Tacit knowledge transfers between IJV partners in this context are also likely to be of special relevance. The Marxist ideology, under the influence of which the former communist economies operated, stressed the importance of technical skills and production output. Technology and technical education were thus given priority over marketing and management skills (Steensma & Lyles, 2000). Consequently, while the post-communist economies can boast the highest concentration of well-trained engineers in the world (Steensma & Lyles, 2000), their marketing and management skills are greatly underdeveloped (Child & Markoczy, 1993). The skill gap between the foreign and the local partner in terms of managerial knowledge is thus likely to be great (Steensma & Lyles, 2000). Yet, compared to technical knowledge, acquiring new managerial skills is much more difficult because of the cognitive and behavioral change that it requires (Lane, Salk & Lyles, 2001). In line with that Shenkar & Li (1999) argue that compared to manufacturing and production process knowledge, management skills are highly tacit and socially embedded, while technological, product development, and marketing knowledge falls somewhere in between (Lane, Salk & Lyles, 2001). Therefore, learning between a transitional economy partner and a foreign partner would likely involve more transfer of tacit rather than explicit knowledge. Considering all of the above, Poland appears to be an appropriate context for investigating not only transfers of knowledge between alliance partners, but tacit knowledge transfers in particular.

1.5. Research method: survey

The data for the purpose of this research project were collected by means of a survey conducted in the fall of 2002 and spring of 2003. Survey is a research strategy that allows for relatively systematic and standardized collection of information (Rossi, Wright, & Anderson, 1983) by way of direct contact with the research objects (Warwick & Liniger, 1975). This is usually accomplished by means of questionnaires and/or interview schedules (Warwick & Liniger, 1975), which can be implemented in face-to-face contact, by phone, telephone, mail or internet (McGivern, 2003). The survey used to collect data for the purpose of this work was designed according to the Tailored Design Approach (Dillman, 2000). This approach can be shortly summarized as “the development of survey procedures that create respondent trust and perception of increased rewards and reduced costs for being a respondent, which take into account features of the survey situation and have as their goal the overall reduction of survey error” (Dillman, 2000: 27).

The survey method was suitable in the context of this doctoral research for a number of reasons. First and most importantly, the concepts subject to investigation were for the most part intangible in nature. Similar to most variables in social sciences, many of the constructs that constitute the theoretical core of this dissertation, are not directly observable. Measuring such illusive, intangible concepts poses a challenge, as established measures are often unavailable (DeVellis, 1991) or unsatisfactory. In such cases the only way to assess a construct is to develop customized scales—special measurement instruments made up of items designed to reveal the level of the latent, theoretical variables (DeVellis, 1991). A survey method allows for obtaining data on thus developed scales from a large sample of respondents.

Second, a survey allows for gathering data on a relatively large sample of research objects (McGivern, 2003), i.e., quantitative data (Warwick & Liniger, 1975). Such data are considered to be useful for measuring, quantifying, validating and testing hypotheses and theories (McGivern, 2003), which was the aim of the empirical investigation at hand. In fact, hypothesis testing and, more generally, causal explanation is considered to be one of the primary objectives that a survey can help accomplish (Warwick & Liniger, 1975). Although surveys provide information on the current state or reality only, thus making inference with respect to causal connections more difficult, the data they provide are accurate and reliable and allow for generation of generalizable results (Warwick & Liniger, 1975).

Finally, surveys, and self-completion surveys in particular, are appropriate when a widely dispersed sample is targeted (McGivern, 2003). This in combination with the substantially lower costs, compared to methods that require participation of an interviewer (McGivern, 2003), made the survey method particularly attractive in the context of this research project. The international joint ventures investigated were dispersed throughout the country; reaching them in person would involve a considerable additional investment of time and money, neither of which were available.

1.6. Contribution

Summarizing, this dissertation investigates the effect of interorganizational trust on tacit knowledge transfers between alliance partners. To that end, a theoretical model is developed and testable hypotheses are formulated. These are subsequently tested on a sample of 149 Poland-based joint ventures surveyed in the fall of 2002 and spring of 2003. The value added of this work lies in the following. First, the role of interorganizational trust in stimulating interorganizational knowledge flows is theoretically elucidated through a two-level approach. The propositions thus put forward are subsequently tested empirically. Second, for each level of analysis distinctly types of trust are identified and argued to be particularly relevant. This constitutes a basis for a new approach to empirical measurement of interorganizational trust as demonstrated in the dissertation. Third, this work contributes to our understanding of inter-partner learning in alliances, an issue of high strategic relevance for many organizations. It further provides insights into such processes in the context of a transitional economy. Finally besides theoretical contribution, this work also has practical implications. Although it has been argued that the level trust can be influenced by managers' actions (cf. Parkhe, 1998a,b), our understanding of mechanisms that companies can use to build and maintain trusting relationships is up till now is very limited, especially in the context of international JVs (cf. Inkpen and Currall, 1997). Therefore, insight into the mechanisms through which interpartner trust is formed at both levels, can become a basis for formulating strategies for fostering trust with the aim to achieve a superior learning.

Chapters 2 through 4 of this dissertation are a result of joint work with Niels Noorderhaven. Some overlaps between the chapters will be encountered and are due to the fact that each of them constitutes a separate and independent paper, which has been or will be

submitted for publication in the near future. In specific Chapter 2 will be published in the forthcoming (in 2005) “Handbook of Trust Research” edited by Aks Zaheer and Reinhard Bachmann. The pilot study preceding the collection of data for this dissertation has been carried out with the financial support of The Netherlands’ Organization for Scientific Research (NWO).

Chapter 2

Levels of interorganizational trust: conceptual and empirical considerations

2.1. Introduction

The notion of trust has received increasing attention in recent years. It is pointed to as an important factor for understanding human nature and exchange relationships of market participants. In particular, trust between partners is considered to be an important variable affecting interorganizational cooperation (e.g., Gulati, 1995; Madhok, 1995). Yet, interorganizational relations constitute a very specific context where those who frame the strategic intentions of collaborating organizations are often distinct from those who actually implement them—a consideration that is rarely reflected in research on interorganizational alliances (Salk & Simonin, 2003). This consideration should be taken into account in studying interorganizational relationships, especially that the differences in the nature and character of trust across different levels are to be expected (e.g., Anderson and Narus, 1990; Zaheer, Lofstrom, & George, 2002).

Yet research on trust in inter-organizational relationships is quite short of studies that would go beyond one level of analysis (c.f. Doney and Cannon, 1997). Moreover, the link between the different levels of trust analysis is often ignored (Zaheer, McEvily, & Perrone, 1998). Additionally, the few studies that do adopt a multilevel approach to studying interorganizational trust differ, often substantially, in how they define levels of trust. This is reflected in various empirical treatments of trust at those levels, and consequently in inconsistent findings. It is in this context that the issue of alignment between the levels of theory and measurement in multilevel empirical studies is raised. In their recent work Currall

& Inkpen (2002) point out that a number of studies that attribute individual attitude (i.e., of a key informant) to the firm are in fact marked by misspecification (Currall & Inkpen, 2002).

In light of the above, this chapter has two aims. First, we explore the different ways in which levels of trust in interorganizational relationships have been conceptualized in the literature. To that end, we systematize and critically evaluate research on the levels of trust so far. Additionally, we propose a new approach to conceptualizing the levels of interorganizational trust, which takes into consideration the differential role of various types of organizational actors in the enactment of interorganizational relationships. Zaheer et al. (2002: 4) posit that “there is need to understand if, and how, interpersonal trust across organizational boundaries of individuals at different hierarchical levels differs in nature, causes and consequences.” As we will further argue, trust at top management level is qualitatively different in its sources and outcomes from trust at the level of lower-level managers and employees. While, top-management level trust influences the goals and parameters of the interorganizational cooperation, trust between lower-level managers and employees working within the bounds of these parameters affects the extent to which the goals are met.

Second, we critically review Currall and Inkpen’s (2002) claim of misaligned studies. We take issue with the conclusion that the solution to the problem lies in better data, as obtaining such data, particularly for a large scale study, is often simply not possible. We argue that the problem of misalignment does not only result from the shortcomings of the empirical tools used but also from the existing conceptualizations of levels of interorganizational trust. We demonstrate that the two-level conceptualization of interorganizational trust, as proposed in this chapter, helps to overcome the limitation imposed by the availability of a single organizational informant. The approach hinges on the assumption that trust at different levels is likely to come about in a different way. We posit that sources of trust can be used as indicators of the presence of trust. Moreover, since the sources of trust at the different levels can be argued to be quite distinct, even a single informant can (relatively) objectively assess their presence in an interorganizational context. We provide an illustration of our approach, which focuses on the information sharing dimension on trust (cf. Currall & Inkpen, 2002).

In short the contribution we hope to make with this study is threefold. First, we systematize and evaluate the extant approaches to conceptualizing levels of interorganizational trust. Second, we propose a new conceptualization of the levels of trust. Third, we address the empirical issues related to measuring trust at the different levels both in the extant and the proposed conceptualization. Accordingly, we first critically consider the

different approaches to conceptualizing levels of trust. We continue by presenting an alternative approach to identifying levels of trust. Next, the empirical issues involved in tapping trust at two levels are dealt with and an alternative method is proposed. Finally, we provide an empirical illustration, which captures the impact of sources of trust on the extent of inter-partner trust at two levels, as reflected in the extent of their mutual knowledge sharing.

2.2. Interorganizational trust

A consensus concerning the definition of interorganizational trust has not been reached. Some define it as an *attitude*, i.e., an expectation of the partner's reliability with regard to his obligations, predictability of behavior, and fairness in actions and negotiations while faced with the possibility of behaving opportunistically (cf. Zaheer et al., 1998). Others point to the *behavioral* aspect of trust (e.g., McAllister, 1995), which finds reflection in the "decision to rely on another" (Currall and Inkpen, 2002: 484). The definition of trust adopted by a given author is closely related to the assumptions s(he) holds with respect to the nature of organizational trust.

Currall and Inkpen (2002), for example, propose a definition of trust, which reflects the actual reliance of an organization on a trustee—"the willingness to increase one's vulnerability to another whose behavior is not under one's control" (Zand, 1972: 230). The assumption here appears to be that organizational trust is held by an organization as such, i.e., trust is attributed to organization as an entity. Since an attitude (i.e., trusting) is an inherently individual-level phenomenon, a definition of trust in terms of observable behavior is appropriate because it allows to extend the concept of trust to the level of a group or an organization (Currall and Inpen, 2002).

Other authors, however, argue that while it is conceptually consistent to view an individual both as an origin and an object of trust, the same is not true of an organization (Zaheer et al., 1998). Organizations are made up of and managed by individuals (Aulakh, Kotabe & Sahay, 1996) through whom inter-firm relations come into effect (Inkpen & Currall, 1997; Nooteboom, Berger & Noorderhaven, 1997). Therefore, it is not an organization itself that trusts, but rather the individuals who constitute it. Such assumption concerning organizational trust is in line with an attitudinal definition of organizational trust. Although organizations do not have the ability to experience an attitude (Dyer & Chu, 2000,

Aulakh et al, 1996; Madhok, 1995), the individual agents that define their behavior do. Therefore a definition that views trust as “the subjective probability that one assigns to benevolent action by another agent or group of agents” (Nooteboom et al., 1997) is appropriate.

It is worth emphasizing that the choice of a definition of trust as an attitude or a behavior is not simply a theoretical question. Trusting behavior of a party to a relationship does not automatically imply the presence of attitudinal trust as the observed trusting behavior may be driven by factors other than trust, e.g., a lock-in or dependence on the trustee (cf. Nooteboom et al., 1997). Therefore, behavioral trust is a much broader and more ‘messy’ concept than attitudinal trust. At the same time attitudinal trust is much more difficult to assess, particularly when considered at the organizational level. Since the conceptualization of the levels of trust that we propose subsequently hinges strongly on the role of an individual in shaping organization’s behavior, for the purpose of this paper we choose to subscribe to the attitudinal view of trust. We therefore understand trust to be expressed in the attitudes of agents, who may play various roles in their organizations and thus affect organizational behavior in different ways.

2.3. Levels of interorganizational trust

The primary dimension along which levels of interorganizational trust can be distinguished and conceptualized is whether the parties to a trusting relationship are individuals or organizations. The question needs to be addressed for both sides of a relationship—the trustor and the trustee. Accordingly a 2x2 matrix can be sketched with the resulting four theoretical constructs. The majority of the conceptualizations to be found in the extant literature in one way or another make use of the four constructs (see Table 2.1).

Table 2.1. Conceptualizations of interorganizational trust

		Who is trusted? (i.e., trustee)	
		<i>Individual</i>	<i>Organization</i>
Who trusts? (i.e., trustor)	<i>Individual</i>	INDIVIDUAL → INDIVIDUAL Zaheer et al. (1998), Zaheer et al. (2002), Jeffries & Reed (2000), Inkpen & Currall (1997)	INDIVIDUAL → ORGANIZATION Inkpen & Currall (1997)
	<i>Organization</i>	ORGANIZATION → INDIVIDUAL Doney & Cannon (1997)	ORGANIZATION → ORGANIZATION Zaheer et al. (1998), Zaheer et al. (2002), Jeffries & Reed (2000), Doney & Cannon (1997)

In the upper left quadrant—where the trustor and the trustee are individuals—we find conceptualizations of what is commonly referred to as interpersonal trust (Zaheer et al., 1998; Jeffries and Reed, 2000; Inpen and Currall, 1997). This is the least controversial category as it captures trust present between individuals who happen to be members of two different organizations. In the lower right quadrant—where both the trustor and the trustee are organizations—we find conceptualizations of what is referred to as interorganizational trust (Zaheer et al., 1998; Dyer & Chu, 2000; Doney & Cannon, 1997) or organizational trust (Jeffries & Reed, 2000). Although most common and conceptually neat it is certainly not the only possible conceptualization of inter-organizational trust. In the upper right quadrant—where the trustor is an individual and the trustee is an organization—we encounter what is defined by Inkpen and Currall (1997: 312) as firm-level trust, i.e., a manager’s perception of the partner firm trustworthiness. Finally, in the lower left quadrant—where the trustor is an organization and the trustee is an individual—a conceptualization of trust where a (buying) firm trusts a (supplier) firm’s sales person is to be found (Doney & Cannon, 1997). The latter two conceptualizations are by far less frequent than the former two treatments. Especially the organization-trusts-individual approach is quite rare.

2.3.1. Critical evaluation

Conceptualizations that involve an individual as a trustor (i.e., the upper two quadrants) are relatively unproblematic. First, there seems to be a widely accepted consensus concerning the conceptualization of interpersonal trust. Since both the trustor and the trustee

are individuals, the theories of trust at the individual level are fully applicable here. Besides the relationship being based in an interorganizational context—the two individuals being members of different organizations—there is not much that would make it unique or different. Similarly the conceptualization that holds an individual as a trustor and an organization as an object of that trust is largely uncontroversial. Doney & Cannon (1997: 36) comment, “although some researchers disagree about whether organizations can be targets of trust, a large stream of literature emphasizes that people can develop trust in public institutions (Lewis & Weigert, 1985) or organizations (Morgan & Hunt, 1994), as well as individuals”. Trustworthiness can thus be a quality attributed to an organization (Inkpen & Currall; 1997), and consequently one can talk of an individual’s trust in an organization (Doney & Cannon, 1997).

In contrast, conceptualizations of trust that involve an organization as a trustor (the lower two quadrants) are much more problematic. There are few attempts to conceptually tackle the question what it means for an organization to trust. Many authors who adopt the organization as the unit of analysis simply apply individual level terminology and logic to the organizational level (Zaheer et al., 1998). Zaheer et al. (1998: 142) maintain that theories of inter-firm exchange that simply take trust to be a property of organizations, without specifying the link between the micro and macro level are inaccurate, as they “anthropomorphize the organization”. In the strict sense of the word an organization cannot trust, only an individual can (Inkpen & Currall, 1997; Zaheer et al., 1998; Doney & Cannon, 1997; Dyer & Chu, 2000). Because of that organization-level trust has been frequently defined as a shared attitude held collectively by members of a given organization (Zaheer et al., 1998; Jeffries & Reed, 2000; Dyer & Chu, 2000). This is quite different from saying that an organization trusts (Zaheer et al., 1998).

The usefulness of such a conceptualization of organizational trust is questionable, however. Organizational trust as the shared attitude of individual organization members is likely to be heterogeneous, as individuals’ trust may be formed in different ways, be of different strength, and have different consequences. Hence, shared attitude of organizational members can hardly be considered to be a predictor of organization’s behavior. Organizational members collectively do not undertake any action. First, it is usually only the boundary spanners of the organizations that interact with each other, rather than all members of the organizations. Consequently, including trust of the non-boundary-spanning individuals in the concept of firm-level trust (in the interorganizational context) seems irrelevant. Second, organizational members occupy different positions in organizational hierarchy, which

determines their power to influence organization's actions. Aggregating trust of individuals who play different organizational roles in an effort to assess its impact on the overall organizational behavior, poses the risk of overlooking the actual causal relationship.

For example, the structure of interorganizational collaboration is determined largely by the organizational decision makers. Therefore it is trust held by those decision makers that should be taken as a predictor of the structure rather than the attitude shared by all organizational members. It is conceivable for overall organizational trust towards a partner organization (or some of its members) to be quite high, while trust held by the decision makers would in fact be very low (or vice versa). Similarly, day-to-day implementation of the collaboration is a function of trust between operational level employees of the partner organizations. Including the top-level trust under the explanatory variable would likely cloud the actual relationship. In sum, if shared attitude of organizational members is taken as a predictor of organization's actions the actual trust of a given organizational group gets "lost" (averaged out) in the overall measure of organizational trust. This would likely distort the empirical results and lead to wrong conclusions. The significance and direction of a causal relationship in such case would very much depend on what outcome is chosen as a proxy for an organization's behavior; one decided upon by top managers or one determined by the collaborativeness of the operational-level employees.

Adequacy of the conceptualization of trust as held collectively by members of one organization towards the partner organization (Zaheer et al., 1998) can also be questioned based on empirical grounds. The shared attitude of all organizational members towards the partner organization (or its members) is practically impossible to tap empirically, particularly in a large-scale study. Its literal measurement would in effect require interviewing every single member of the organization in question. Additionally, if we define organizational trust as the attitude shared by organizational members towards the partner organization next to interpersonal trust, the former by definition encompasses the latter—the individual trustor is part of the trusting organization and the individual trustee is part of the trusted organization. The two constructs are not independent. Thus their effect should not be assessed simultaneously. In contrast, defining levels of interorganizational trust in terms of trust held by individuals at different levels in organizational hierarchy, as we propose below, is much more pragmatic from empirical point of view. The resulting measures of trust at different levels are not only relatively independent but also much easier to obtain in a field research. Therefore, the conceptualization of organizational trust as a shared attitude of organizational members does not seem to be very fruitful for furthering research in the area.

2.3.2. Re-defining the two levels of interorganizational trust

Considering the above, we propose a conceptualization of levels of trust which takes into account the importance of the individual trustor in the constitution of interorganizational trust *and* recognizes the different roles that individuals play in shaping organization's behavior. Numerous authors have stressed the importance of individuals and individual relations in trust between organizations (e.g., Gulati, 1995; Lewis & Weigert, 1992; Macaulay, 1963; Ring & Van de Ven, 1994; Inkpen and Currall, 1997). Inkpen & Currall (1997: 311) follow Yoshino & Rangan (1995) in arguing that "the relationships between the managers involved in the collaborative relationship are critical to the establishment of interorganizational trust".

It is because of the crucial role individuals play in organizations that the idea of trust can be extended to an organization. We subscribe to the view of Zaheer et al. (1998) that an attitude of trust can only be attributed to an individual and not to an organization. Trust may be attributed to organizations only because they are made up of and managed by individuals (Aulakh, et al. 1996) through whom the inter-firm relations come into effect (Inkpen & Currall, 1997; Nooteboom, et al. 1997, Aulakh et al., 1996). We further build on this assumption, by considering the diversity of roles played by different organizational actors in shaping the course of organizational activities and accordingly distinguishing levels of trust in interorganizational context.

Every position in organizational hierarchy is associated with a certain role, which reflects the expectation with respect to the position holder's contribution to the operational and strategic tasks (Floyd and Lane, 2000). Organizational roles thus restrict and guide individuals' conduct in an organizational (Nooteboom et a., 1997). This implies that individuals involved in an alliance on both sides are likely to play different roles depending on the position they occupy in the organizational hierarchy. While the roles of the top management are dominated by decision-making tasks (e.g., ratifying or directing), those of the non-executive managers encompass primarily communication of and reaction to information (e.g., implementing, facilitating, conforming or responding) (Floyd and Lane, 2000). Therefore, while top (executive) managers can influence the cooperation policy of the organization, this is clearly not the case for operational level employees, who will likely be responsible for its implementation.

Organizational roles held by individuals affect also their perceptions and mode of functioning. Zaheer et al. (2002: 348) state that "...individuals at different organizational levels view their respective worlds from different perspectives (...) Individuals at higher and

lower hierarchical levels (...) each see the world in *qualitatively different* ways". These differences pertain particularly to the level of uncertainty, time horizons and risk. All these three dimensions are closely related to trust (Zaheer et al., 2002; Parkhe, 1993). Thus, they argue, "interpersonal trust between top managers may need to be understood differently than that between individuals at other levels of the organization." (Zaheer et al., 2002: 4). Similarly, Salk and Simonin (2003) argue that, in terms of attitudes, those who frame strategic intentions of an organization are clearly distinct from those who actually implement them at the operational level. Thus, individuals at these two levels would not only differ in the scope of their power but also in the way in which they would form trust.

The idea that the position that individuals hold in an organization will affect how they form trust finds support in the literature. Zaheer et al. (2002) argue that roles played by individuals in organizational settings have a strong influence on how trust is formed between them. They posit "we may be getting only a partial understanding of the nature of trust in interorganizational relationships by focusing only on boundary-spanner trust while ignoring top management trust, or by implicitly assuming that trust at these two hierarchical levels is similar in its causes (...)" (Zaheer et al., 2002: 349). Accordingly in line with Zaheer et al. (2002) we subsequently argue that trust between top decision makers and trust between boundary spanners at lower hierarchical levels is formed in different ways.

Before we proceed with the discussion of the differences between trust held by the executive level managers and lower level managers, however, we shortly consider the possible objects of their trust (i.e., the trustee). Although, as we argued, only individuals can be trustors in inter-firm trust, both an individual *and* an organization can be an object of trust (Inkpen & Currall, 1997; Perrone, Zaheer & McEvily, 2003) at either of the levels. Inkpen & Currall (1997: 311) posit "alliance managers can foster trust by building one-to-one relationships with partner managers" but also "by developing a familiarity with the partner's strategy, organization, and culture." The idea of an organization as an object of individual's trust is supported by Nooteboom et al. (1997), who treat trust in terms of relational risk with respect to a partner organization as perceived by an individual who enacts the relation with the partner organization. Next to trust in the partner organization, trust held by the managers towards their counterparts in the collaborating organizations is of relevance. Beneath the formalities of contractual agreements, personal relationships among key individuals play a pivotal role in producing trust between collaborating firms (Gulati, 1995; Gulati & Gargulio 1999; Walker, Kogut & Shan, 1997; Zaheer, McEvily & Perrone, 1998; Bradach and Eccles 1989). Thus in our further discussion we assume that trust held by organizational actors at

different levels of organizational hierarchy can have as its object both the partner organization and its individual members.

Our conceptualization of interorganizational trust, therefore, assumes that an individual is the only subject of trust (i.e., a trustor) in an organization. The two levels of interorganizational trust are delineated according to *who* is the trustor and independent of who is the object of trust (an individual or an organization). Although research has shown that individuals do distinguish between trust towards counterpart boundary spanners and the partner organization (for example Zaheer, Lofstrom, & George, 2002), we believe that in carrying out their responsibilities with respect to the interorganizational collaboration, decisions of organizational boundary spanners (of either level) would be determined by the overall attitude towards the partner organization and their individual counterparts, rather than each of those objects of trust separately.

Additionally, the effect of trust towards the partner organization and its individual members are unlikely to be independent; we expect that they would moderate each other. Thus although we do acknowledge that organizational actors can distinguish between trusting the partner organization or its specific members, we do not believe that this distinction has a bearing on the decisions they take. Rather, such decisions would be based on the overall evaluation of the trustworthiness of the partner organization *and* its individual members. There exists empirical evidence in support of our approach; trust in an individual manager of the partner firm has been shown to be a strong predictor of trust in the partner firm as a whole (Inkpen & Currall, 1997; Zaheer et al., 1998).

2.3.3. Strategic-level trust

We are now ready to define the two levels of interorganizational trust; a strategic-level and operational-level. We conceptualize strategic-level trust as the attitude held by the company's executives towards the partner firm (cf. Inkpen & Currall, 1997) and its members (cf. Gulati & Gargulio, 1999). It has been stressed above that top managers play roles that are systematically different from those of the lower-level managers. Zaheer et al. (2002) following Andrews (1971) argue that top managers need to face higher levels of uncertainty, and adopt a longer-term view. The role of a top manager is also different in that the corporate level is predominantly responsible for the shaping and manipulation of the structural context of the collaboration (cf. Burgelman, 1983). Therefore, trust at the strategic-level is bound to be manifested in the policies of the firm and in a strategic alliance context in the collaborative arrangements.

2.3.4. Operational-level trust

Operational-level trust between organizations, in contrast, captures the trust held by the non-executive boundary spanners of the collaborating organizations towards the partner organization and its individual members. The boundary spanners in carrying out the operational tasks of the collaboration “provide the linking mechanism across organizational boundaries” (Inkpen & Currall, 1997). The interacting boundary spanners at the lower levels of organizational hierarchy are responsible for the actual implementation of the collaboration. In contrast to the top managers, they do not shape the structure and collaboration policies, but operate within their bounds. Currall & Inkpen (2002) define ‘trust network’ as the sum of interpersonal trust in a joint venture, i.e., trust present in all dyadic relationships of boundary spanners from the partnering organizations. Our definition of operational-level trust, includes the trust network but, is broader than that; it additionally comprises the boundary spanners’ trust towards the partner organization. Thus similarly to the strategic level, both the partner organization and/or its individual members can be the objects of operational-level trust. Operational-level trust will therefore be manifested in the way the collaboration agenda set forth by the top management is implemented in the day-to-day operations of the alliance.

Thus, we regard strategic-level trust to be primarily operative at the strategy and policy making levels (thus affecting the structural conditions of the alliance), while operational-level trust to play a major role in the effectuation of the interorganizational collaboration (i.e., the process of cooperation itself). Both of these types of trust, however, have an interorganizational character and jointly constitute interorganizational trust. Schematically then, in delineating the two level so interorganizational trust, we merge the two upper quadrants of Table 1.1 and subsequently introduce a horizontal division of the upper field (rather than a vertical one)—See Table 2.2.

Table 2.2. Levels of interorganizational trust reconceptualized

		Who is trusted? (i.e., trustee)	
		<i>Individual</i>	<i>Organization</i>
Who trusts? (i.e., trustor)	<i>Individual</i>	Executive-level INDIVIDUAL → INDIVIDUAL / ORGANIZATION Strategic-level trust	
		Operational-level INDIVIDUAL → INDIVIDUAL / ORGANIZATION Operational-level trust	
	<i>Organization</i>	ORGANIZATION → INDIVIDUAL	ORGANIZATION → ORGANIZATION

It is worth pointing out that although this operationalization bears some resemblance to the one offered by Zaheer et al. (2002), it is not the same. The authors do differentiate between levels in hierarchy but only in terms of interpersonal trust i.e., between two individuals. Therefore, the two levels they identify would simply fit in the upper left quadrant of Figure 1. Our conceptualization, in contrast, cannot be simply placed in any single quadrant of Figure 1 (it cuts across two quadrants of the figure), as neither trust at the strategic nor operational level is simply of interpersonal type—it can have as its object another individual and/or the partner organization.

A criticism can be raised that our framework does not allow for the possibility that executive boundary spanners, next to their responsibility for setting the structure of the collaboration, may also be involved in the day-to-day implementation of the collaboration. Theoretically speaking, the trust they hold as top executives should affect their decisions concerning structure while the trust they hold as ‘implementators’ should affect the implementation of the collaborative tasks. However, it seems likely that in most cases the role of executives will be restricted to setting the structural conditions and they will not have (much) opportunity to engage in the everyday implementation of the tasks of the collaboration. Thus, since the role of the top executives as organizational decision maker is likely to overshadow that of an operational organizational member, we do not consider it in our further analysis. This is obviously a simplification, as at least some knowledge can be expected to flow at the executive manager level. Yet, although undeniably there is an overlap in terms of roles played by boundary spanners at the executive and non-executive levels with

respect to knowledge transfer, for the sake of conceptual clarity we stress the difference between the two.

We wish to stress that by delineating the strategic and operational levels, we do not wish to suggest that they are completely separate. Admittedly individuals at both levels are subject to similar psychological processes and limitations; it is not our intention to argue that top managers are in any way qualitatively different than their lower level counterparts. Also, the two levels are linked by the common organizational culture, in which they are embedded. Organizational culture has been argued to affect the propensity of its members to trust and be trustworthy (Nooteboom, 2002). Additionally, conscious efforts to limit problems associated with implementing the collaboration agreement can further bring the two levels closer. A situation may arise where a poorly negotiated collaborative agreement is handed over to the lower-level management for implementation. To avoid such problems either the lower level can be involved in the initial negotiations of the collaborative arrangements or the top level can be made responsible for successful implementation of the agreement they negotiate. In our view, however, the above facts do not undermine our argument that the ways in which top-level managers and lower-level managers are involved in the process of interorganizational collaboration are distinct. The different nature of responsibility born by individuals at both levels and the distinct character of decisions they are required to take are what constitutes the basis for the delineation of strategic and operational level trust.

2.4. Empirical considerations

In their recent article Currall and Inkpen (2002) raise the issue of misspecification between the level of theory and the level of measurement in interorganizational trust research. According to Currall and Inkpen (2002: 481) “the validity of hypothesis tests is diminished, when person-level measures of trust are the basis of statements made about trust at the firm level (i.e., “trust by a firm” or “inter-firm trust”).” The misspecification, thus, has to do with the attribution of an individual attitude (i.e., of a key informant) to the firm. As a solution to the problem of misspecification, Currall & Inkpen propose alternative, more accurate empirical approaches to measuring trust at levels higher than individual. For example, for the organization-level trust, they suggest the investigation of agreements, corporate statements, and all the other actual actions of the organization that can be characterized as trusting

(Currall & Inkpen, 2002), rather than relying on responses of a single informant, as is the case in the majority of studies.

We only partly recognize the validity of the problem as defined by Currall and Inkpen (2002). There are two assumptions they implicitly make—one conceptual and one empirical—which when lifted undermine the validity of their conclusions. First, in assessing the presence of misspecification Currall and Inkpen appear to use the yardstick of their own conceptualization of organizational-level trust. In other words, they evaluate the empirical tools used in other studies by comparing them with the conceptualization of organizational trust they themselves propose rather than with the one proposed by the authors of the studies. We believe that in at least a few of the cases the misspecification is only apparent, and disappears when the definition adopted by the original authors is considered.

For example, with respect to their own earlier study of organizational trust (Inkpen and Currall, 1997), the authors contend misalignment based on the fact that data was sourced from a single informant. Such a conclusion may be correct if trust is attributed to the organization as a whole, i.e., as in “firm’s decision to engage in trusting actions toward the other firm” (Currall & Inkpen, 2002). However, the definition of organizational trust that the authors adopted in 1997 was as follows: “trust in the partner firm in terms of an [international joint venture] manager’s perception of the perceived trustworthiness of the partner firm” (Inkpen & Currall, 1997: 312). From that perspective, the use of a single respondent appears very much justified; the empirical treatment of trust is fully in line with the way it was conceptualized. Another similar example is the study by Nooteboom et al. (1997: 312) who treated trust between organizations as “relational risk with respect to a partner organization perceived by an individual who enacts the relation with the partner organization”. Again, the use of a single respondent appears to be fully justified when such a conceptualization is adopted. In sum, by benchmarking different studies against their own definition of organizational trust, Currall and Inkpen (2002) find a number of them to be misaligned. Yet this misspecification may be a result not so much of empirical shortcomings of the extant research (i.e., poor data) as of the conceptualization of organizational trust Currall and Inkpen adopt. In sum, we believe that the problem of misalignment that Currall and Inkpen (2002) posit is a conceptual rather than an empirical issue.

Second, even if the conceptualization of trust as held by an organization (or as an attitude shared by all members of an organization) is adopted, we do not believe that all studies that rely on individual informants for data on inter-firm trust are by definition misaligned. The conclusions of Currall and Inkpen (2002) concerning the misalignment are

based on the (empirical) assumption that an individual cannot be a source of data on group or organization level phenomena. This seems to be contrary to existing empirical findings. Geringer & Hebert, (1991), for example, demonstrate that JV managers are a reliable source of information concerning joint venture performance and conclude that using individual respondents as sources of data on JV's is justified. Also, Zaheer et al. (2002) find that individuals distinguish without problem between trust towards an individual and trust towards an organization. These studies suggest that top managers, who usually respond to questionnaires, are quite capable of reliably evaluating firm-level phenomena.

We believe that the level of measurement does not necessarily have to be identical to the level at which data is sourced. An individual respondent can be a source of information that concerns the organization as a whole. Just as one can obtain a measurement of individual level phenomenon through direct observation or an interview, in the same way one can obtain organization level measurement by observation or interview. Obviously, it is not possible to interview an organization as such, yet it is possible to interview its well-informed members. Such data do not necessarily need to cause misalignment (assuming the organization is the level of theory) if the respondent is asked about matters that concern the organization as a whole.

That raises the issue of such data being reliable and representative for the organization. Yet, if the questions asked to the respondent deal with objective facts concerning organization's behavior (e.g., number of licenses provided by the organization to the partner, the presence of conflict resolution provisions in the contract, etc) then the use of an individual respondent seems more than justified. Data sourced from an individual would naturally be less reliable if it concerned the attitudes of the organizational members. However, Currall and Inkpen (2002), very unequivocally call for behavioral treatment of trust, thus their criticism of using an individual as a source of organization-level data seems to be ungrounded.

Additionally, it is worth pointing out that it is usually also an individual researcher who, through observation, collects organization-level data. Such researcher may be just as subjective in gathering information as an organizational member providing it. We do not deny that there are challenges involved in such a cross-level approach, i.e., obtaining organization-level data from an individual. We sympathize with Currall & Inkpen's (2002: 481) concerns that "reliance on key informants can give rise to problems of selection and perceptual agreement" and that "informants' personalities, roles and experiences often result in perceptual disagreement". However, the above concerns do not change the fact that the level

of measurement and the source from which data is obtained are not one and the same. In sum, Currall and Inkpen's conclusion concerning the presence of misspecification is, in some sense, itself marked by a misalignment; a misalignment between the level of measurement and the level of sourcing data.

Since we only partly recognize the problem as defined by Currall and Inkpen we consequently also do not fully recognize the adequacy of the solution they propose. Calling for better quality data is a solution that not only is unlikely to solve the problem of misalignment (as we argued above) but also is very difficult to implement. In particular, gathering group and organization-level data through direct observation by the researcher is hardly feasible in a large-scale study. Ruling out individual respondents as a source of data on organization-level phenomena does not appear to be a very pragmatic solution. It would seem much more fruitful to make suggestions as to how to minimize the individual bias such tools may potentially introduce.

2.4.1. An alternative approach to measuring interorganizational trust at two levels

In the spirit of suggesting ways to improve the objectivity of multi-level measurement of trust in a situation where one respondent per organization is available, we subsequently present an alternative approach to gauging trust at the two levels in interorganizational context. In particular, we focus on a method of empirically measuring the level of strategic- and operational-level trust as was defined above. We have argued earlier that trust between boundary spanners at the top management level affects interorganizational collaboration differently than trust between operational level boundary spanners. We further argued that the two kinds of trust are different in character. In particular, according to Doney & Cannon (1997) different antecedents and sources of trust are likely to be relevant for different levels of interorganizational trust. Thus, if unique sources of trust at both strategic- and operational-level can be identified and validated, they could be used in empirical research as indicators of the level of interorganizational trust at the two levels. Such approach appears promising from the point of view of overcoming the limitation that the availability of a single respondent imposes on the measurement of trust at two levels. This is because such a single informant can assess the presence of sources of trust much more objectively than attitudes held by different organizational members. In the latter case, the risk of confounding the trust variable with other variables of interest (e.g., learning, performance etc.) is high.

Extant literature on trust posits that the overall attitude of a trustor towards a trustee is a product of a number of conditions. Although some previous studies on the effect of trust and

learning between organizations considered the different sources interpartner trust can stem from, the fact that some sources may be more relevant for the development of trust at one level or the other has been largely ignored. Zucker (1986) identified four modes of trust production³; experience-based (i.e., process-based obtained first-hand), reputation-based (i.e., process-based obtained second-hand), characteristic-based and institution-based. Other authors (e.g., Rousseau, Sitkin, Burt, & Camerer, 1998; Doney & Cannon, 1997) have subsequently elaborated on a fifth mechanism, i.e., calculation. We believe that new insights can be derived from applying the trust production modes approach to analyzing the effect of multilevel trust on interorganizational learning, as different mechanisms of trust formation are likely to be relevant at different levels (cf. Doney & Cannon, 1997). In specific, we argue that different modes of trust production are of unequal importance for the operational- and strategic-level trust in an alliance. We do not wish to suggest that the types of trust we identify as relevant for each level are exclusive of other types. Rather the argument is intended to reflect our belief in the *dominating role* of the identified mechanisms of trust formation for either the operational or strategic-level of analysis.

Mayer, Davis, & Schoorman (1995) identified ability, benevolence and integrity as the three qualities of the partner which if discovered are likely to produce trust. Similarly, Nooteboom et al. (1997) distinguished between trust in trustee's competence and trust in trustee's intentions. The focus of our discussion, however, is *not* on the qualities of a trustee on which trust is built but rather on mechanisms through which a trustor comes to trust the trustee, i.e., modes of trust production (cf. Zucker, 1986). These in essence are two different dimensions of trust formation process as the trustor can come to trust the trustee's competence, for example, through various mechanisms, e.g., first-hand experience, reputation or institutions. Of course, some modes of trust production are likely to be more conducive to the built-up of trust based on a given quality of a trustee, be it competence, benevolence or integrity. However, consideration of the qualities of the trustee on which such trust is built is outside the scope of our analysis. Accordingly, in subsequent discussion the term 'sources of trust' will be used to refer to indices employed by individuals and organizations in the process of forming trust (Zucker, 1986), and not qualities of the trustee. Thus, for example, brand name established by an organization would be a source related to reputation-based mechanism of trust formation while educational background would be a source related to characteristic-based mode of trust formation (Zucker, 1986).

³ Zucker (1986) distinguished in fact three mechanisms, with experience-based and reputation-based trust jointly constituting process-based trust. We choose to focus on each of the sub-types separately.

2.4.2. Modes of trust production at the operational level

Individuals working closely together towards accomplishment of certain tasks constitute communities of practice (Fox, 2000). Since, operational-level boundary spanners of alliance partners are involved in the joint effectuation of the day-to-day alliance tasks, crosscutting communities of practice are likely to emerge. An alliance, therefore, can be viewed as a community of communities of practice (cf. Fox, 2000; Brown & Deguid, 1999). Communities of practice are characterized by high intensity of personal interactions among the members who engage in joint execution of tasks. Zucker (1986: 62) argues that extensive interaction of a small number of “individuals involved in a limited set of exchanges” over long periods of time results in the development of trust between them. In the process of working closely together members of communities of practice can therefore be expected to develop trust—experience-based trust.

Experience-based trust between parties is based on repeated, past interactions (Rousseau et al., 1998; Lewicki & Bunker, 1996), assuming they were accompanied by successful fulfillment of mutual expectations (Rousseau et al., 1998), thus on the positive development of a relationship (Nooteboom et al., 1997). This corresponds to the concept of ‘habitualization’, which describes bonds that develop between parties in the process of their mutual interactions and result in familiarity, mutual understanding and shared habits (Nooteboom et al., 1997). Formation of experience-based trust is a slow, time-consuming (Aulakh et al., 1996; Madhok, 1995) and cumulative process (Lewicki & Bunker, 1994). In its deepest form, trust based on experience takes the form of identification (Rousseau et al., 1998), where parties learn to recognize and understand each other’s desires, preferences and intentions (Lewicki & Bunker; 1996). We conclude therefore that through processes of repeated, close interactions within crosscutting communities of practice boundary spanners develop trusting relationships. The level of experience at the operational level can be proxied with measures of the duration, frequency, informality and density of boundary-spanner contacts, or off-the-job informal contacts.

Besides a community of practice, trust between individuals can come about in the context of yet another kind of network. People who engage in similar practice form a *network* of practice even though they may never come to know each other personally or work on common tasks (Brown & Deguid, 1999). The similarity of tasks that the members of a network of practice have in common can be a source of shared identity of its members (Brown & Deguid, 1999). One can think for instance of networks of professionals, like engineers or accountants. According to social identity theory, shared identity fosters the

development of trust between individuals. The perceived similarity of the members of a network of practice can thus become the basis for the formation of characteristic-based trust (cf. Zucker, 1986). Additionally, Plaskoff (2003) stresses that development of in-group identification is fostered by the alignment of cultural elements, as well as common reference points (e.g., experiences, frameworks). This would suggest that similarity would not only directly result in more trust but also stimulate the boundary spanners' propensity to interact and thus indirectly foster experience-based trust.

Zucker (1986) defines characteristic-based trust as trust based on certain qualities of a person (e.g., family background or ethnicity). Similarity (for example in profession) is the basis for categorizing oneself and others into social groups (Williams, 2000). According to social identity theory individuals use groups to which they belong (i.e., social aggregates) to construct their own identity and accordingly categorize others as in-group or out-group members (Kane, Argote & Levine, 2002). At the same time, individuals' identities (i.e., social groups with which they identify) determine the extent to which they perceive each other to be similar. When people identify with a given social group, it allows them to "surface certain cognitive assumptions about themselves in relation to others" (Child & Rodrigues, 2003: 537) as well as "expectations about the behaviors and intentions of the members of a collectivity" (McEvelly, Perrone, & Zaheer, 2003: 98). In particular, social similarity, in terms of values and beliefs, as well as personalities, demographics, educational and professional backgrounds, leads to the assumption that common background expectations exist and opportunistic behavior is unlikely (Zucker, 1986). As a result of social categorization and in-group bias processes, in-group members therefore tend to be evaluated more positively than out-group members, in terms of their cooperativeness, commitment (McEvelly et al., 2003) as well as honesty, loyalty, benevolence, and trustworthiness (Kane et al., 2002; Doney & Cannon, 1997). These positive attributions stemming from social similarity are likely to produce trust between individuals (Brewer, 1981; Burt, 1992; Porter, 1997; McGuire, 1968).

In the organizational context, similarity of occupational identities of the gatekeepers (based on shared practice, i.e., networks of practice) is likely to be of primary importance as it can "serve as a bridge" between the partner organizations in an alliance (Child & Rodriguez, 2003: 544). Thus linking of partnering organizations along the lines of networks of practice can be considered a condition conducive to operational-level trust between their boundary spanners, due to the social identity they share as members of the same profession. In terms of operationalization, professional and education background characteristics of the boundary spanners can easily be measured and may be a preferable proxy compared to personality traits

or demographic features, because of their higher relevance in formation of occupational identities. In summary, we expect experience and similarity to be the most relevant sources of operational-level trust.

2.4.3. Modes of trust production at the strategic level

The role of strategic-level managers regarding an alliance is likely to be very different from that of operational-level employees (Andrews, 1971). In their role of strategy makers, top executives are responsible for initiating and directing the strategic actions of their organizations. Therefore it is in the alliance formation stage that their involvement can be expected to be greatest, while the subsequent, every-day functioning of the alliance (with the exception of some extraordinary circumstances) would largely be left to the responsibility of lower level managers. Having set up an alliance, top managers are likely to move on to other pressing issues of strategic nature, some of which may involve formation of new alliances. What the above implies is that compared to non-executive boundary spanners strategic-level managers are likely to have a much higher exposure to a variety of alliances while being much less involved in the actual effectuation of any of them. They thus can be expected to treat each alliance much more instrumentally than would be the case for operational-level boundary spanners. Additionally, since the decisions surrounding the formation of an alliance (e.g., partner choice, resource contributions or collaborative arrangements) are of crucial importance for the organizations they represent, top-managers can be expected to arrive at them by way of relatively conscious rational deliberations and strategic considerations (cf. Burgelman, 1983).

In identifying sources of trust relevant at the strategic level, therefore, we turn to the theoretical paradigm of strategic choice, which focuses on motives like profit and growth as drivers of the strategic choices of top executives (Barringer & Harrison, 2000). Clearly, social factors such as managerial hubris, personal ambition and reputation (rather than organizational), rivalry etc. are likely to be at work here as well.⁴ However, considering the importance of the decisions with respect to the alliance formation, it can be expected that rational and strategic considerations would prevail. We deem the social factors mentioned above to be a distorting factor rather than the dominant and desirable mode of deciding on the shape of collaborative arrangements in an alliance. Therefore, although undeniably some social factors are likely to be of importance at the strategic level, for the sake of conceptual

⁴ We thank Bart Nooteboom for drawing our attention to this fact.

clarity, we focus on the differences between the levels with respect to the nature of decisions taken at each of them. In light of the above discussion, we expect strategic considerations to dominate at the strategic level and trust founded on calculation, institutional safeguards, reputation and the track record of expectations fulfillment to be most relevant.

The essence of calculation-based trust lies in the conviction that the partner will meet his obligations for fear of the consequences of not doing so (Lewicki & Bunker, 1994). Calculation considers the impending punishments, but also the loss of potential rewards from breaching trust. Organizations that engage in a continuous collaboration have economic incentives to behave in a trustworthy manner as seeking short-term benefits may endanger the possibility of future, repeated transactions (Granovetter, 1985; Ring & Van de Ven, 1992). Calculated trust therefore is based on the hostages held mutually by the partners (cf. Madhok, 1995). Thus high level and/or severity of potential consequences from terminating collaboration or placing the quality of the relationship at risk, is likely to result in trustworthy behavior of alliance partners. Such alignment of partners' incentives, in turn, is likely to find expression in the structural arrangements that assure their continued successful collaboration.

Calculation is a more relevant source of trust at the strategic than at the operational level, because, as we argued earlier, decision behavior at the strategic level is of less social and more instrumental nature. It seems plausible to expect that the level of trust held by organizational decision makers towards a partner would be correlated with the extent to which they perceive the structure of the incentives in the alliance to be conducive to parties' trustworthy behavior (i.e., abstention from opportunism). In the context of empirical research, incentive alignment may be proxied with the stakes that the partners have in preserving the collaboration. Where such stakes are perceived to be high, it can be expected that partners will abstain from opportunistic behavior that could endanger the quality of their relationship (Sarkar, Cavusgil, & Evirgen, 1997).

Institution-based trust is grounded in values and standards of conduct that guide behavior as well as formal structures that enable and constrain it (Nooteboom, 2002). Institutions support risk taking and trusting behavior (Hagen & Choe, 1998) of both individuals and organizations (Rousseau et al., 1998). Institutionalization at the country-level encompasses shared values and norms of conduct, which constitute part of national culture (Nooteboom, 2002) as well as the framework of national laws and regulations (Kostova, 1999). Both norms and values as well as legislative systems are likely to vary significantly across cultures or countries and thus have different effect on the behavior of the entities and individuals whose actions they guide and regulate (cf. Fukuyama, 1995). Additionally,

institutions that issue public statements concerning the qualifications and reliability of entities (for example professional certifications) as well as other bureaucratic structures are likely to serve as formal, social, trust-evoking structures (Parkhe, 1998b; Zucker 1986).

The stronger the institutions, the easier it will be for business partners to rely on trust, since those institutions safeguard against (some of) the potential for opportunistic behavior on the part of the partners (Mudambi & Navarra, 2002). Therefore, the strength of institutionalization of the environment in which the alliance is embedded should positively influence the level of strategic-level trust between partners for two reasons. First, it would increase the probability of the partner's behavior in conformance to a cultural norm of value. Second, it would mitigate the fear of partner opportunism. International differences in trust-inducing institutionalization may be operationalized with published indices of the judicial system effectiveness, the bureaucratic process reliability, etc. (Gwartney, Lawson & Block, 1996).

The formal institutional structures are related to legally or socially established guidelines, which result in negative consequences for parties violating trust (Hagen & Choe, 1998). Trust based on calculation, on the other hand, is grounded in the partners' belief that the other party will not defect (behave opportunistically) considering the impending sanctions (Gulati, 1995). From that perspective, institution-based trust (its structural part) and calculation-based trust are both grounded in deterrence, since both are a source of potential sanctions for a defecting partner. The difference between the two is that in case of the former the sanctions are relationship-specific, while in the latter they are general and hold across all relationships, independent of the partner. Institutional trust thus "generalizes beyond a given transaction and beyond specific sets of exchange partners" (Zucker, 1986:64).

The third source of trust that we expect to be of relevance at the strategic level is reputation, which allows for confident expectations about the other's behavior based on third-party experiences. Reputation may be equated with the "record of cumulative past behaviors" (Parkhe, 1998a: 233) or "a symbolic representation of past exchange history" (Zucker, 1986: 62) and thus be positively related to trust (Ireland, Hitt, & Vaidynath, 2002). The network of relationships in which firms are embedded is a rich source of information concerning the competencies and reliability of potential partners (Gulati & Gargiulo, 1999). These networks are what the decision makers rely on in deciding who to potentially collaborate with (cf. Dollinger, Golden & Saxton, 1997; Gulati, 1995) and how to structure the collaboration.

Finally, similarly to the operational level, we expect experience, grounded in the partners' past exchanges to be a source of trust at the strategic-level. Trust based on knowing

the partner emerges from their past interactions by allowing them to get to know each other (Gulati, 1995). The better the past expectations have been met the greater the confidence firm's decision makers will have that a partner will follow through on its current and future promises (Parkhe, 1993). The better the collaborating organizations know each other, therefore, and the more dependable and reliable the partners have proven themselves to be (Rousseau et al., 1998; Ireland et al., 2002), the higher the mutual trust held by their executive managers will be. In an empirical investigation, experience-based trust towards a particular partner can be gauged by the duration of the current collaboration.

2.5. Empirical illustration

In the final section of this chapter, we present an empirical illustration of the approach to conceptualizing trust at two levels in interorganizational collaboration as well as the way of tapping it in empirical research. We undertake to demonstrate the relevance of the different sources of trust (independent variables) that we identified for the operational and strategic level of analysis. As the measure of trust between the partners (the dependent variable) we adopt knowledge sharing—a dimension of trust commonly referred to in the literature. We considered this to be a preliminary step towards validating the relevance of the different sources of trust for the two levels that may allow for their future use as indicators of the presence of trust at these two levels.

2.5.1. Sample and model

A number of different dimensions of trust have been identified in the literature (see Currall & Judge, 1995; Currall & Inkpen, 2002, Smith & Barclay, 1997). Open communication and information exchange are among those considered “central to ongoing exchange relationships” (Smith & Barclay, 1997: 6). Currall & Judge (1995) argue that boundary role persons (BRPs) manifest trust towards each other “by disclosing important yet potentially self-damaging information, being accurate when communicating, and not filtering or distorting information” (Currall & Judge, 1995). Open communication finds reflection in “the formal and informal sharing of timely information between partners and is concerned with the mutual disclosure of plans, programs, expectations, goals, motives, and evaluation criteria” (Smith and Barclay, 1997: 6) Since the different dimensions of trust are a

manifestation of the trustor's decision to allow the trustee to determine its fate (Currall & Inkpen, 2002), open communication between alliance partners, finding reflection in the extent to which the partners share knowledge with each other (Currall and Inkpen, 2002), can be considered to be a good proxy for the level of their mutual trust.

We illustrate this approach to conceptualizing and measuring trust at two levels in interorganizational relationships on a sample of 149 joint ventures formed in Poland between a local and a foreign partner. Joint ventures constitute a particularly appropriate context for studying inter-partner knowledge transfers. The high level of intimacy and intensity of interactions they allow makes them especially suitable for transferring organizationally embedded knowledge, highly ambiguous and tacit in nature (Lane & Lubatkin, 1998). Additionally, since the market for tacit knowledge is likely to fail, as its value cannot be reliably evaluated before its transfer (Hennart, 1988), compared to contract-based agreements equity joint ventures, should be superior conduits for the transfer of difficult to grasp, company-specific, experiential knowledge (Gulati, 1995; Kogut, 1988; Mowery, Oxley & Silverman, 1996).

The data was gathered by way of a survey, which covered Poland-based JV organizations and was carried out in the fall of 2002 and spring of 2003. The total response rate reached the level of 18,6% and is deemed to be of an acceptable level considering the standards for a transition economy⁵. The questionnaire was developed based on extensive literature review in the area of interorganizational learning and inter-partner trust as well as on an exploratory study which involved interviews with top managers of Polish-foreign JVs. Questions were formulated with the aim to gauge the knowledge transfer between partners—both the actual sharing between operational boundary spanners and the overall extent of inter-partner learning—as well as the different sources of trust which we argued to be relevant for strategic and operational level respectively.

We argued that trust at the two levels has different sources. To validate this claim, we need measures to tap the level of trust at each of the two levels separately. So far we have only posited that knowledge transfer between partners can be a proxy for their mutual trust. Below we identify dimensions of interorganizational knowledge transfer that, we believe, can be treated as manifestations of trust at each of the two levels. To do that we rest on the assumption that boundary spanners at the top management level and those at the operational level play different roles in interorganizational learning.

⁵ Low response rates stem partly from lack of tradition to collaborate with academia and partly from a large number of questionnaires received by most companies resulting in their reluctance to participate.

As was argued above, top management, by means of administrative tools (Bower, 1986) orchestrates the formal structure, systems and the management process of an organization (Prahalad & Bettis, 1986). This involves in particular, shaping of structures, systems and interactions, geared towards managing organization's knowledge and skills (i.e. knowledge management) (Tiemessen, Lane, Crossan, & Inkpen, 1996). Therefore, in the interorganizational context, organizational decision makers can be assumed to determine the structure, systems and the management process for navigating the knowledge processes. Lower level boundary spanners in contrast do not have such power. They are, however, involved in the communities of practice that cut across the organizational boundaries of the JV partners. The execution of common tasks provides those individuals with the intensity, intimacy and continuity of face-to-face contacts necessary for the successful transfer of tacit knowledge between alliance partners (Inkpen & Dinur, 1998; Lane & Lubatkin, 1998; Kale, Singh, & Perlmutter, 2000). Both the conditions mentioned above are necessary for achieving knowledge transfer between alliance partners. Therefore, the collaborative knowledge arrangements set by the executive managers and the sharing between the lower-level boundary spanners can be considered to be proxies of trust at the strategic and operational levels, respectively.

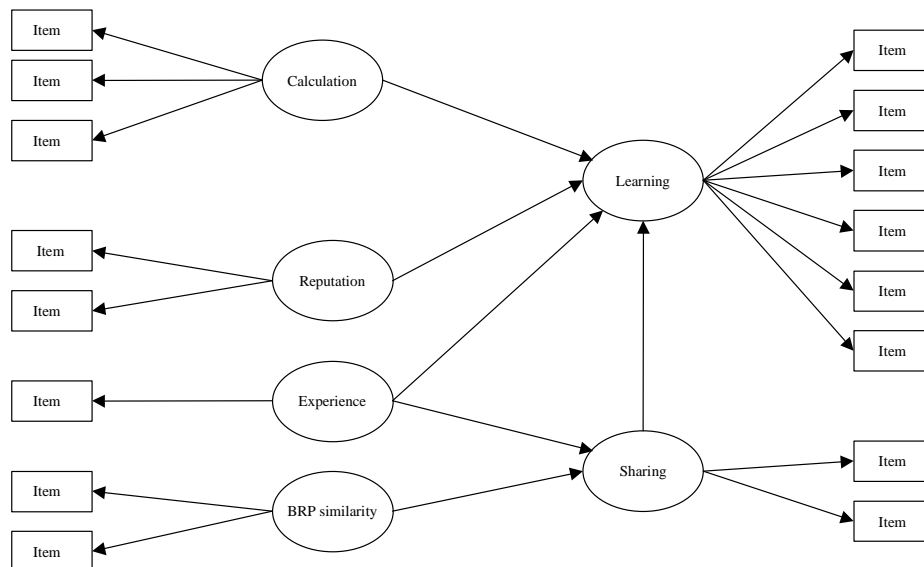
In light of the above, we operationalize trust at operational level as the extent of knowledge sharing between organizational members. Tackling strategic level trust is less straightforward; because of multidimensionality of the collaborative arrangements construct (structure, systems and process), it is impossible to design a homogenous dependent variable. Therefore, resting on the assumption that the overall interorganizational knowledge flow (learning) between organizations is a sum of the collaborative arrangements and the sharing of knowledge between their boundary spanners, we take the interorganizational learning as a proxy for strategic level trust and control for the extent of knowledge sharing. Thus, after factoring out the extent of sharing from the overall learning variable, we believe we are able to capture the effect of collaborative arrangements.

It is important to stress that our measure of learning outcome (see below for exact definition of items), besides transfer of existing knowledge may also be partly capturing the acquisition of knowledge newly created in the alliance. If this is indeed the case, the measure could be argued to misrepresent the intended construct and undermine the validity of our findings. There are two reasons why we believe the context in which the study was carried out (i.e., a transition economy) mitigates these concerns. First, the gap between the local partner and the foreign partner in terms of their knowledge bases is likely to be vast; while on one

hand the Polish partner's knowledge with respect to operating in free market circumstances is likely to be very limited, on the other hand the foreign partner's knowledge of the Polish market can also be expected to be very limited. Considering that creation of knowledge in an alliance requires certain proximity of the partners' knowledge bases, the increases in efficiency and the scope of changes reported by the local partner can plausibly be attributed to knowledge acquisition from the foreign partner rather than to joint knowledge creation. Related to the above, partners to a Polish-foreign joint venture would likely contribute very different skills to the collaboration. While the foreign partner can be expected to contribute superior technological or managerial knowledge, the Polish partner would be a rich source of local market knowledge. This would further limit the potential scope for knowledge creation.

The hypothesized model takes the form depicted in Figure 2.1. Operational level trust, proxied by the extent of knowledge sharing between boundary spanners, has its source in similarity and experience of the boundary spanning individuals. Strategic-level trust operationalized with collaborative arrangements (i.e., amount of inter-partner learning while controlling for the boundary spanner sharing) is expected to be based on calculation, reputation and experience. Institutionalization of the environment, which we argued to be the fourth source of strategic-level trust, is not included in the model. Our data do not allow for testing such a hypothesis, since all the JVs in our sample are based in one institutional environment (i.e., Poland).

Figure 2.1. Structural Equations Model



2.5.2. Variables, data diagnostics and the method

Operationalization of the constructs posed a serious challenge due to their intangible nature. This was especially the case for learning outcome from collaboration, as it is debatable whether this is an observable phenomenon, that is, whether acquiring new knowledge always finds reflection in organizational change. For the sake of the empirical investigation, we assume that every time learning takes place it does find reflection in improved actions and modified routines of the organization (Fiol & Lyles, 1985; Levitt & March, 1996). This is a conservative measure of the amount of learning taking place in the JV. Where possible, an attempt was made to include both objective proxies and perceptual measures.

We measured learning outcome with six items, addressing the areas in which knowledge was acquired, the average scope of that acquisition, improvements that took place in the company as a result of the collaboration, their scope, as well as the increases in efficiency due to the learning and application of the knowledge acquired in the firm's operations. Knowledge sharing was captured by a couple of subjective measures related to the sharing of knowledge between the foreign partner's employees and those of the JV (see Appendix 1 for exact wording of the items).

As for independent variables, three items were used to gauge calculation. The items tapped such aspects of the cooperation as the potential severity of consequences of the foreign partner withdrawal from the collaboration, the dependence of the Polish JV's success on the continued collaboration with the foreign partner, as well as the reputation consequences in case of conflictual termination of the cooperation. The reputation was gauged by a couple of items related to the extent of partner research prior to engaging in the collaboration and the impact the partner's reputation on the decision to engage in the collaboration. Boundary spanner similarity was captured with two items tapping the likeness of their educational backgrounds and professional experience. Finally, the grounds of experience-based trust have been operationalized in the same manner at both levels of analysis as the experience between organizations and the organizational members constituting them are likely to be the same at best and impossible to disentangle empirically at worst. The variable is captured by the duration of the alliance.

Table 2.3 (see below) presents the descriptive statistics of the items. With the exception of 3, all the 16 items were measured on 7-point Likert type scales. The three exceptions are items capturing the number of areas in which knowledge was acquired and change was introduced—count measures with ranges from 0 to 9 and from 0 to 7, respectively—as well as item capturing JV duration, which ranged from 0 (set up in 2002) to

19 years. Although no strict levels of skewness and kurtosis pointing to departure from normality exist, skewness in the range 2.00 to 3.00 and kurtosis in the range from 7.00 to 21.00, are considered to be an indication of moderate nonnormality. Skewness and kurtosis of above 3.00 and 21.00 respectively are an indication of extreme nonnormality (Byrne, 1998). Considering these criteria and the fact that the average skewness and kurtosis in our sample are -0.17 and -0.86 respectively, we can likely consider the scores below as approximating normality.

Table 2.3. Item descriptive statistics.

	Mean	St. Dev.	Skewness	p-value	Kurtosis	p-value
Areas where knowledge was acquired	3.71	2.30	0.41	0.04	-0.66	0.03
Average knowledge acquisition in the areas	4.07	1.68	-0.12	0.56	-0.70	0.02
Areas in which improvements were made	2.73	2.10	0.52	0.01	-0.70	0.02
Average scope of improvements made	3.76	1.53	-0.20	0.33	-0.74	0.01
Knowledge application	4.30	2.04	-0.21	0.30	-1.27	0.00
Efficiency improvement	4.18	1.91	-0.15	0.46	-1.17	0.00
Foreign partner sharing	3.56	2.04	0.31	0.12	-1.19	0.00
JV sharing	3.65	1.99	0.28	0.16	-1.10	0.00
Partner research	3.47	1.97	0.21	0.31	-1.21	0.00
Impact of reputation	4.64	2.23	-0.54	0.01	-1.20	0.00
Withdrawal consequences	5.30	1.73	-0.80	0.00	-0.09	0.98
Success dependence	4.60	2.00	-0.45	0.02	-1.07	0.00
Negative reputation effect	4.31	2.28	-0.19	0.33	-1.52	0.00
Similarity of educational backgrounds	5.36	1.64	-1.03	0.00	0.30	0.34
Similarity of professional experience	4.90	1.72	-0.60	0.00	-0.58	0.08
JV duration	9.26	2.86	-0.35	0.08	0.91	0.45

We tested for the possible non-response bias by evaluating the differences in the means of the 16 items (15 factor items and JV age) between the early and the late respondents (Armstrong & Overton, 1977). The early respondents included the first 60% batch of returned questionnaires, while the late respondents the remaining 40% of responses. Such categorization approximately reflected the actual inflow of the questionnaires (cf. Lages & Lages, 2003). With the exception of one item, no significant differences between the early and late respondents were found. The two groups did significantly differ on one of the items constituting part of the calculation construct (i.e., perceived negative effect of conflictual termination of the collaboration for the JV's reputation). The average for early respondents equaled 3.91 while for the late respondents 4.90, with the item being measured on a 7-point Likert scale. We do not see this as a strong evidence of non-response bias nor do we perceive this to pose any serious threat to the reliability of our results.

The instrument (i.e., questionnaire) used in this study could have created a common method variance. This would be particularly likely have the respondents known the theoretical framework used in designing the tool (Lages & Lages, 2003). This was, however, not the

case. Additionally the items were not presented to the respondents in any way that would suggest the purpose of the study. To further check for a possible common method bias, we have performed a principal component analysis on the 15 items that make up our constructs. Four factors with an eigenvalue of more than 1 were identified, with the first factor accounting for 41% of the total variance. Based on the above, we conclude that common method bias is unlikely present in our data.

To increase the reliability of the measures and limit the measurement error, multi-item scales were used to assess the constructs (Churchil, 1979). To evaluate the reliability of the measures we used Confirmatory Factor Analysis, coefficient alpha, and $\rho_{vc(\eta)}$ indicators. The confirmatory factor analysis (CFA) was carried out with the maximum likelihood estimation in LISREL 8.3 (Jöreskog and Sörbom, 1993). Each item was restricted to load on its specified construct, with the 5 constructs being allowed to correlate freely. The chi-squared for this model was not significant – chi-squared=94.00, df=79, p-value=0.12. The fit indices – the Absolute Fit Indices GFI (0.92) and AGFI (0.88) as well as the Comparative Fit Index (CFI=0.98) and the Incremental Fit Index (IFI=0.98) are all of high level. Additionally, the Root Mean Square Error of Approximation (RMSEA) was assessed as it incorporates a penalty for lack of parsimony. It took on a value of 0.036. All of the above point to a very good fit of the model with the sample observations. Coefficient alpha for Learning (six items) equaled 0.87, for Sharing 0.86, for Calculation 0.82, for Reputation 0.72 and for boundary spanner Similarity 0.77. A final measure of reliability we used were the $\rho_{vc(\eta)}$ indicators. Value of more than 0.50 indicates that the variance captured by each construct is larger than the variance due to measurement error, which supports the validity of the constructs as well as the individual indicators that constitute them (Fornell & Larcker, 1981). For all five constructs this requirement was met (see Table 2.4).

Table 2.4. Reliability of the constructs

Construct	$\alpha / \rho_{vc(\eta)}$	Standardized item loading	t-value
Learning	0.87 / 0.54		
Areas in which knowledge was acquired		0.74	10.08
Average knowledge acquisition in the areas		0.73	9.84
Areas in which improvements were made		0.76	10.44
Average scope of improvements made		0.81	11.51
Knowledge application		0.56	6.96
Efficiency improvement		0.77	10.75
Sharing	0.86 / 0.77		
Foreign partner sharing		0.96	14.01
JV sharing		0.79	10.80
Organization level reputation	0.72 / 0.58		
Partner research		0.68	5.84
Impact of reputation		0.84	6.42
Organization level calculation	0.82 / 0.63		
Withdrawal consequences		0.75	10.12
Success dependence		0.94	13.68
Negative reputation effect		0.66	8.65
BRP similarity	0.77 / 0.63		
Similarity of educational backgrounds		0.82	7.96
Similarity of professional experience		0.77	7.63

Convergent validity of the constructs is established when the confirmatory factor analysis model fits the data and the factor loadings are significant (Abe, Bagozzi & Sadarangani, 1996). The first condition was discussed above and fully supports the claim of convergent validity. As for the second condition, all constructs reveal large and significant standardized loadings and the average loading size equals 0.77. All of this points to a desirable level of convergent reliability (see Table 2.4).

A test for the presence of discriminant validity between constructs involves a comparison of a model in which the constructs are allowed to correlate freely with a model in which the correlations between them are fixed to be 1; the larger the difference in the chi-square of the two models as well as in the GFI and CFI values they yield, the stronger the evidence of discriminant validity (Byrne, 1998). The difference in chi-squared between the two models equaled 259.18 (df=10) and was highly significant. The difference in GFI between the two models equaled 0.16 and 0.24 in CFI. Therefore, both statistical and non-statistical criteria provided evidence of discriminant validity being present between the constructs. Discriminant validity can also be inferred from the correlation estimates between any two constructs (Jöreskog and Sörbom, 1993). As far our constructs are concerned, no correlation included a value of 1 (Anderson and Gerbing, 1988). The highest correlation was 0.73, between learning and sharing. This high value was to be expected however as it captures the relationship between closely related, yet distinct concepts.

Table 2.5. Inter-construct correlations and squared correlations (in brackets)

	Learning	Sharing	Reputation	Calculation	BRP similarity
Learning	1.00				
Sharing	0.73 (0.53)	1.00			
Reputation	0.36 (0.13)	0.25 (0.06)	1.00		
Calculation	0.63 (0.40)	0.57 (0.33)	0.12 (0.01)	1.00	
BRP similarity	0.40 (0.16)	0.41 (0.17)	0.25 (0.06)	0.30 (0.09)	1.00
JV duration	-0.38 (0.14)	-0.52 (0.27)	-0.05 (0.00)	-0.13 (0.02)	-0.16 (0.03)

The discriminant validity of pairs of constructs with highest correlations (i.e., above 0.5) was additionally assessed using the strict Fornell and Larcker (1981). This was accomplished for each set of constructs by comparing two nested confirmatory factor analytical models; one where the constructs were allowed to correlate freely with another where they were perfectly correlated⁶. As was the case for the general discriminant validity, the larger the difference in Chi-squared and practical fit measures (i.e., CFI/GFI) between the models, the stronger the support for evidence of discriminant validity of the traits (Byrne, 1998). Table 2.6 presents the results of this investigation.

Table 2.6. Discriminant validity assessment for pairs of constructs

		Chi-squared	df	CFI	GFI
Learning vs. Sharing	Free	31.04	18	0.98	0.95
	Constrained	89.81	19	0.88	0.87
	Δ	58.77	1	0.10	0.08
Learning vs. Calculation	Free	38.09	25	0.98	0.95
	Constrained	137.33	26	0.84	0.83
	Δ	99.24	1	0.14	0.12
Sharing vs. Calculation	Free	3.86	4	1.00	0.99
	Constrained	78.89	5	0.75	0.82
	Δ	75.03	1	0.25	0.17

The difference in chi-squared between the two models turned out to be strongly significant ($p < 0.001$) in all three cases. Also, in all three cases the difference in the practical model fit was quite substantial. Thus, on the strength of both statistical and nonstatistical criteria, there was sufficient evidence for discriminant validity of the constructs. Finally, the discriminant validity between two constructs (η and ξ) is assured when indicator $\rho_{vc(\eta)} > \gamma^2$ and $\rho_{vc(\xi)} > \gamma^2$, where γ^2 is equal to squared correlation between the two constructs (Fornell & Larcker, 1981). This was the case for all pairs of constructs, which satisfied the requirement of discriminant validity (see Tables 2.4 and 2.5).

⁶ LISREL 8.3 statistical package was used.

All relationships hypothesized in the paper (with the exception of the effect of institutions) and presented in Figure 1 were tested simultaneously by means of a structural equations model (SEM). SEM approach is particularly well suited for analyzing data that involve both observed and latent variables as well as the causal relationships between them. Its major benefit lies in the fact that the causal relationships, represented by a set of structural equations, can be analyzed simultaneously, allowing for the testing of the validity of particular relationships as well as the structural theory underlying the model (Byrne, 1998). Additionally, the SEM approach in contrast to most other multivariate methods (for example multiple regression), by estimating the measurement model, allows the assessment of the measurement error (Byrne, 1998). The SEM techniques are quite demanding in terms of the sample size required to obtain reliable and stable estimates. However, as our hypothesized model is limited in size (see Figure 1) the sample of 149 observations yields itself to analysis by SEM technique.

2.5.3. Results

Table 2.7 presents the item loadings from the estimated model. All standardized loadings have the expected sign and are significant.

Table 2.7. Model item loadings

Construct	Standardized item loading	t-value
Learning		
Areas in which knowledge was acquired	0.74	8.62
Average knowledge acquisition in the areas	0.73	8.46
Areas in which improvements were made	0.76	8.83
Average scope of improvements made	0.81	9.40
Knowledge application	0.56	6.40
Efficiency improvement	0.77	8.98
Sharing		
Foreign partner sharing	0.96	3.70
JV sharing	0.79	3.79
Organization level reputation		
Partner research	0.69	5.87
Impact of reputation	0.83	6.40
Organization level calculation		
Withdrawal consequences	0.75	10.07
Success dependence	0.94	13.79
Negative reputation effect	0.66	8.61
BRP similarity		
Similarity of educational backgrounds	0.41	4.36
Similarity of professional experience	0.38	4.06
Experience		
JV duration	1.00	--

Table 2.8 presents information concerning the quality of the model and the estimated causal paths. The model offers a very good fit with the data; the chi-squared for the model is

insignificant, standardized RMR is lower than 0.05, the absolute fit index, GFI is of acceptable level (0.92), comparative fit indices all demonstrate very good fit.

Table 2.8. Estimated causal paths (standardized) and model fit indicators

	Direct effects	t-value	Indirect effects	t-value	Total effects	t-value
Calculation → Learning	0.33	3.69			0.33	3.69
Reputation → Learning	0.19	2.45			0.19	2.45
JV duration → Learning	-0.03	-0.41	-0.07	-0.95	-0.10	-1.02
JV duration → Sharing	-0.14	-0.95			-0.14	-0.95
BRP similar. → Sharing	0.81	2.59			0.81	2.59
BRP similar. → Learning			0.40	3.87	0.40	3.87
Sharing → Learning	0.49	3.15			0.49	3.15

Chi-squared = 106.39, df=91, p-value=0.13
stand. RMR = 0.047
RMSEA = 0.034
GFI = 0.92,
NFI = 0.90, CFI = 0.98, IFI = 0.98

As for the path estimates, starting with the trust at the two levels, sharing between boundary spanners has a strong positive effect on learning. The effect of boundary spanner similarity on sharing also has the predicted sign and significance. Collaborative arrangements (learning after controlling for sharing) are significantly and positively affected by calculation and reputation of the partners. Experience, as proxied with JV duration, does not appear to have a direct effect on sharing or collaborative arrangements, nor an indirect effect on learning.

Our results reveal that operational level trust is strongly based on boundary spanner similarity, while strategic level trust is grounded in calculation and reputation of the partners. Experience does not seem to affect trust at either of the two levels. This demonstrates that trust at the different levels is indeed based on different sources, which in turn, in lack of more objective measures, can become useful indicators of interorganizational trust at the two levels. The above analysis also reveals how trust at two the levels can be operationalized, by means of one of its dimensions (inter-partner knowledge flows as a proxy for trust).

2.6. Conclusions

There are various ways to define interorganizational trust, depending on whether the trustor and the trustee are conceptualized to be individuals or organizations. However, concepts developed in the context of interpersonal trust (i.e., between two individuals) should not be uncritically used in discussions of interorganizational trust, as this may weaken the strength of the arguments and the reliability of the findings. In order avoid such pitfalls one should be specific with regard to the definition of the concept of interorganizational trust employed in a particular study. We propose a conceptualization of interorganizational trust in which the *trustor* is always an individual, while the *trustee* can be either the partner organization as a whole or its individual members. Furthermore our definition of interorganizational trust emphasizes the importance of trustor's position in his or her own organization. Specifically, we propose to distinguish between operational-level organizational actors and strategic level organizational actors, and suggest that the outcomes and sources of interorganizational trust are likely to be different at these two levels.

This definition of the concept of interorganizational trust also throws a different light on the problem of misspecification of interorganizational trust operationalizations as discussed by Currall and Inkpen (2002). If the trustor is conceptualized to be an individual, data collection at the level of the individual is adequate. Also, well-positioned individual actors can be reliable sources of information concerning interorganizational trust, both at the operational and at the strategic level (as we define them). This is an important issue, for if Currall and Inkpen's (2002) criticism were correct, large-scale survey-based studies of interorganizational trust would pose practically insurmountable data requirements.

Based on our conceptualization of the two levels of interorganizational trust, we further propose an approach to empirically gauging interorganizational trust. It is based on the expectation that partly different sources of trust are at play at these two levels. At the operational level we expect interorganizational trust to be based on experience acquired in interactions with representatives of the partner in question and similarity of occupational identities of the gatekeepers. At the strategic level stakes involved in preserving collaboration, institutions providing safeguards, organizational reputation and experience in collaboration with the partner are argued to be the most important sources of trust. We illustrate the use of this approach with an empirical study of interorganizational learning in joint ventures between Polish and foreign firms. We adopt the extent of knowledge transfer between organizations as

a measure of their mutual trust. Transfer of knowledge depends on open and honest communication, which makes the sending party vulnerable to the partner. We hypothesize positive relationships between the various sources and the identified proxies of trust at the two levels.

A model based on our proposed framework shows excellent fit with the data. Calculation and reputation were found to be significant sources of strategic-level trust, while identification a significant source of operational-level trust. We did not find support for experience being a source of trust at either of the two levels. Since the study was set within one particular institutional environment, we could not test for effects of institutions as a source of trust. Nevertheless, the overall results of our empirical study are encouraging for the suggested approach to conceptualizing and empirically capturing interorganizational trust.

Chapter 3

The role of trust in interorganizational learning

3.1. Background

The growth in the number of strategic alliances since the beginning of the '90s has exceeded 25 percent annually (Inkpen, 1998). Strategic alliances encompass a broad range of contractual forms, from arm's-length contracts to equity joint ventures (Gulati & Gargiulo, 1999). Learning between partners is an important aspect of inter-firm collaboration, because of the opportunities and threats it poses to the cooperating firms (Hamel 1991; Kogut 1988). Concurrently, the notion of trust emerges as an important factor for understanding human nature and exchange relationships of market participants, while the emphasis on opportunism in, for example transaction cost economics (Williamson, 1985), is subjected to much criticism (Ghoshal & Moran, 1996). In specific, trust, as an expectation of the partner's reliability with regard to his obligations, predictability of behavior, and fairness in actions and negotiations while faced with the possibility of behaving opportunistically (cf. Zaheer, McEvily & Perrone, 1998), is argued to be an important variable in interorganizational cooperation (e.g., Gulati, 1995; Madhok, 1995).

A high level of trust is suggested to have a positive effect on knowledge sharing (McEvilly, Perrone, & Zaheer, 2003) in both *intra*-organizational (e.g., Kostova, 1999; Makino & Inkpen, 2003; Tsai & Ghoshal, 1998) and *inter*-organizational context (Geringer, 1988; Dyer & Chu, 2003; Inkpen, 1997; Hedlund, 1994). This is a very specific context where those who frame the strategic intentions of collaborating organizations are often distinct from those who actually implement them at the operational level; a consideration that is quite rarely reflected in research on learning in interorganizational alliances (Salk & Simonin, 2003). A theory of trust and interorganizational learning should therefore address the potential role of

trust at (at least) two levels, as trust between top management boundary spanners would likely affect interorganizational learning differently than trust between operational level boundary spanners. Moreover, trust at these two levels would not only likely differ in its effects, but also in how it is formed. Although some existing literature on trust and learning between organizations considers the different sources interpartner trust can stem from, the fact that some sources may be more relevant for the development of trust at one level or the other has been largely ignored. We use social learning theory to analyze how trust at the two above mentioned levels, with its distinct antecedents and consequences, affects learning between partners.

In light of the above the contribution of this paper is twofold. First, we formulate an *explicit* theoretical argument for why trust between alliance partners would result in superior learning between them. To that end, we move beyond the familiar, yet relatively ambiguous, concept of interorganizational trust and identify two distinct levels of that trust. We illuminate mechanisms through which trust at each of those levels affects knowledge transfer in a unique way. We argue that while operational level trust held by non-executive boundary spanners is conducive to tacit knowledge sharing between them, strategic-level (i.e., held by top managers) trust affects collaborative arrangements that facilitate (or not) the sharing. Second, we argue that distinct antecedents are of importance for the formation of trust at the two levels i.e., trust at the strategic and operational levels is based on different sources. Besides theoretical contribution, this also has practical implications as the level of trust is not necessarily a given, but can be influenced by managers' actions (cf. Parkhe, 1998a,b). Understanding mechanisms through which interpartner trust (at both levels) is formed, therefore, can become a basis for formulating strategies for fostering trust with the aim to achieve a superior learning outcome.

The paper proceeds as follows. First, we explore the issue of inter-partner learning in alliances. Second, we delineate the two levels of trust relevant to interorganizational knowledge transfer. Third, we formulate propositions linking different types of trust to subprocesses of interorganizational learning and present our model. Conclusions follow.

3.2. Learning between alliance partners

Definitions of organizational learning abound. Huber (1996) defines learning very broadly as a process in which an entity, through processing of information, changes the range

of its potential behaviors. He further states, “an organization learns if any of its units acquires knowledge that it recognized as potentially useful to the organization” (Huber, 1996: 126). Organizational learning is based on routine, history-dependent, and oriented towards targets (Levitt & March, 1996) and although it is accomplished through individual organizational members it is much more than the sum of their learning (Fiol & Lyles, 1985). While individual learning deals with personalities, personal beliefs and habits, organizational learning focuses on routines, shared mental maps, norms and values as well as the ecologies of learning (Levitt & March, 1996)

Four phenomena related to organizational learning can be distinguished: knowledge acquisition, information distribution, information interpretation, and organizational memory (Huber, 1996). In this paper we focus on knowledge acquisition. Organizations can gain knowledge from their own experiences (Huber, 1996; Levitt & March, 1996) but also acquire it vicariously, i.e., externally (Von Krogh, Nonaka, and Aben, 2001). We turn our attention to the latter case, to a situation where an organization acquires knowledge from an external source, its alliance partner in specific (Huber, 1996, Levitt & March, 1996), and define that as the process of interorganizational learning.⁷

Interorganizational learning is frequently pointed to as the primary reason for the existence of alliances (Salk & Simonin, 2003; Hamel, 1991; Kogut, 1988; Kogut & Zander, 1992; Lyles, 1988). Others, however, argue that many alliance partners do not have a well-defined learning objective (e.g., Hagedoorn & Sadowski, 1999; Inkpen, 2000). We distance ourselves from that dispute, and assume that whether some alliances are formed for the sole purpose of acquiring knowledge from the partner or not, they do offer opportunities for learning between the partners (cf. Inkpen, 1997). For learning in an interorganizational context to take place three knowledge processes need to be managed: transfer, transformation and harvesting (Tiemessen, Lane, Crossan, & Inkpen, 1996). “Transfer” can be described as “the movement of knowledge between parent firms” be it directly or via an alliance (Tiemessen et al., 1996: 387). “Transformation” involves extending the existing knowledge and creating new knowledge through the alliance’s independent activities. “Harvesting”, finally, encompasses the “flow of the transformed and newly created knowledge” from the alliance back to the parent organizations (Berdrow & Lane, 2003: 17). Although all three

⁷ We make an implicit assumption here that the knowledge acquired by the alliance partners from each other is subsequently distributed, interpreted and stored in their respective organizations.

processes are crucial, in the current paper we focus on knowledge transfer only, and thus the issue of knowledge newly created within an alliance is outside the scope of this work.⁸

Knowledge may be explicit or tacit (Polanyi, 1962). The former is systematic, formalized and transferable without loss of integrity (Kogut & Zander, 1992; Polanyi, 1962). Its transfer across organizational boundaries is thus likely to be for the most part unproblematic. Tacit knowledge in contrast is intuitive and unarticulated, cannot be verbalized, and thus cannot be easily transferred (Martin & Salomon, 2003; Kale, Singh, & Perlmutter, 2000; Polanyi, 1962). Tacit knowledge is the personal judgment that comes in between explicit formulations of knowledge (e.g., rules, formulae) and the actual experience of an individual's senses (Tsoukas, 2003). It finds expression in the skills of an individual, the rules of behavior which s(he) is usually not consciously aware of (Polanyi, 1962). We, therefore, understand tacit knowledge to be distinct from explicit knowledge and non-convertible into the latter (Polanyi, 1962; Nahapiet & Ghoshal, 1998, Cook & Brown, 1999). Examples of tacit knowledge in an interorganizational context include the successful operation of a complex manufacturing system, like in the cooperation between General Motors and Toyota in NUMMI (Doz & Hamel, 1998: 53), or the development of profitable customer relations in a service industry, like in the alliance between the Royal Bank of Scotland and Banco Santander (Child & Faulkner, 1998: 290).

Compared to explicit knowledge, the flows of tacit knowledge necessitate more informal control mechanisms (Makhija & Ganesh, 1997) as well as a higher level of understanding and commitment of the learning parties (Brown & Deguid, 1991). Tacit knowledge transfers are thus best achieved by means of strong ties that assure the necessary intensity of interaction (Dyer & Nobeoka, 2000), quality of communication and "intimacy" between the partners (Szulanski, 1996). Trust between the partners would, therefore, be much more relevant for the transfer of tacit knowledge than for the transfer of explicit knowledge. Additionally, extant literature views alliances as a particularly suitable environment for allowing partners' to mutually access and share each other's knowledge-based, organizationally embedded, i.e., tacit resources (Hall, 1992; Inkpen, 1997; Powell, Kogut, & Smith-Doerr, 1996). For the above two reasons in our further analysis our focus will be on tacit knowledge.

⁸ We consider knowledge transfer between the parents to be a prerequisite for knowledge transformation and/or harvesting to take place i.e., an enabling condition for the two subsequent processes. Additionally, since transformation happens *within* an alliance and harvesting is the responsibility of the parent organizations (Tiemessen et al., 1996), neither depends directly on the level of interorganizational trust between the alliance partners.

Successful transfer of tacit knowledge between alliance partners requires wide-ranging, continuous, face-to-face interactions between individual members of the learning alliance partners (Inkpen & Dinur, 1998; Lane & Lubatkin, 1998; Kale et al., 2000), which can be achieved by means of organized personnel contacts, meetings and transfers of managers (Makhija & Ganesh, 1997). In fact, the greater the tacitness of knowledge the more individuals must be the transfer agents (Inkpen & Dinur, 1998; Hedlund, 1994). Yet, although the cognitive process of learning is individual in nature, the social context in which it takes place is of crucial importance (Brown & Deguid, 1991; Powell et al., 1996).

The basic precept of the social learning theory is that learning is situated in the context of social activity and practice, (Plaskoff, 2003; Elkjaer, 1999, 2003; Fox, 2000) and is accomplished through “observation and emulation of skilled practitioners and socialization” (Easterby-Smith & Arujo, 1999: 5). Learning emerges thus as a product of social interactions of individuals within the context of communities of practice (Fineman, 2003), one of the primary notions of this approach (Fox, 2000). Communities of practice encompass individuals working closely together towards accomplishment of certain tasks (Fox, 2000). An organization therefore can be viewed as a community of communities of practice (Fox, 2000; Brown & Deguid, 1999). Members of communities of practice build shared identity, which allows for the development of social networks along which tacit knowledge can travel efficiently (Brown & Deguid, 1991). The shared practice that members of a community of practice engage in can thus be said to constitute the rail along which tacit knowledge can travel within a community of practice. What the above implies is that transfer of tacit knowledge between the alliance partners necessitates the existence of communities of practice spanning the boundaries of both organizations.

The above discussion also suggests that the extent of possible knowledge flows between organizations is determined by the collaborative arrangements of an alliance, i.e., the enabling conditions for the built-up of crosscutting communities of practice. In other words, collaborative arrangements determine to what extent the intimate, face-to-face, interactions between organizational boundary spanners from the partner organizations, enabling the sharing of tacit knowledge, are possible (Kale et al, 2000; Inkpen & Dinur, 1998; Dyer & Singh, 1998). We conceptualize collaborative knowledge arrangements as any combination of interorganizational structure, systems and management process elements that are put in place and modified in the course of collaboration by the decision makers (cf. Prahalad & Bettis, 1986) with the aim to stimulate or prevent knowledge flows between the organizations they represent. These knowledge management mechanisms, by fostering, blocking or delaying

knowledge flows between partners, are a strong determinant of learning between the partners (Doz, 1996; Tiemessen et al., 1996).

An optimal configuration of the collaborative arrangements assures the necessary flow of information for the successful functioning of the alliance, while simultaneously preventing uncontrolled flow of proprietary knowledge (Ireland, Hitt, & Vaidyanath, 2002). The above also implies that although “most learning takes place at the lower levels of alliance”, where the operating employees “play a vital role in acquiring knowledge”, the learning process must begin at the top (Hamel, Doz, Prahalad, 1989: 138), with top management’s commitment to knowledge acquisition from the partner. Consequently in our further analysis we differentiate between the flow of knowledge along the lines of practice within cross-organizational communities of practice *and* the collaborative knowledge arrangements making this flow possible.

3.3. Inter-partner trust at the operational and strategic level

An issue that is central to our further argument is the distinction between trust at the strategic and operational level in interorganizational relations. Organizations are made up of and managed by individuals (Aulakh, Kotabe & Sahay, 1996) through whom inter-firm relations come into effect (Inkpen & Currall, 1997; Nooteboom, Berger & Noorderhaven, 1997). These actors, however, play different roles in organizations and thus have unequal power to impact organization’s behavior in the collaborative context. Every position in organizational hierarchy is associated with a certain role, which reflects the expectation with respect to the position holder’s contribution to the operational and strategic tasks (Floyd and Lane, 2000). Organizational roles thus restrict and guide individuals’ conduct in an organizational (Nooteboom et a., 1997). This implies that individuals involved in an alliance on both sides are likely to play different roles depending on the position they occupy in the organizational hierarchy. While the roles of the top management are dominated by decision-making tasks (e.g., ratifying or directing), those of the non-executive managers encompass primarily communication of and reaction to information (e.g., implementing, facilitating, conforming or responding) (Floyd and Lane, 2000). Therefore, while top (executive) managers can influence the overall cooperation policy of the organization, this is clearly not the case for operational level employees, who will likely be responsible for its implementation.

Therefore, strategic-level trust defined as the attitude held by the company's executives towards the partner firm (cf. Inkpen & Currall, 1997) and its members (cf. Gulati & Gargulio, 1999) is bound to be manifested in the collaboration policy of the firm in general and collaborative knowledge arrangements in specific. Operational-level trust between organizations, in contrast, captures trust held by the non-executive boundary spanners of the collaborating organizations, who "provide the linking mechanism across organizational boundaries" (Inkpen & Currall, 1997) as they carry out the operational tasks of the collaboration. Currall & Inkpen (2002) define 'trust network' as the sum of interpersonal trust in the JV, i.e., trust present in all dyadic relationships of boundary spanners from the partnering organizations. Our definition of operational-level trust includes a trust network thus defined but is still broader; it additionally comprises the boundary spanners' trust towards the partner organization as a collectivity. Similarly as at the strategic level, therefore, the object of the operational-level trust can be the partner organization as an entity and/or its individual members.

The above conceptualization of interorganizational trust is unique in that it distinguishes two levels of interorganizational trust according to who holds it, independent of who is the object of it. Previous research has shown that individuals with ease distinguish between trust towards the partner organization and an individual counterpart boundary spanner (for example Zaheer, Lofstrom, & George, 2002). Nevertheless, we do not expect the extent of knowledge flows and/or the shape of collaborative knowledge arrangements to be systematically affected by whether the object of trust at either level is an individual or an organization. In fact, it seems plausible to assume that a certain level of trust in both is needed for learning to occur. Of course, the effects of trust in a counterpart boundary spanner and in the partner organization are unlikely to be independent. We expect that the two are positively associated.

Executive managers could be argued to affect interorganizational knowledge transfer not only as those who shape collaborative arrangements but also as the agents of knowledge sharing within the context of crosscutting communities of practice. However, it seems plausible that in most cases the role of executives will be restricted to setting the parameters for collaboration and their opportunity to engage in intensive, hands-on interactions that would enable knowledge sharing would be quite limited. Thus since the role of the top executives as organizational decision maker is likely to overshadow that of a knowledge transfer agent, we do not consider it in our further analysis. This is obviously a simplification, as at least some knowledge can be expected to flow at the executive manager level. Yet,

although undeniably there is an overlap in terms of roles played by boundary spanners at the executive and non-executive levels with respect to knowledge transfer, for the sake of conceptual clarity we stress the difference between the two.

We wish to stress that by delineating the strategic and operational levels, we do not wish to suggest that they are completely separate. Admittedly individuals at both levels are subject to similar psychological processes and limitations; it is not our intention to argue that top managers are in any way qualitatively different than their lower level counterparts. Also, the two levels are linked by the common organizational culture, in which they are embedded. Organizational culture has been argued to affect the propensity of its members to trust and be trustworthy (Nootboom, 2002). Additionally, conscious efforts to limit problems associated with implementing the collaboration agreement can further bring the two levels closer. A situation may arise where a poorly negotiated collaborative agreement is handed over to the lower-level management for implementation. To avoid such problems either the lower level can be involved in the initial negotiations of the collaborative arrangements or the top level can be made responsible for successful implementation of the agreement they negotiate.⁹ In our view, however, the above facts do not undermine our argument that the ways in which top-level managers and lower-level managers are involved in the process of interorganizational collaboration are distinct. The different nature of responsibility born by individuals at both levels and the distinct character of decisions they are required to take are what constitutes the basis for the delineation of strategic and operational level trust.

3.4. Trust as a determinant of interorganizational learning

Before we proceed with our argument, we wish to point out two assumptions that underlie our further discussion. First, we assume symmetry in the level of trust held by alliance partners with respect to each other, i.e., we assume that trust held by A towards B is of the same level as trust of B towards A. That implies that we take the level of trust to be a characteristic of a relationship, rather than of the partners. Second, in our further argument we assume that trust held by partner A towards partner B, will affect the level of knowledge flows from A to B *and* from B to A. This is only an apparent inconsistency as we argue that higher trust held by A towards B, should result in A's greater transparency in dealings with B

⁹ We thank Bart Nootboom for drawing our attention to this point.

(thus more generous knowledge flow from A to B) and A's higher intent to learn from B (thus greater knowledge flow from B to A)

3.4.1. Effect of operational level trust on knowledge flows between organizations

In the context of the social learning theory, we expect operational-level trust to play a positive role in stimulating knowledge sharing between boundary spanners (cf. McEvilly et al., 2003). First, undertaking learning involves risk as admitting an error or asking for help can signal incompetence and negatively affect one's image (Edmondson, 1999). Potential for embarrassment and interpersonal threat can thus impede learning (Argyris, 1982). In line with that, social construction of knowledge is argued to be a process fraught with conflict inherent in any social process (Easterby-Smith & Arujo, 1999). Learning is thus an emotional process (Elkjaer, 1999), and knowledge "an emotionalized commodity." (Fineman, 2003: 65). "Excessive concern about others' reactions to actions that have the potential for embarrassment or threat, which learning behaviors often have" (Edmondson, 1999: 355) can be alleviated by team psychological safety thus positively effecting group learning. Trust is one of the foundations for creating the climate of psychological safety (Edmondson, 1999) and thus can be expected to positively affect learning behavior of team members.

Second, as Brown & Starkey (2000) argue, individuals may resist learning because it might challenge their existing concepts of self. Resistance to internalize knowledge from a given source (Szulanski, 1996) can be at least partially overcome if the source is perceived to be trustworthy. A trusting disposition towards another person makes one more open and susceptible to the influence exerted by this person (Chiles & McMackin, 1996) in terms of selection of goals, choice of methods, and evaluation of progress (Porter, 1997). Trustworthiness of the source can thus be conceived of as "a proxy for quality and veracity of the knowledge conveyed" (McEvilly et al., 2003). Perceived value of the knowledge, in turn, is likely to influence student's openness to assimilate it. Polanyi (1962: 53) stresses:

"to learn by example is to submit to authority. You follow your master because you trust his manner of doing things even when you cannot analyze and account in detail for its effectiveness. By watching the master and emulating his efforts in the presence of his example, the apprentice unconsciously picks up the rules of the art, including those, which are not explicitly known to the master himself. These hidden rules can be assimilated only by a person who surrenders himself to that extent uncritically to the imitation of another".

Third, individuals who view knowledge as a source of power may resist sharing it (Kim & Mauborgne, 1998; Szulanski, 1996) or even erect barriers to prevent its incidental leakage. Trust between actors fosters free exchange of information, as they do not feel the need to guard themselves against opportunistic behavior of the other party (Jarillo, 1988). Therefore, if the sender of knowledge trusts the receiver, the former is likely to be more open in sharing the knowledge (Nahapiet & Ghoshal, 1998). In fact Edmondson & Moingeon, (1999) argue that in the context of organizational learning “trust can be seen as a decision to place resources (i.e. knowledge) at others’ disposal”.

For all the above reasons we argue that higher operational-level trust, by increasing the parties’ willingness to make themselves vulnerable to each other (cf. Sarkar, Cavusgil, & Evirgen, 1997), mitigates the risks involved in the learning process and thus leads to higher knowledge sharing between the interacting boundary spanners of the two partner organizations.

3.4.2. Effect of strategic-level trust on collaborative arrangements

In shaping the collaborative arrangements, executive managers need to consider the risks that their organizations face by engaging in knowledge sharing. First, there is the risk of expropriation, if the partner uses the rightfully obtained knowledge opportunistically in ways contrary to the letter or spirit of the alliance contract. Second, an organization runs the risk of knowledge leakage, where the partner, intentionally or unintentionally, acquires knowledge that was not meant to be shared. Even if the alliance partner is not a potential competitor (i.e., the linkage is of vertical rather than horizontal nature), the risk of spillover may still be high, if such competitors are part of the partner’s network. In such case core competence can leak to a competitor indirectly via the alliance partner (Nooteboom, 1999). Given these risks, trust between partners emerges as an important factor affecting their mutual knowledge transfers. Interorganizational governance based on trust mitigates the decision-makers’ fear of partner opportunistic behavior (Nahapiet & Ghoshal, 1992; Kale et al., 2000; Dyer & Chu, 2003) thus increasing their willingness to grant each other access to knowledge (Dirks & Ferrin, 2001; Kale et al., 2000). Trust between partner organizations positively influences their transparency, reflecting the level of mutual openness and accessibility, and is negatively correlated with the degree of knowledge protectiveness vis-à-vis each other (Hamel, 1991). Transparency translates into the absence of structural barriers that can prevent the flow of knowledge between partner organizations. Consequently we expect high level of strategic-

level trust between organizations to result in the collaborative arrangements more conducive to knowledge flows.

Trusting the partner is also likely to increase organization's motivation to acquire knowledge from the partner. Learning between partners in an alliance does not happen by default; strategic intent is a crucial ingredient of the organization's commitment to learn and finds reflection in the amount of resources committed to learning (Hamel, 1991) and the strategic importance assigned to acquiring knowledge from the partner. However, since tacit knowledge is unarticulable its value cannot be reliably evaluated prior to its transfer (Hennart, 1988). Therefore, similarly as at the operational level, perceived trustworthiness of the source of knowledge, rather than the knowledge itself, can be used by the knowledge acquirer to be a proxy for quality of the knowledge. If the source of knowledge is deemed trustworthy, therefore, the receivers of knowledge feel less need to check its authenticity and veracity (Bhatt, 2000), and thus can be expected to be more intent on acquiring it.

Organizational transparency and intent to learn reflected in the extent to which collaborative arrangements are conducive to knowledge flows between alliance partners, are a function of the strategic-level trust held by the executive managers towards the partner organization and its members. Thus, higher trust at both operational and strategic level is conducive to knowledge transfer between organizations, while the former results in greater knowledge sharing between boundary spanners, the latter in collaborative arrangements more conducive to knowledge flows.

3.5. Types of trust and learning between alliance partners

Extant literature on trust posits that the overall attitude of a trustor towards a trustee is a product of a number of conditions. Zucker (1986) identified four modes of trust production¹⁰; experience-based, reputation-based, characteristic-based and institution-based. Other authors (e.g., Rousseau, Sitkin, Burt, & Camerer, 1998; Doney & Cannon, 1997) have subsequently elaborated on a fifth mechanism, i.e., calculation. We believe that new insights can be derived from applying the trust production modes approach to analyzing the effect of multilevel trust on interorganizational learning, as different mechanisms of trust formation are likely to be relevant at different levels (cf. Doney & Cannon, 1997). In specific, we

¹⁰ Zucker (1986) distinguished in fact three mechanisms, with experience-based and reputation-based trust jointly constituting process-based trust. We choose to focus on each of the sub-types separately.

subsequently argue that different modes of trust production are of unequal importance at the operational- and strategic-level trust in an alliance and thus affect the knowledge transfer process differently. We do not wish to suggest that the types of trust we identify as relevant for each level are exclusive of other types. Rather the argument is intended to reflect our belief in the *dominating role* of the identified types of trust for either the operational or strategic-level of analysis.

3.5.1. Modes of trust production at the operational level

We have argued using social learning theory, that shared practice leads to the development of shared identity among people, and thus constitutes a rail along which tacit knowledge can travel between the interacting boundary spanners of the alliance partners. Brown & Deguid (1999) posit that such shared identity can come about in the context of two kinds of networks. The first, and already mentioned, is the *community* of practice, characterized by high intensity of personal interactions among the members who engage in joint execution of tasks. Zucker (1986: 62) argues that extensive interaction of a small number of “individuals involved in a limited set of exchanges” over long periods of time results in the development of trust between them. In the process of working closely together members of communities of practice can therefore be expected to develop trust—experience-based trust—which in turn facilitates knowledge sharing between them. The second is a *network* of practice, which encompasses people who engage in similar practice but who do not work on common tasks and may never come to know each other personally (Brown & Deguid, 1999). Participation in the same network of practice, by providing the basis for the formation of characteristic-based trust (cf. Zucker, 1986) can be considered a condition that supports the development of trust between members of a community or practice. Thus, we expect experience-based trust and characteristic-based trust to be of highest relevance for knowledge sharing.

Experience-based trust

Experience-based trust between parties is based on repeated, past interactions (Rousseau et al., 1998; Lewicki & Bunker, 1996), assuming they were accompanied by successful fulfillment of mutual expectations (Rousseau et al., 1998), thus on the positive development of a relationship (Nooteboom et al., 1997). This corresponds to the concept of ‘habitualization’, which describes bonds that develop between parties in the process of their mutual interactions and result in familiarity, mutual understanding and shared habits

(Nooteboom et al., 1997). Formation of experience-based trust is a slow, time-consuming (Aulakh et al., 1996; Madhok, 1995) and cumulative process (Lewicki & Bunker, 1994). In its deepest form, trust based on experience takes the form of identification (Rousseau et al., 1998), where parties learn to recognize and understand each other's desires, preferences and intentions (Lewicki & Bunker; 1996). We conclude therefore that through processes of repeated, close interactions within crosscutting communities of practice boundary spanners develop trusting relationships, which result in higher knowledge sharing between them. We thus propose the following:

Proposition 1: The level of experience-based trust at the operational level in an alliance will positively affect tacit knowledge flows between the partners.

The level of experience-based trust at the operational level can be proxied with measures of the duration, frequency, informality and density of boundary-spanner contacts. Although, transfer of tacit knowledge itself takes place through such interactions also, our argument is that at any point in time, trust build up in previous contacts between boundary spanners may be assumed to be predictive of tacit knowledge flows in subsequent periods.

It must be pointed out, however, that excessive group identification may have adverse consequences for the interorganizational learning process. While identification within a group can have a strong positive impact on its performance, it simultaneously limits the group's openness to new knowledge (Nahapiet & Ghoshal, 1998). Over-identification can produce groupthink, not-invented-here syndrome, or even inertia and rigidity (McEvilly et al., 2003), thus limiting the knowledge creation potential of a community. Additionally, although cross-cutting communities of practice can foster the sharing of tacit knowledge within the groups, they can by the same token lead to increasing isolation from other groups within their respective organizations (Brown & Deguid, 1999) thus having an adverse effect on harvesting.

Characteristic-based trust

Zucker (1986) defines characteristic-based trust as trust based on certain qualities of a person (e.g., family background or ethnicity). Similarity (e.g., in profession, race or gender) is the basis for categorizing oneself and others into social groups (Williams, 2000). According to social identity theory individuals use groups to which they belong (i.e., social aggregates)

to construct their own identity and accordingly categorize others as in-group or out-group members (Kane, Argote & Levine, 2002). At the same time, individuals' identities (i.e., social groups with which they identify) determine the extent to which they perceive each other to be similar.

When people identify with a given social group, it allows them to “surface certain cognitive assumptions about themselves in relation to others” (Child & Rodrigues, 2003: 537) as well as “expectations about the behaviors and intentions of the members of a collectivity” (McEvelly et al., 2003: 98). In particular, social similarity, in terms of values and beliefs, as well as personalities, demographics, educational and professional backgrounds, leads to the assumption that common background expectations exist and opportunistic behavior is unlikely (Zucker, 1986). As a result of social categorization and in-group bias processes, ingroup members therefore tend to be evaluated more positively than out-group members, in terms of their cooperativeness, commitment (McEvelly et al., 2003) as well as honesty, loyalty, benevolence, and trustworthiness (Kane et al., 2002; Doney & Cannon, 1997). These positive attributions stemming from social similarity are likely to produce trust between individuals (Brewer, 1981; Burt, 1992; Porter, 1997; McGuire, 1968).

In the organizational context, similarity of occupational identities of the gatekeepers (based on shared practice, i.e., networks of practice) are likely to be of primary importance as they can “serve as a bridge” between the partner organizations in an alliance (Child & Rodriguez, 2003: 544). Thus linking of partnering organizations along the lines of networks of practice can be considered a condition conducive to operational-level trust between their boundary spanners, due to the social identity they share based on similarity of practices they engage in. Consequently, we expect the following:

Proposition 2: The level of characteristic-based trust at the operational level in an alliance will positively affect tacit knowledge flows between the partners.

In terms of operationalization, professional and education background characteristics of the boundary spanners can easily be measured and may be a preferable proxy compared to personality traits or demographic features, because of their higher relevance in formation of occupational identities.

Summarizing, we expect experience- and characteristic-based trust at the operational level to be the most important determinants of knowledge sharing between boundary

spanners. These two types of trust, however, should not be viewed as being independent. Plaskoff (2003) stresses that development of in-group identification is fostered by the alignment of cultural elements, as well as common reference points (e.g., experiences, frameworks). This would suggest that similarity would not only result in more trust (direct effect) but also stimulate the boundary spanners' propensity to interact and thus positively affect experience-based trust.

3.5.2. Modes of trust production at the strategic level

The role of strategic-level managers regarding an alliance is likely to be very different from that of operational-level employees (Andrews, 1971). In their role of strategy makers, top executives are responsible for initiating and directing the strategic actions of their organizations. Therefore it is in the alliance formation stage that their involvement can be expected to be greatest, while the subsequent, every-day functioning of the alliance (with the exception of some extraordinary circumstances) would largely be the responsibility of lower level managers. Having set up an alliance, top managers are likely to move on to other pressing issues of strategic nature, some of which may involve formation of other alliances. What the above implies is that compared to non-executive boundary spanners strategic-level managers are likely to have a much higher exposure to a variety of alliances while being much less involved in the actual effectuation of any of them. They thus can be expected to treat each alliance much more instrumentally than would be the case for operational-level boundary spanners. Additionally, since the decisions surrounding the formation of an alliance (e.g., partner choice, resource contributions or collaborative arrangements) are of crucial, strategic importance for the organizations they represent, top-managers can be expected to arrive at them by way of relatively conscious rational deliberations. Therefore in identifying sources of trust relevant at the strategic level, we turn to the theoretical paradigm of strategic choice, which focuses on motives like profit and growth as drivers of the strategic choices of top executives (Barringer & Harrison, 2000). Consequently, at the strategic level we expect strategic considerations to be dominant and trust founded on calculation, institutional safeguards, reputation and the track record of expectations fulfillment to be most relevant.

Calculation-based trust

According to Madhok (1995), besides a behavioral component (akin to experience-based trust), trust between partners has also a structural component, based on the hostages held mutually by the partners. The conviction that the partner will meet his obligations for

fear of the consequences of not doing so lies at the heart of calculation-based trust (Lewicki & Bunker, 1994). Calculation may consider the impending punishments, but also the loss of potential rewards from breaching trust.

Organizations that engage in a continuous collaboration have economic incentives to behave in a trustworthy manner as seeking short-term benefits may endanger the possibility of future, repeated transactions (Granovetter, 1985; Ring & Van de Ven, 1992). We argue thus that high level and/or severity of potential consequences from terminating collaboration or placing the quality of the relationship at risk will result in trustworthy behavior of alliance partners. Such alignment of partners' incentives, in turn, is likely to find expression in the collaborative arrangements that would allow for a flow of knowledge between the partners necessary to assure their continued successful collaboration. This type of trust is more relevant at the strategic than at the operational level, because, as we argued earlier, decision behavior at the strategic level is of less social and more instrumental nature. It seems plausible to expect that the level of trust held by organizational decision makers towards a partner would be correlated with whether they perceive the structure of the incentives to be conducive to parties' trustworthy behavior (i.e., abstention from opportunism). We thus propose the following:

Proposition 3: The level of calculation-based trust at the strategic level in an alliance will positively affect the conduciveness of the collaborative arrangements to tacit knowledge flows between the partners.

In the context of empirical research, incentive alignment may be proxied with the partners' perceived goal congruence. Where such congruence is present, it can be expected to be in the partners' best interest to abstain from opportunistic behavior that could endanger the quality of the relationship (Sarkar et al., 1997).

Institution-based trust

Institution-based trust is grounded in values and standards of conduct that guide behavior as well as formal structures that enable and constrain it (Nooteboom, 2002). Institutions support risk taking and trusting behavior (Hagen & Choe, 1998) of both individuals and organizations (Rousseau et al., 1998). Institutionalization at the country-level encompasses shared values and norms of conduct, which constitute part of national culture (Nooteboom, 2002) as well as the framework of national laws and regulations (Kostova,

1999). In the same way as norms and values vary significantly across cultures (Fukuyama, 1995) and legislative systems differ across countries, and thus have varying effects on the behavior of the entities and individuals whose actions they guide and regulate (Fukuyama, 1995). Additionally, institutions that issue public statements concerning the qualifications and reliability of entities (for example professional certifications) as well as other bureaucratic structures are likely to serve as formal, social, trust-evoking structures (Parkhe, 1998b; Zucker 1986).

The stronger the institutions, the easier it will be for business partners to rely on trust, since those institutions safeguard against (some of) the potential for opportunistic behavior on the part of the partners (Mudambi & Navarra, 2002). Therefore, the strength of institutionalization of the environment in which the alliance is embedded should positively influence the level of strategic-level trust between partners for two reasons. First, it would increase the probability of the partner's behavior in conformance to a cultural norm of value. Second, it would mitigate the fear of partner opportunism. We therefore propose the following:

Proposition 4: The level of institutions-based trust at the strategic level in an alliance will positively affect the conduciveness of the collaborative arrangements to tacit knowledge flows between the partners.

International differences in trust-inducing institutionalization may be operationalized with published indices of the judicial system effectiveness, the bureaucratic process reliability, etc. (Gwartney, Lawson & Block, 1996). Such indices do not exist for differences in institutionalization between industries (within a country), however. For the latter, proxies could be identified by investigating the membership density of industry associations, or by qualitatively comparing and rating arbitration arrangements within industries.

In line with what we argued above, formal institutional structures as a source of trust are related to legally or socially established guidelines, which result in negative consequences for parties violating trust (Hagen & Choe, 1998). Trust based on calculation, on the other hand, is grounded in the partners' belief that the other party will not defect (behave opportunistically) considering the impending sanctions (Gulati, 1995). From that perspective, institution-based trust (its structural part) and calculation-based trust are both grounded in deterrence, since both are a source of potential sanctions for a defecting partner. The difference between the two is that in case of the former the sanctions are relationship-specific,

while in the latter they are general and hold across all relationships, independent of the partner. Institutional trust thus “generalizes beyond a given transaction and beyond specific sets of exchange partners” (Zucker, 1986:64).

Reputation-based trust

Reputation allows for confident expectations about the other’s behavior based on third-party experiences. Reputation may be equated with the “record of cumulative past behaviors” (Parkhe, 1998a: 233) or “a symbolic representation of past exchange history” (Zucker, 1986: 62) and thus be positively related to trust (Ireland et al., 2002). The network of relationships in which firms are embedded is a rich source of information concerning the competencies and reliability of potential partners (Gulati & Gargiulo, 1999). These networks are what the decision makers rely on in deciding on who to potentially collaborate with (cf. Dollinger, Golden & Saxton, 1997; Gulati, 1995) and how open to be towards a partner with respect to tacit knowledge exchange. Considering the above, we propose the following:

Proposition 5: The level of reputation-based trust at the strategic level in an alliance will positively affect the conduciveness of the collaborative arrangements to tacit knowledge flows between the partners.

In measuring reputation empirically, one must take care to distinguish reputation from the positive experience-based impressions gained by a firm from interacting with the partner. Hence, an operationalization of reputation should capture the strength of the general reputation of a company in the industry, rather than impressions expressed by the partners, e.g., by questioning independent industry experts about the general reputations of the firms in question.

Experience-based trust

Finally, similarly to the operational level, we expect experience-based trust, grounded in the partners’ past exchanges to play a role at the strategic-level. Trust based on knowing the partner emerges from past and current interactions (Ireland et al., 2002), which allow the organizations to get to know each other (Gulati, 1995). Through prior cohesive ties partners gain knowledge of each other’s competencies, reliability and integrity, on which trust is based (Madhok, 1995; Gulati & Gargiulo, 1999). The better the past expectations have been met “the more confident a firm’s decision makers will be in believing that a partner will follow

through on its current” (Parkhe, 1993) and future promises. The better the collaborating organizations know each other, therefore, and the more dependable and reliable the partners have proven themselves to be (Rousseau et al., 1998; Ireland et al., 2002), the higher the mutual trust held by their executive managers will be. Higher strategic-level trust, in line with our previous argument, should result in collaborative arrangements more conducive to knowledge flows. We thus propose the following:

Proposition 6: The level of experience-based trust at the strategic level in an alliance will positively affect the conduciveness of the collaborative arrangements to tacit knowledge flows between the partners.

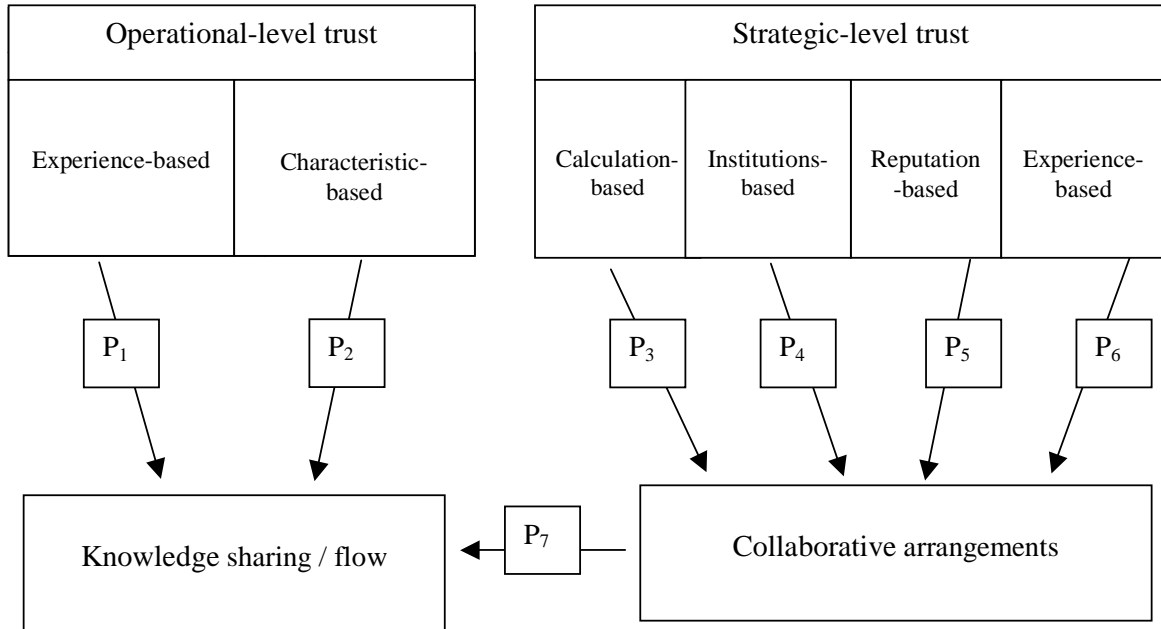
In an empirical investigation, the number of previous collaborations between the firms can be used as a measure of initial experience-based trust in a particular partner (cf. Gulati, 1995).

The two sets of propositions—those pertaining to the effect of operational-level trust on knowledge flows (1 & 2) as well as those pertaining to the effect of strategic-level trust on the collaborative arrangements (3, 4, 5, & 6)—can be linked, as knowledge flow may be assumed to be higher when the appropriate collaborative arrangements are in place. Hence:

Proposition 7: The conduciveness of the collaborative arrangements to tacit knowledge flows between the partners, *ceteris paribus*, will positively affect the tacit knowledge flows between the partners.

Figure 3.1 summarizes the arguments of this paper.

Figure 3.1. Conceptual model of the effect of trust on interorganizational knowledge transfer



3.6. Discussion and limitations

We have developed an argument for the role of trust in interorganizational learning based on social learning theory. We have posited that the level of inter-partner trust at the operational and strategic levels positively affects learning between alliance partners. Operational level trust has a direct effect on the extent of learning between organizations, as it affects the sharing of knowledge between operational-level boundary spanners involved in the crosscutting communities of practice. Strategic-level trust in turn affects learning indirectly through the facilitating effect of collaborative arrangements designed by the executive managers. Based on the above, we have identified relevant sources of trust for each level of analysis and formulated corresponding propositions. Below we seek to address a number of considerations related to robustness of our argument. In particular, we focus on the issue of causality between learning and trust, the limits to trust-driven knowledge sharing and the operationalization of concepts.

3.6.1. Causality of trust and learning

In our analysis so far, we have assumed a unidirectional effect of trust on interorganizational knowledge transfer. It is much more realistic, however, to view the effect as bi-directional. Open communication between partners has been argued to be a condition for the build up of trust for a number of reasons. First, communication between partners allows them to work through any differences that are likely to come up in the process of any relationship (Das & Teng, 1998) and thus provides early warning signals of things going wrong (Gulati, Khanna & Nohria, 1994). Second, open communication allows partners to discover and further develop their common values and norms thus reinforcing the sense of trust (Das & Teng, 1998). Third, partner openness towards each other allows them to collect evidence concerning each other's intentions, competences, credibility and trustworthiness (Das & Teng, 1998; Zand, 1972). The latter two arguments concern the exchange of partner-specific information, which allows the parties to form better expectations with regard to each other's trustworthiness (norms, values, intentions etc.). This dissertation, however, does not deal with inter-partner learning in the sense of partners getting to know each other better. Rather, the focus here is on substantive knowledge, i.e., technological, managerial or marketing. We believe, that generous and proactive exchange of valuable *substantive* knowledge between partners demonstrates their commitment and benevolence and through reciprocity reinforces their mutual trust (cf. Das & Teng, 1998). The above four reasons, and the last one in particular, lead us to conclude that the relationship between learning and trust should be considered as that of a mutually reinforcing mechanism.

However, although trust and learning are mutually reinforcing, some initial expenditure of trust towards the partner (no matter how small) must come before any learning can take place. Therefore, the question concerning the origin of this initial trust must be addressed. Additionally, and related to the previous point, we believe that trust has a wide array of antecedents extending beyond the collaboration process itself. Thus, while for certain types of trust (for example experience-based trust) the mutually reinforcing effect with learning would be very strong, this is not so for other types of trust (e.g., institutional-based trust or reputation). Third, since we assume learning to be one of the objectives of a collaborative venture, it seems justified to take trust as a condition conducive to its achievement (i.e., an antecedent of learning), and not the other way around. Finally, considering the train of our argument for why we expect trust to result in superior knowledge transfer and the mechanisms through which we believe the effect to come about, the possibility that a reverse relationship would hold is very unlikely. For all the above reasons,

we believe it justified to give trust theoretical primacy in considering the relationship between trust and learning. At the same time we affirm that the reverse effect is of equal importance, yet its consideration would extent beyond the scope of this paper.

3.6.2. Limits to trust-driven knowledge sharing

The effectiveness of sharing knowledge on the basis of trust should not be overestimated (McEvelly et al., 2003). There are a number of reasons why that is the case. First, “even the most reliable and best-intentioned source can mistakenly share knowledge that is inaccurate, invalid, or outdated” (McEvelly et al., 2003: 97). Second, the benefits of a high trust level between transacting partners are evidently conditional on the accuracy with which the trustworthiness is perceived or evaluated. Trust in organizational settings requires a “probabilistic leap of faith, which may lead the trustor astray” (McEvelly et al., 2003: 98), as the attributes of trustworthiness are not easily observable (Barney & Hansen, 1994). It is possible that the amount of trust endowed on a trustee exceeds the actual level of his trustworthiness (Barney & Hansen, 1994). What this implies is that generous sharing of knowledge based on an overly optimistic perception of the partner’s trustworthiness (i.e., misplaced trust), may result in expropriation and leakage of knowledge. Additionally, a high level of trust between the partner organizations may lead to the (possibly false) assumption that all the information is provided without the parties asking for it (Jeffries & Reed, 2000). Finally, greater trust, experience-based in specific, provides opportunity for greater malfeasance than it would be in case of its absence, since trust towards a trustee makes the trustor more vulnerable than s(he) would be as a stranger (Granovetter, 1985).

What the above discussion suggests is that high level of interorganizational trust can be both beneficial *and* detrimental to organizational well being (cf. Soda & Usai, 1999). Too much trust is not always better, just as more tacit knowledge flows between alliance partners is not always desirable from the point of view of their performance. Note, however, that the above considerations do not in any way undermine our propositions. Misplaced or excess of trust (of any type we distinguish) will still positively affect the transfer of tacit knowledge (for as long as the alliance holds), albeit to the detriment of one of the partners.

3.6.3. Operationalization issues

The propositions developed in this paper can be tested on a sample of alliances, preferably in an international context, in order to generate variation in institutional environments. For that purpose, appropriate measures of knowledge flow and collaborative

arrangements need to be identified. Starting with the latter, we defined collaborative arrangements as those elements of interorganizational structure, systems and management process that condition the flow of knowledge between alliance partners. Decisions about structure include the choice of a partner and ownership form as well as of the collaborative goals. The choice of a partner determines what tacit knowledge resources can be contributed to the alliance (Tiemessen et al., 1996) and the ease with which they can be transferred (Prahalad & Bettis, 1986; Bettis & Prahalad, 1995; Lyles & Salk, 1996). The number of participants in an alliance is also an important element of alliance structure affecting the extent of interpartner learning (Levinson & Asahi, 1995). Articulated goals, well defined tasks and expectations for the collaboration facilitate knowledge transfer in the alliances by aligning the vision of the partners and providing a yardstick with which to compare the learning outcomes and evaluate them (Lyles & Salk, 1996; Doz, 1996). Finally, ownership structure has a bearing on knowledge acquisition in alliances (Lyles & Salk, 1996); equity alliances (Gulati, 1995; Kogut, 1988; Mowery, Oxley & Silverman, 1996; Hennart, 1988), alliances with more hierarchical controls (Gulati & Singh, 1998), shared management joint ventures (Lyles & Salk, 1996) and link alliances (as compared to scale alliances) (Dussauge, Garrette, & Mitchel, 2000) are argued to be superior conduits for transfer of tacit knowledge between partners.

Management systems influence knowledge transfer between partners. Two kinds of systems can be distinguished; those that by providing opportunities for knowledge sharing have a direct effect on knowledge transfer, and those that by affecting the level of control over the alliance by the partners (i.e., control mechanisms) have an indirect effect on knowledge transfer. The first group comprises such mechanisms as JV-parent interactions and personnel rotation, as well as training, internal consulting and assistance that provide the opportunity for evolution of communities of practice and the ‘bleeding of ideas’ between the organizations (Inkpen & Dinur, 1998; Ireland et al., 2002; Lyles and Salk, 1996; Lane, Salk & Lyles, 2001). Second, organizational control mechanisms (e.g., incentive structures, board representation) can assure the necessary reciprocal information flow capacity in an alliance (Kumar & Seth, 1998; Tiemessen et al., 1996). They can also help the partners protect themselves against the adverse effects of unintended flows of knowledge (Geringer & Hebert, 1989).

Finally interpartner learning requires appropriate processes (Zaheer & Vankatraman, 1995; Lane et al., 2001). For example, the extent to which conflicts are managed integratively in the alliance fosters exchange of knowledge both directly (through intensity of contacts) and indirectly (through increased perception of procedural justice) (Kale et al., 2000). Learning

necessitates also the creation of an integrating frame of reference (i.e., shared social identity) (cf. Child & Rodrigues, 2003) by means of context-oriented, culture-based mechanisms (Geringer & Hebert, 1989; Das & Teng, 1998). These include rituals, traditions, ceremonies or networks (Makhija & Ganesh, 1997) as well as other processes of manager socialization, which can assure the necessary reciprocal information flow capacity in an alliance (Kumar & Seth, 1998).

Turning now to interorganizational knowledge flow, operationalizing the construct may pose problems, as it is debatable whether it is an observable phenomenon—that is, whether acquiring new knowledge is always reflected in organizational change. Two distinct approaches to the relationship between learning and organizational change are pronounced in the literature. The first postulates that learning constitutes an increase in the stock of knowledge that will be activated only when it is needed (e.g., Huber, 1996; Villinger, 1996). Thus, although learning might have taken place, a change in behavior will not necessarily be observed. In the second approach, every time learning takes place it is assumed to find reflection in improved actions and modified routines (Fiol & Lyles, 1985; Levitt & March, 1996), thus in change of behavior. Greve (1998) argues, “an organization learns when its experience results in behavioral changes”. If the latter approach is adopted as a basis for operationalizing organizational learning, knowledge flows could be assumed to be present when behavioral changes are observed.

This would be an advantage, as finding proxies for knowledge flow is not an easy task. Both objective and perceptual measures may be considered. Developing good objective proxies is difficult, especially that many of the less direct ones induce the risk of conflation with the measures of collaborative arrangements (e.g., frequency of communication, visits to and tours of production facilities, shared project teams). Also, and especially with respect to frequency of communication between the partners, there is a danger of confusing its quantity dimension with the quality dimension (cf. Liker, Kamath, Wasti, & Nagamachi, 1996). As for the perceptual measures, perceptions of the type and amount of knowledge acquired from the partner organization can be gauged. These measures, however, come with all the drawbacks of subjective evaluations of a respondent (usually one per organization).

3.7. Conclusions

This paper provides an explicit theoretical argument for the role of trust in interorganizational tacit knowledge transfer in strategic alliances. We argue that interorganizational trust at two levels, operational and strategic, has a significant positive effect on the extent of tacit knowledge transfer between partnering organizations. Using the theoretical lens of social learning theory we argue that trust at each of those two levels is different in nature, i.e., different in antecedents and knowledge related outcomes. Tacit knowledge flows between organizations only through intimate interactions of their boundary spanners in crosscutting communities of practice, which create a context for trust development (i.e., operational-level trust) and knowledge sharing. Trust at the strategic level hinges on strategic considerations of the partners, which determine how conducive the collaborative arrangements are to creation of communities of practice and thus indirectly affects knowledge sharing.

We argue that operational-level trust stems primarily from the identification that boundary spanners develop through personal experience, and is reinforced by the characteristic-based mechanism of trust production, which hinges on social similarity of the interacting actors. Strategic-level trust in contrast originates predominantly in partners' calculation and institutional safeguards as well as in the record of partners' past behaviors, be it in their direct interactions or with other parties.

On a practical note, our work identifies the mechanisms through which trust at both the operational and strategic-levels in an alliance is formed. Thus, it points to ways of stimulating tacit knowledge transfers between alliance partners. Yet our argument that more trust between partners results in superior tacit knowledge flows between them should not be taken as a normative statement; more tacit knowledge transfer between partners might not necessarily be desirable from the point of view of an organization's performance. Future research should endeavor to address the question of what the optimal level of tacit knowledge sharing between alliance partners is. Future research should also undertake to test the conclusions of the paper empirically. If support for the propositions is provided, the managerial implications of the current work would gain in significance and robustness. To that end, we provide suggestions for possible operationalizations of the relevant variables. Finally, future research should undertake to factor the effect of partners' wider networks of

relationships into the analysis of interorganizational trust and knowledge flows, as these are likely to affect their dyadic relations (Nooteboom, 1999).

Chapter 4

The effect of strategic-level trust on interorganizational learning

4.1. Background

The growth in the number of strategic alliances since the beginning of the '90s has exceeded 25 percent annually (Inkpen, 1998). Strategic alliances encompass a broad range of contractual forms, from arm's-length contracts to equity joint ventures (Gulati & Gargiulo, 1999). Learning between partners is an important aspect of inter-firm collaboration, because it poses both opportunities and threats to the cooperating firms (Hamel 1991; Kogut 1988). Concurrently, the notion of trust emerges as an important factor for understanding human nature and exchange relationships of market participants, while the emphasis on opportunism in, for example transaction cost economics (Williamson, 1985), is subjected to much criticism (Ghoshal & Moran, 1996). In specific, trust, as an expectation of the partner's reliability with regard to his obligations, predictability of behavior, and fairness in actions and negotiations while faced with the possibility of behaving opportunistically (cf. Zaheer, McEvily & Perrone, 1998), is argued to be an important variable in interorganizational cooperation (e.g., Gulati, 1995; Madhok, 1995).

A high level of trust is suggested to have a positive effect on knowledge sharing (McEvilly, Perrone, & Zaheer, 2003) in both the *intra*-organizational (e.g., Kostova, 1999; Makino & Inkpen, 2003; Tsai & Ghoshal, 1998) and the *inter*-organizational context (Geringer, 1988; Dyer & Chu, 2003; Inkpen, 1997; Hedlund, 1994). However, most studies take the effect of interorganizational trust on learning for granted or handle it marginally. In particular, little attention is paid to the meaning of trust as an interorganizational phenomenon. Yet, when considering trust in such context one has to heed the distinction between organizational actors who frame the strategic intentions of the organizations in a

cooperative agreement and those who actually implement the agreement at the operational level. This consideration is rarely reflected in research on learning in interorganizational alliances (Salk & Simonin, 2003). As was argued in Chapter 3, trust between executive decision-makers of the collaborating organizations, i.e., strategic-level trust, is likely to be different in its sources and consequences from trust between operational-level boundary spanners, i.e., operational-level trust. Consequently, trust at these two levels can be expected to be related to interorganizational learning differently.

In this chapter we focus on the strategic-level by investigating how organizational decision makers' trust towards the partner organization and its members affects learning between the organizations. We also identify sources of trust likely to be relevant for the formation of trust at this level. We formulate and test hypotheses relating sources of trust at the strategic level to the extent of learning between organizations. In light of the above the contribution of this paper is threefold. First, we formulate an explicit argument for the effect of strategic-level trust on learning between collaborating organizations. In doing that, we point out the qualitative differences between trust at the strategic and operational level and the unequal role they play in interorganizational knowledge transfer. Second, we identify sources of trust relevant for the strategic level of analysis and argue that they can be used as predictors of trust at this level. This yields theoretical insight into the formation of interorganizational trust at the strategic level but also constitutes a basis for the alternative approach to tapping trust in interorganizational relationships, which we subsequently demonstrate. Third, we empirically test the link between sources of trust at the strategic level and the conduciveness of the collaborative arrangements to knowledge flows between organizations.

The set-up of the paper is as follows. First, the theoretical underpinnings of the current work are expounded. Second, we formulate hypotheses relating sources of strategic-level trust between the partners to interorganizational learning. Third, the data and the method are presented. Next, we discuss the results. Conclusions follow.

4.2. Learning between alliance partners

Interorganizational learning is pointed to by many as the primary reason for the existence of alliances (Salk & Simonin, 2003; Hamel, 1991; Kogut, 1988; Kogut & Zander, 1992; Lyles, 1988). Others, however, argue that many alliance partners do not have a well-

defined learning objective (e.g., Hagedoorn & Sadowski, 1999; Inkpen, 2000). We distance ourselves from that dispute, and assume that whether some alliances are formed for the sole purpose of acquiring knowledge from the partner or not, they do offer opportunities for learning between the partners (cf. Inkpen, 1997).

Knowledge may be explicit or tacit (Polanyi, 1962). The former is systematic, formalized and transferable without loss of integrity (Kogut & Zander, 1992; Polanyi, 1962). Its transfer across organizational boundaries is thus likely to be for the most part unproblematic. Tacit knowledge in contrast is intuitive and unarticulated, cannot be verbalized, and thus cannot be easily transferred (Martin & Salomon, 2003; Kale, Singh, & Perlmutter, 2000; Polanyi, 1962). Compared to explicit knowledge, the flows of tacit knowledge necessitate more informal control mechanisms (Makhija & Ganesh, 1997) as well as a higher level of understanding and commitment of the learning parties (Brown & Deguid, 1991). Tacit knowledge transfers are thus best achieved by means of strong ties that assure the necessary intensity of interaction (Dyer & Nobeoka, 2000), quality of communication and “intimacy” between the partners (Szulanski, 1996). Arguably, the effectiveness of such mechanisms is contingent on the level of trust between the parties.

Tacit, knowledge-based resources are considered to be the primary source of an organization’s competitive advantage (cf. Barney, 1991). Sharing of such knowledge, therefore, is marked by the risk of the competitive advantage being dissipated and/or the knowledge being used by the partner to the focal organization’s detriment. This is a consideration of special relevance in strategic alliances, which constitute an environment where partners can relatively easily access each other’s knowledge-based, organizationally embedded, tacit resources (Hall, 1992; Inkpen, 1997; Powell, Koput, & Smith-Doerr, 1996). The fear of opportunistic behavior on the part of the partner firm can be at least partially mitigated by interorganizational trust (Kale et al. 2000). Trust between partners, therefore, is likely to be a more important determinant of tacit knowledge transfer compared to explicit knowledge transfer. Thus in our further analysis we focus exclusively on tacit knowledge.

The higher the tacitness of knowledge, the more individuals must be its transfer agents (Inkpen & Dinur, 1998; Hedlund, 1994). Successful transfer of tacit knowledge between alliance partners requires wide-ranging, continuous, face-to-face interactions between individual members of the learning alliance partners (Inkpen & Dinur, 1998; Lane & Lubatkin, 1998; Kale et al., 2000). The extent to which such intimate contacts between organizational boundary spanners of the partner organizations are possible is determined by the collaborative arrangements of the alliance (Kale et al, 2000; Inkpen & Dinur, 1998; Dyer

& Singh, 1998). More generally, we view collaborative knowledge arrangements as any combination of interorganizational structure, systems and management process elements that are put in place and modified in the course of collaboration by the decision makers (cf. Prahalad & Bettis, 1986) with the aim to stimulate or prevent knowledge flows between the organizations they represent. These knowledge management mechanisms, by fostering, blocking or delaying knowledge flows between partners, are a strong determinant of learning between the partners (Doz, 1996; Tiemessen, Lane, Crossan & Inkpen, 1996).

An optimal configuration of the collaborative arrangements assures the necessary flow of information for the successful functioning of the alliance, while simultaneously preventing uncontrolled flow of proprietary knowledge (Ireland, Hitt, & Vaidyanath, 2002). The above also implies that although “most learning takes place at the lower levels of alliance”, where the operating employees “play a vital role in acquiring knowledge”, the learning process begins at the top (Hamel, Doz, Prahalad, 1989: 138), with top management’s commitment to knowledge acquisition from the partner. The flow of knowledge resulting from direct sharing between organizational boundary spanners can therefore be distinguished from the collaborative knowledge arrangements that make this sharing possible. In the remainder of this study, we focus on the latter aspect of knowledge transfer and how partners’ mutual trust affects conduciveness thereof to knowledge flows.

4.3. Interpartner trust at the strategic level

Organizations are made up of and managed by individuals (Aulakh, Kotabe & Sahay, 1996) through whom inter-firm relations come into effect (Inkpen & Currall, 1997; Nooteboom, Berger & Noorderhaven, 1997). These actors, however, play different roles in organizations and thus have unequal power to impact organization’s behavior in the collaborative context. Every position in organizational hierarchy is associated with a certain role, which reflects the expectation with respect to the position holder’s contribution to the operational and strategic tasks (Floyd and Lane, 2000). Organizational roles thus restrict and guide individuals’ conduct in an organizational (Nooteboom et al., 1997). This implies that individuals involved in an alliance on both sides are likely to play different roles depending on the position they occupy in the organizational hierarchy. While the roles of the top management are dominated by decision-making tasks (e.g., ratifying or directing), those of

the non-executive managers encompass primarily communication of and reaction to information (e.g., implementing, facilitating, conforming or responding) (Floyd and Lane, 2000). Therefore, while top (executive) managers can influence the overall cooperation policy of the organization, this is clearly not the case for operational level employees, who will likely be responsible for its implementation. Therefore, strategic-level trust is bound to be manifested in the collaboration policy of the firm in general and collaborative knowledge arrangements in specific.

We frame the strategic-level trust, therefore, as the attitude held by the company's executives towards the partner firm (cf. Inkpen & Currall, 1997) and its members (cf. Gulati & Gargulio, 1999). Such approach to understanding interorganizational trust is unique in that it defines strategic-level trust according to who holds it, independent of who is the object of it. Previous research has shown that individuals with ease distinguish between trust towards the partner organization and an individual counterpart boundary spanner (for example Zaheer, Lofstrom, & George, 2002). Yet, we do not expect the decisions concerning the collaborative knowledge arrangements to be systematically affected by whether the object of strategic-level trust is an individual or an organization. In fact, it seems justifiable to assume that a certain level of trust towards both is needed for organizational decision makers to be willing to create conditions for the free flow of knowledge across organizational interface.

As a criticism of the above conceptualization, executive managers could be argued to affect interorganizational knowledge transfer not only as those who shape collaborative arrangements but also as the agents of knowledge sharing. However, it seems plausible that in most cases the role of executives will be restricted to setting the parameters of the collaboration and that their opportunity for engaging in intensive, hands-on interactions needed for knowledge sharing will be quite limited. Thus, since the role of the top executives as organizational decision maker is likely to overshadow that of a knowledge transfer agent, we do not consider it in our further analysis. This is obviously a simplification, as at least some knowledge can be expected to flow at the executive manager level. Yet, although undeniably there is an overlap in terms of roles played by boundary spanners at the executive and non-executive levels with respect to knowledge transfer, for the sake of conceptual clarity we stress the difference between the two.

4.3.1. Effect of strategic-level trust on collaborative knowledge arrangements

In shaping the collaborative arrangements, executive managers need to consider the risks that their organizations face by engaging in knowledge sharing. First, there is the risk of

expropriation, if the partner uses the rightfully obtained knowledge opportunistically in ways contrary to the letter or spirit of the alliance contract. Second, an organization runs the risk of knowledge leakage, where the partner, intentionally or unintentionally, acquires knowledge that was not meant to be shared. Even if the alliance partner is not a potential competitor (i.e., the linkage is of vertical rather than horizontal nature), the risk of spillover may still be high, if such competitors are part of the partner's network. In such case core competence can leak to a competitor indirectly via the alliance partner (Nooteboom, 1999). Given these risks, trust between partners emerges as an important factor affecting their mutual knowledge transfers. Interorganizational governance based on trust mitigates the decision-makers' fear of partner opportunistic behavior (Kale et al., 2000; Dyer & Chu, 2003) thus increasing their willingness to grant each other access to knowledge (Dirks & Ferrin, 2001; Kale et al., 2000). This is particularly so in case of tacit knowledge which usually constitutes the primary basis of organization's competitive advantage (cf. Barney, 1991). Trust between partner organizations, by mitigating the fear of partner opportunistic behavior, is likely to positively influence their transparency, as reflected in the partners' mutual openness and accessibility, and low degree of knowledge protectiveness vis-à-vis each other (Hamel, 1991). In short, it translates into the absence of structural barriers that can prevent the flow of knowledge between the partner organizations.

Trusting the partner is also likely to increase organization's motivation to acquire knowledge from the partner. Learning between partners in an alliance does not happen by default; strategic intent is a crucial ingredient of the organization's commitment to learn and finds reflection in the amount of resources committed to learning (Hamel, 1991) and the strategic importance assigned to acquiring knowledge from the partner. However, since tacit knowledge is unarticulable its value cannot be reliably evaluated prior to its transfer (Hennart, 1988). Therefore, perceived trustworthiness of the source of knowledge, rather than the knowledge itself, can be used by the knowledge acquirer as a proxy for quality of the knowledge. If the source of knowledge is deemed trustworthy, therefore, the receivers of knowledge feel less need to check its authenticity and veracity (Bhatt, 2000), and thus can be expected to be more intent on acquiring it.

Considering all of the above we expect a higher level of strategic-level trust between organizations to result in collaborative arrangements more conducive to knowledge sharing between their operational boundary spanners. Such effect would be due to increased transparency and intent to learn of the partners and result in superior knowledge transfer between them. In line with that, we subsequently undertake to investigate the impact of inter-

partner strategic-level trust on the conduciveness of collaborative knowledge arrangements to knowledge flows between organizations.

4.4. Sources of trust

Extant literature on trust posits that the overall attitude of a trustor towards a trustee is a product of a number of conditions. Zucker (1986) identified four modes of trust production¹¹; experience-based, reputation-based, characteristic-based and institution-based. Other authors (e.g., Rousseau, Sitkin, Burt, & Camerer, 1998; Doney & Cannon, 1997) have subsequently elaborated on a fifth mechanism, i.e., calculation. We believe that new insights can be derived from applying the trust production modes approach to analyzing the effect of multilevel trust on interorganizational learning, as different mechanisms of trust formation are likely to be relevant at different levels (cf. Doney & Cannon, 1997). Therefore, we subsequently undertake to identify those sources of trust—modes of trust production with their respective indicators—that we believe to be of primary importance at the strategic level.

4.4.1. Sources of trust production at the strategic level

In their role of strategy makers, top executives are responsible for initiating and directing the strategic actions of their organizations. Therefore it is in the alliance formation stage that their involvement can be expected to be greatest, while the subsequent, every-day functioning of the alliance (with the exception of some extraordinary circumstances) would largely be the responsibility of lower level managers. Having set up an alliance, top managers are likely to move on to other pressing issues of strategic nature, some of which may involve formation of new alliances. What the above implies is that compared to non-executive boundary spanners strategic-level managers are likely to have a much higher exposure to a variety of alliances while being much less involved in the actual effectuation of any of them. They thus can be expected to treat each alliance much more instrumentally than would be the case for operational-level boundary spanners. Additionally, since the decisions surrounding the formation of an alliance (e.g., partner choice, resource contributions or collaborative arrangements) are of crucial, strategic importance for the organizations they represent, top-managers can be expected to arrive at them by way of relatively conscious rational

¹¹ Zucker (1986) distinguished in fact three mechanisms, with experience-based and reputation-based trust jointly constituting process-based trust. We choose to focus on each of the sub-types separately.

deliberations. Therefore in identifying sources of trust relevant at the strategic level, we turn to the theoretical paradigm of strategic choice, which focuses on motives like profit and growth as drivers of the strategic choices of top executives (Barringer & Harrison, 2000). Consequently, at the strategic level we expect strategic considerations to be dominant and trust founded on calculation, institutional safeguards, reputation and the track record of expectations fulfillment to be most relevant.

In Chapter 5 we will focus on sources of trust at the operational level and argue that the social learning perspective is the appropriate theoretical lens there. Accordingly, we will posit that the most relevant sources of trust at the operational level are the experience-based identification and the similarity-based shared social identity of the operational boundary spanners. Accordingly, we believe trust at the operational level to be less calculative in character. Arguably, similarly to the operational level some more relational aspects, next to strategic and calculative, would also be of importance at the strategic level. However, we would expect these to be primarily operational in the initial stages of the collaboration, when, for example, the partners are considering the potential for collaboration or its possible form. When it comes to drafting agreements, with specific deals being concluded and collaborative arrangements being decided on, the decisive factors would most likely be much more strategic in character. Considering the above, the subsequent discussion should be taken as reflection of our belief in the *dominant* role of the identified sources of trust at the strategic-level of analysis, rather than their exclusivity.

Calculation as a source of trust

The essence of calculation-based trust lies in the conviction that the partner will meet his obligations for fear of the consequences of not doing so (Lewicki & Bunker, 1996) and is based on hostages held mutually by the partners (Madhok, 1995). Calculation considers the impending punishments, but also the loss of potential rewards from breaching trust. Organizations that engage in a continuous collaboration have economic incentives to behave in a trustworthy manner as seeking short-term benefits may endanger the possibility of future, repeated transactions (Granovetter, 1985; Ring & Van de Ven, 1992). Thus high level and/or severity of potential consequences from terminating collaboration or placing the quality of the relationship at risk, is likely to result in trustworthy behavior of alliance partners. Such alignment of partners' incentives, in turn, is likely to find expression in collaborative arrangements that allow such flow of knowledge as is sufficient for assuring continued successful collaboration. This type of trust is relevant at the strategic level because, as we

argued earlier, decision behavior at the strategic level is predominantly of an instrumental nature. It seems plausible to expect that the level of trust held by organizational decision makers towards partner organization and its members would be correlated with whether they perceive the structure of the incentives to be conducive to parties' trustworthy behavior (i.e., abstention from opportunism).

Hypothesis 1: The magnitude of losses and/or lost opportunities for profit that the partner to the collaboration would incur from its potential termination, will positively affect the conduciveness of the collaborative arrangements to tacit knowledge flow from the focal organization to the partner.

Reputation as a source of trust

Reputation allows for confident expectations about the other's behavior based on third-party experiences. Reputation may be equated with the "record of cumulative past behaviors" (Parkhe, 1998a: 233) or "a symbolic representation of past exchange history" (Zucker, 1986: 62) and thus is positively related to trust (Ireland et al., 2002). The network of relationships in which firms are embedded is a rich source of information concerning the competencies and reliability of potential partners (Gulati & Gargiulo, 1999). These networks are what the decision makers rely on in deciding on the choice of potential collaborators (cf. Dollinger, Golden & Saxton, 1997; Gulati, 1995) and in evaluating the level of partner's expected trustworthiness. They also allow the decision makers to decide how much knowledge acquisition from the partner organization is desirable. Since we argued the trustworthiness of the partner to be an indicant of the knowledge quality to the organization, we hypothesize the following:

Hypothesis 2: The reputation of the partner as perceived by the focal organization will positively affect the conduciveness of collaborative arrangements to tacit knowledge acquisition from the partner.

Experience as a source of trust

Trust based on experience between partners is rooted in their repeated, current and past interactions (Rousseau et al., 1998; Lewicki & Bunker, 1996; Ireland et al., 2002), assuming these were accompanied by successful fulfillment of mutual expectations (Rousseau

et al., 1998). The better the past expectations have been met, “the more confident a firm’s decision makers will be in believing that a partner will follow through on its current” (Parkhe, 1993) and future promises. The better the collaborating organizations know each other, therefore, and the more dependable and reliable the partners have proven themselves to be (Rousseau et al., 1998; Ireland et al., 2002), the higher will be the strategic-level trust between them. Higher strategic-level trust, in line with our previous argument, should result in collaborative arrangements more conducive to knowledge flows and thus in superior learning outcome. Trust based on knowing the partner emerges from partners’ past interactions, i.e., prior collaborations (Madhok, 1995; Gulati & Gargiulo, 1999), and current interactions in the context of an on-going collaboration (Ireland et al., 2002). We thus hypothesize the following:

Hypothesis 3: The conduciveness of collaborative arrangements to tacit knowledge flow between the partners, will be positively affected by,

- a) the level of partners’ past experience with each other,
- b) the level of partners’ current experience with each other.

Institutions as a source of trust

Institution-based trust is grounded in values and standards of conduct that guide behavior as well as formal structures that enable and constrain it (Nooteboom, 2002). Institutions support risk taking and trusting behavior (Hagen & Choe, 1998) of both individuals and organizations (Rousseau et al., 1998). Institutionalization at the country-level encompasses shared values and norms of conduct, which constitute part of national culture (Nooteboom, 2002) as well as the framework of national laws and regulations (Kostova, 1999). Both norms and values as well as legislative systems are likely to vary significantly across cultures or countries and thus have different effect on the behavior of the entities and individuals whose actions they guide and regulate (cf. Fukuyama, 1995). Additionally, institutions that issue public statements concerning the qualifications and reliability of entities (for example professional certifications) as well as other bureaucratic structures are likely to serve as formal, social, trust-evoking structures (Parkhe, 1998b; Zucker 1986). The trust-inducing institutions are likely to vary not only between countries, but also between industries of one country, due to different legislation and private ordering arrangements.

The stronger the institutions, the easier it will be for business partners to rely on trust, since those institutions safeguard some of the potential for opportunistic behavior on the part of partners (Mudambi & Navarra, 2002). Therefore, the strength of institutionalization of the

environment in which the alliance is embedded should positively influence the level of strategic-level trust between partners for two reasons. First, it would increase the probability of the partner's behavior in conformance to a cultural norm of value. Second, it would mitigate the fear of partner opportunism. However, since all the JVs in our sample are based in one institutional environment, the assessment of the effect of institutions is impossible—in the context of our empirical investigation, they are constant.

In our analysis up till now, we have assumed a unidirectional effect of trust on interorganizational knowledge transfer. It is much more realistic, however, to view the effect as bi-directional. Also, we have implicitly assumed that more trust always results in a better learning outcome. In reality, however, limits to knowledge sharing based on trust are to be expected. Elaboration of both of these issues, however, is beyond the scope of this paper. For a more thorough discussion of the issues we refer to Chapter 3.

4.5. Data and method

Hypotheses developed in this paper have been tested on a sample of 149 joint ventures formed in Poland between a local and a foreign partner. In the context of its joining of the European Union, Poland constitutes an especially suitable setting for an empirical study of the role of trust in interorganizational knowledge transfer. In order to be competitive in the common market, Polish companies need to catch up with their European rivals in terms of new technologies and market-oriented management practices. Transition-economy organizations view foreign partners as rich reservoirs of new knowledge (Lyles & Salk, 1996) and collaboration with them as an effective learning mechanism (Child & Markoczy, 1993; Markoczy, 1993).

The data was gathered by way of a survey, which was carried out in the fall of 2002 and spring of 2003. An address database of international JVs operating in Poland, including the name and function of a contact person (usually the CEO or another top manager), was acquired from a Polish commercial address provider, Teleadreson. A package containing a questionnaire, a cover letter, a recommendation letter from the Dutch Embassy in Poland as well as a stamped return envelope was sent to 1218 JVs. 129 filled-out questionnaires were

returned, five of which were found to be unusable¹². This constitutes a 10,6% response rate. The nonrespondents were subsequently contacted by phone¹³ to inquire about the questionnaire. In 313 cases the firm was found not to be a joint venture (any more). An additional 79 firms were found not to be independent entities, not to exist any more, to have suspended their operations and/or to be in liquidation. 166 replacement questionnaires were sent out to firms that confirmed their JV status and indicated willingness to respond¹⁴. The second wave of mailing resulted in 26 additional responses (1 of them being unusable). The total response rate therefore, reached the level of 18,6% and is deemed to be of an acceptable level considering the transition economy standards¹⁵. The sample included both JV's that came to existence by way of creation of a new, separate entity as well as those where the foreign partner acquired a minority share in an existing Polish company.

The questionnaire itself was directed to the Poland-based JV organization. It was developed based on extensive literature review in the area of interorganizational learning and inter-partner trust as well as on an exploratory study which involved interviews with top managers of 9 Polish-foreign JVs. Questions were formulated with the aim to gauge the knowledge transfer processes between partners as well as the different sources of trust. The questionnaire was proof-read by a number of scholars both from the organization theory field and outside, with some having extensive experience with the survey method and some being native speakers of Polish. Subsequently, the questionnaire was tested on 4 JV managers to assure relevance and understandability of the questions as well as the appropriateness of the response scales.

Operationalization of the constructs posed a challenge. Especially in case of collaborative arrangements, which are a multidimensional construct (structure, systems and process), it was impossible to design a homogenous dependent variable. Therefore, resting on the assumption that the overall interorganizational knowledge flow (learning) between organizations is a sum of the collaborative arrangements and the sharing of knowledge between their boundary spanners, we adopted interorganizational learning as our dependent variable and controlled for the extent of knowledge sharing on the independent variable side.

¹² Due to clear misinterpretation of the purpose of the project by the respondent (as inferred from the respondent's comments) and thus unreliability of the answers provided.

¹³ In some cases the attempt was unsuccessful, due to missing or faulty phone numbers and companies not being listed in the on-line phone directory. There were a number of cases where despite the fact that the attempt was successful, it was impossible (despite numerous attempts) to obtain information about the questionnaire or the company's ownership status (JV or not).

¹⁴ In most cases the firms said not to have received the first questionnaire. Address or contact person misspecification was found to be a frequent occurrence.

¹⁵ Low response rates are due to: (1) lack of tradition to collaborate with academia and (2) large number of questionnaires received by most companies, which results in their reluctance to participate.

Thus, after factoring out the extent of sharing from the overall learning variable, we believe we were able to capture the collaborative arrangements as a dependent variable. Therefore, although in line with our argument, learning outcome in an alliance is a function of trust at both operational and strategic levels, by controlling for knowledge sharing we avoided an omitted variable bias and were able to partial out the effect of strategic level sources of trust on collaborative arrangements only. But operationalizing learning outcome was also far from straightforward, as it is debatable whether learning is an observable phenomenon, that is, whether acquiring new knowledge always finds reflection in organizational change. For the sake of empirical investigation, we assume that every time learning does take place it finds reflection in improved actions and modified routines of the organization (Fiol & Lyles, 1985; Levitt & March, 1996). This is a conservative measure of the amount of learning taking place in the JV.

To increase the reliability of the measures and limit the measurement error, multi-item scales were used to assess some of the constructs (Churchil, 1979). This was particularly the case for the more latent and core concepts like learning outcome, knowledge sharing, calculation and reputation. Prior collaboration and JV duration, as well as the governance structure and turnover are much more tangible variables, and thus were tapped with single item variables. Strategic alignment (one of the control variables), although quite intangible in its character, was also assessed by means of a single item construct due to its non-core nature (in the context of this study). As for the multi-item variables, where possible an attempt was made to include both objective proxies and perceptual measures.

We measured learning outcome, the dependent variable, with four items, addressing the areas in which knowledge was acquired and scope of the acquisition, the improvements that took place in the company as a result of the collaboration and their scope, as well as increases in efficiency due to learning and application of the knowledge acquired from the partner in the JV's operations. It is important to stress that our measure of learning outcome, besides transfer of existing knowledge may also be partly capturing the acquisition of knowledge newly created in the alliance. If this is indeed the case, the measure could be argued to misrepresent the intended construct and undermine the validity of our findings. There are two reasons why we believe the context in which the study was carried out (i.e., a transition economy) mitigates these concerns. First, the gap between the local partner and the foreign partner in terms of their knowledge bases is likely to be vast; while on one hand the Polish partner's knowledge with respect to operating in free market circumstances is likely to be very limited, on the other hand the foreign partner's knowledge of the Polish market can

also be expected to be very limited. Considering that creation of knowledge in an alliance requires certain proximity of the partners' knowledge bases, the increases in efficiency and the scope of changes reported by the local partner can plausibly be attributed to knowledge acquisition from the foreign partner rather than to joint knowledge creation. Related to the above, partners to a Polish-foreign joint venture would likely contribute very different skills to the collaboration. While the foreign partner can be expected to contribute superior technological or managerial knowledge, the Polish partner would be a rich source of local market knowledge. This would further limit the potential scope for knowledge creation.

As for independent variables, we operationalized calculation as the perceived negative effects of potential termination of the collaboration and measured it with a three-item composite variable. The items tapped such aspects of the cooperation as dependence of the JV's success on the continued collaboration with the foreign partner, potential severity of consequences of the foreign partner withdrawal from the collaboration as well as reputation consequences in case of conflictual termination of the cooperation. The reputation effect was gauged by a couple of items, related to the extent of partner research prior to engaging in the collaboration and the impact the partner's reputation has on the decision to engage in the collaboration. Finally, the effect of experience-based trust was captured by two independent variables. First, the effect of past experience was tapped with a dummy variable reflecting whether the partners collaborated in any way in the past. Second, the effect of current experience was captured with the JV duration item. For the exact wording of all the items see Appendix 1.

In our analyses we also included four control variables. First and most importantly, we controlled for the amount of knowledge sharing between organizational boundary spanners. As was argued above, the extent of actual learning between organizations is a function of the sharing between interacting boundary spanners *as well as* the collaborative arrangements that make the sharing possible. In this paper we focus on the latter element and how it is affected by strategic level trust between partners. Sharing is not a function of strategic-level trust but of operational-level trust (see Chapter 3). Therefore, in assessing the impact of strategic-level trust on interorganizational learning, we need to control for the extent of actual knowledge sharing between partner boundary spanners. We capture the sharing with a two-item composite variable. The two measures related to the sharing of knowledge between the foreign partner's employees and those of the JV.

Second, and related to sharing, we control for the turnover of the boundary spanners responsible for the day-to-day contacts with the partner organization. Turnover is likely to

affect the extent of learning between partners, independent of the collaborative arrangements; individuals occupying boundary positions can be replaced without the collaborative arrangements being altered. The effect of higher turnover on learning can be twofold. On one hand, it can stimulate learning; frequent rotation of the staff delegated to the JV by the parent(s) may increase the scope for learning (cf. Harrigan, 1985) as every new boundary spanner is likely to be a fresh source of knowledge. On the other hand, it may hinder the learning process by undermining the built up of trust between boundary spanners (cf. Inkpen & Beamish, 1997) and consequently the extent of knowledge sharing between them. The effect of turnover was tapped with a single item, which related to the frequency of change in the positions responsible for contacts with the foreign partner.

Third, we controlled for the alignment of strategic goals of the JV and the foreign partner. When the strategic goals of the alliance partners collide, i.e., they are (potential) competitors, there is risk of spillover (Inkpen, 1998, 2000). Spillover risk implies the possibility of valuable organizational knowledge leaking to a competitor who can use it to leverage its competitive stance vis-à-vis the organization (Cohen & Levinthal, 1990). When such risk is high, therefore, partners can be expected to be less willing to share knowledge with each other and the collaborative arrangements to be less conducive to the inter-organizational knowledge flow. We expect therefore the structuring of strategic goals to have a direct effect on learning independent of the level of trust that is present in the relationship. The effect of strategic alignment was captured with one item variable that assessed the frequency with which the JV goals and those of the foreign partner collide (reverse coded).

A word of comment seems in place on the difference between the calculation dimension of the relationship (hypothesized effect) and the strategic alignment (control variable). While calculation in the relationship captures the potential negative consequences of terminating the collaboration (reflects therefore strategic interdependence), strategic alignment considers the extent to which the overall strategic business objectives of the partners are aligned (do not collide), independent of the collaboration at hand. These are two conceptually different aspects of inter-firm collaboration, which is substantiated by the low 0.20 correlation between the variables that capture the two effects (see Table 4.5).

Finally, since the sample included both JV's set up by way of a separate entity and a minority share alliance, we controlled for the governance structure effect by including a dummy variable that equaled 1 when a JV was a separate entity. There are two reasons why we believe this effect should be controlled for. First, separate entity JVs and minority share alliances may be argued to be quite different from the point of view of risks that knowledge

sharing involves. Compared to separate entities, minority share alliances may offer the partners a different scope for monitoring the use of knowledge subsequent to its transfer. Second, the choice of a governance structure might not be a free choice of the alliance partners. Polish regulations impose restrictions on foreign ownership in certain branches of industry. Additionally, in case of companies undergoing privatization, an external investor is often allowed to hold only a minority share in the previously fully state-owned enterprise (Janowicz, Piaskowska & Trojanowski, 2004). This consideration obviously affects the choice between full ownership and minority share governance rather than between a separate entity JV and a minority share governance. Nevertheless, it does suggest that minority share alliances might be different from the separate entity JVs in terms of motivations underlying their formation (if in fact, a minority share alliance is a default option in case full ownership is not allowed).

Before proceeding with our analyses, the discriminant and convergent validity of the composite variables needs to be assured. With the exception of two, all items used in the composite variables were measured on a 7-point Likert type scale. The two exceptions are items 1 and 2, which are product variables (a product of count measure with ranges from 0 to 9 and from 0 to 7, respectively, and an 7-point item). See Appendix 1 for details. Although no strict levels of skewness and kurtosis pointing to departure from normality exist, skewness in the range 2.00 to 3.00 and kurtosis in the range from 7.00 to 21.00, are considered to be an indication of moderate nonnormality. Skewness and kurtosis of above 3.00 and 21.00, respectively, are an indication of extreme nonnormality (Byrne, 1998). Considering these criteria and the fact that the average skewness and kurtosis for the items are 0.80 and -0.75 respectively, we can likely consider the scores below as approximating normality. Table 4.1 presents the descriptive statistics for the items.

Table 4.1. Descriptive statistics for composite variable items.

	Mean	St. Dev.	Skewness	p-value	Kurtosis	p-value
Knowledge acquisition	17.47	14.73	5.19	0.00	1.13	0.26
Introduced improvements	12.24	12.00	5.16	0.00	0.46	0.64
Knowledge application	4.30	2.04	-0.21	0.30	-1.27	0.00
Efficiency improvement	4.18	1.91	-0.15	0.46	-1.17	0.00
Foreign partner sharing	3.56	2.04	0.31	0.12	-1.19	0.00
JV sharing	3.65	1.99	0.28	0.16	-1.10	0.00
Partner research	3.47	1.97	0.21	0.31	-1.21	0.00
Impact of reputation	4.64	2.23	-0.54	0.01	-1.20	0.00
Withdrawal consequences	5.30	1.73	-0.80	0.00	-0.09	0.98
Success dependence	4.60	2.00	-0.45	0.02	-1.07	0.00
Negative reputation effect	4.31	2.28	-0.19	0.33	-1.52	0.00

To evaluate the reliability of the measures we used Confirmatory Factor Analysis, coefficient alpha and $\rho_{vc(\eta)}$ indicators. The confirmatory factor analysis (CFA) was carried out with the maximum likelihood estimation in LISREL 8.3 (Jöreskog and Sörbom, 1993). Each item was restricted to load on its specified construct, with the 4 constructs being allowed to correlate freely. The chi-squared for this model was not significant – chi-squared=46.30, df=37, p-value=0.14. The fit indices – the Absolute Fit Indices GFI (0.95) and AGFI (0.90) as well as the Comparative Fit Index (CFI=0.99) and the Incremental Fit Index (IFI=0.99) are all of high level. Additionally, the Root Mean Square Error of Approximation (RMSEA) was assessed as it incorporates a penalty for lack of parsimony. It took on a value of 0.041. All of the above point to a very good fit of the model with the sample observations. Cronbach’s alpha for learning (four items) equaled 0.83, for sharing 0.86, for calculation 0.82, and for reputation 0.72. A final measure of reliability we used were the $\rho_{vc(\eta)}$ indicators. Value of more than 0.50 indicates that the variance captured by each construct is larger than the variance due to measurement error, which supports the validity of the constructs as well as the individual indicators that constitute them (Fornell & Larcker, 1981)—see Table 4.2 below.

Convergent validity of the constructs is established when the confirmatory factor analysis model fits the data and the factor loadings are significant (Abe, Bagozzi & Sadarangani, 1996). The first condition was discussed above and fully supports the claim of convergent validity. All constructs demonstrated large and significant standardized loadings and the average loading size equaled 0.77. All of this points to a desirable level of convergent reliability.

Table 4.2. Confirmatory Factor Analysis (CFA) results

<i>Construct</i>	$\alpha / \rho_{vc(\eta)}$	Standardized item loading	t-value
Learning	0.83 / 0.64		
Knowledge acquisition		0.80	10.89
Introduced improvements		0.81	11.15
Knowledge application		0.51	6.20
Efficiency improvement		0.74	9.85
Sharing	0.86 / 0.78		
Foreign partner sharing		0.97	13.96
JV sharing		0.78	10.45
Organization level reputation	0.72 / 0.59		
Partner research		0.69	5.06
Impact of reputation		0.83	5.37
Organization level calculation	0.82 / 0.61		
Withdrawal consequences		0.75	10.08
Success dependence		0.94	13.73
Negative reputation effect		0.66	8.62

A test for the presence of discriminant validity between constructs involves a comparison of a model in which the constructs are allowed to correlate freely with a model in which the correlations between them are fixed to be 1; the larger the difference in the chi-square of the two models as well as in the GFI and CFI values they yield, the stronger the evidence of discriminant validity (Byrne, 1998). The difference in chi-squared between the two models equaled 189.39 (df=6) and was highly significant. The difference in GFI between the two models equaled 0.17 and 0.24 in CFI. Therefore, both statistical and non-statistical criteria provide evidence of discriminant validity being present between the constructs. Discriminant validity can also be inferred from the correlation estimates between any two constructs (Jöreskog and Sörbom, 1993). As evidenced in Table 4.3, no correlation took on a value of 1 (Anderson and Gerbing, 1988). The highest correlation was 0.59 between learning and sharing. This high value is to be expected however as it captures the relationship between closely related, yet distinct concepts.

Table 4.3. Inter-construct correlations and squared correlations (in the brackets)

	Learning	Sharing	Reputation	Calculation
Learning	1.00			
Sharing	0.59 (0.35)	1.00		
Reputation	0.27 (0.07)	0.19 (0.04)	1.00	
Calculation	0.52 (0.27)	0.50 (0.25)	0.08 (0.01)	1.00

The discriminant validity of pairs of constructs with highest correlations (i.e., 0.5 and above) was additionally assessed using the strict Fornell and Larcker (1981). This was accomplished for each set of constructs by comparing two nested confirmatory factor analytical models; one where the constructs were allowed to correlate freely with another where they were perfectly correlated¹⁶. As was the case for the general discriminant validity, the larger the difference in Chi-squared and practical fit measures (i.e., CFI/GFI) between the models, the stronger the support for evidence of discriminant validity of the traits (Byrne, 1998). Table 4.4 presents the results of this investigation.

In all three cases the difference in chi-squared between the two models turned out to be strongly significant ($p < 0.001$). Also, in all three cases the difference in the practical model fit was quite substantial. Therefore, on the strength of both statistical and nonstatistical criteria, there is sufficient evidence for discriminant validity of the constructs.

¹⁶ LISREL 8.3 statistical package was used.

Table 4.4. Discriminant validity of pairs of traits

		Chi-squared	df	CFI	GFI
Learning vs. Sharing	Free	11.92	7	0.99	0.97
	Constrained	80.25	8	0.87	0.85
	Δ	68.33	1	0.12	0.12
Learning vs. Calculation	Free	15.02	12	0.99	0.97
	Constrained	106.38	13	0.84	0.83
	Δ	91.36	1	0.15	0.14
Sharing vs. Calculation	Free	3.86	4	1.00	0.99
	Constrained	78.89	5	0.75	0.82
	Δ	75.03	1	0.25	0.17

Finally, the discriminant validity between two constructs (η and ξ) is assured when indicator $\rho_{vc(\eta)} > \gamma^2$ and $\rho_{vc(\xi)} > \gamma^2$, where γ^2 is equal to squared correlation between the two constructs (Fornell & Larcker, 1981). This was the case for all pairs of our constructs, which satisfies the requirement of discriminant validity (see Table 4.3). For all the composite variables, the scores on the individual items were summed and divided by the number of items. In the case of the learning outcome variable, where the scales of the items were not commensurable, the items were standardized prior to averaging their scores.

Besides the composite variables described and established above, we employed a number of single item variables. JV duration took on values ranging from 0 (set up in 2002) to 19 years. Prior ties was a dummy variable, which equaled 1 when the partners collaborated in any form in the past and 0 if they did not. The strategic alignment was captured by means of a 7-point Likert scale variable. Similarly, the boundary spanner turnover was measured on a 7-point Likert scale and transformed into logarithmic terms before its inclusion in the models, due to its pronounced skewness. Finally, a dummy variable captured the effect of the JV governance structure, taking on the value of 1 when a separate entity was formed and 0 when the JV took a form of a minority share alliance.

We tested for the possible non-response bias by evaluating the differences in the means of the 16 variables (11 construct items and 5 single-item variables: strategic alignment, turnover, governance form, JV age, prior ties) between the early and the late respondents (Armstrong & Overton, 1977). The early respondents included the first 60% batch of returned questionnaires, while the late respondents the remaining 40% of responses. Such categorization approximately reflected the actual inflow of the questionnaires (cf. Lages & Lages, 2003). With the exception of one item, no significant differences between the early and late respondents were found. The two groups did significantly differ on one of the items constituting part of the calculation construct (i.e., perceived negative effect of conflictual termination of the collaboration for the JV's reputation). The average for early respondents

equaled 3.91 while for the late respondents 4.90, with the item being measured on a 7-point Likert scale. We do not see this as a strong evidence of non-response bias, nor do we perceive this to pose a serious threat to the reliability of our results.

The instrument (i.e., questionnaire) used in this study could have created a common method variance. This would be particularly likely have the respondents known the theoretical framework used in designing the tool (Lages & Lages, 2003). This was, however, not the case. Additionally the items were not presented to the respondents in any way that would suggest the purpose of the study. To further check for a possible common method bias, we have performed a principal component analysis on the perceptual items (11 construct items, strategic alignment and turnover items) in our model. Four factors with eigenvalues above 1 were identified, with the first factor accounting for 36% of the total variance. Based on the above, we conclude that the presence of common method bias is unlikely in our data.

All hypotheses were tested by means of multiple regression¹⁷. Table 4.5 presents the descriptive statistics for the variables used in the models. Some missing values were encountered. They were dealt with by applying list-wise deletion. To make the fullest possible uses of the scarce data, this was done, however, on a model-by-model basis, hence differences in sample size across the models. The highest correlation can be observed for the Learning and Sharing constructs (0.59). Yet, since the discriminant validity of the two constructs has been established and no evidence of multicollinearity in our models exists, we confidently proceed with the model estimation. Also, variance inflation factors (VIF's) were calculated to check for the presence of possible multicollinearity. There is evidence of multicollinearity if the largest VIF is larger than 10, and the mean of all VIF's is considerably larger than 1 (StataCorp, 2001). As reflected in Table 4.6, no such evidence is to be found in our sample. Additionally, all the models were tested for the presence of omitted variable bias and heteroskedasticity¹⁸. No evidence of either of those problems was found.

¹⁷ STATA 7.0 statistical package was used.

¹⁸ With 'vif', 'ovtest' and 'hettest' commands in STATA 7.0.

Table 4.5. Descriptive statistics and correlations

	Mean	St.dev	N	1.	2.	3.	4.	5.	6.	7.
1. Alignment	5.51	1.77	149	1.00						
2. Turnover (ln)	0.24	0.44	149	0.01	1.00					
3. Sharing	3.60	1.89	149	-0.20	0.18*	1.00				
4. Calculation	4.76	1.71	147	0.20*	0.30*	0.50**	1.00			
5. Reputation	4.06	1.87	145	-0.04	-0.12	0.19*	0.08	1.00		
6. JV duration	9.26	2.86	149	0.07	0.08	-0.15	-0.10	-0.02	1.00	
7. Learning	-0.00	0.81	146	0.18*	0.25**	0.59**	0.52**	0.27**	-0.10	1.00
8. Prior ties ^a	0.39	0.49	149							
9. Separate entity ^a	0.81	0.40	149							

^a We do not report correlations for prior ties and separate entity as the two variables are binary.

4.6. Results

Table 4.6 (below) presents the results of multiple regression analysis. Models 1 and 2 present the effect of control variables on learning, without and with the sharing effect, respectively. Models 3 through 5 test the effects of primary interest in the paper, with the tests for hypotheses 1, 2 and 3 tested for separately. Pairs of the hypothesized effects are tested for simultaneously in models 6 through 8. Finally, model 9, tests for all hypothesized effects simultaneously.

Table 4.6. Parameter estimates (standardized)

Learning	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Alignment	0.07*	0.07*	0.05 [†]	0.08**	0.09**	0.06 [†]	0.06*	0.09**	0.06*
Turnover	0.47**	0.32*	0.21 [†]	0.38**	0.37**	0.27*	0.26*	0.42**	0.31*
Separate ent.	-0.41*	-0.32*	-0.36**	-0.30*	-0.39**	-0.33*	-0.43**	-0.35**	-0.39**
Sharing		0.24**	0.18**	0.22**	0.23**	0.16**	0.18**	0.22**	0.16**
Calculation			0.12**			0.12**	0.12**		0.13**
Reputation				0.09**		0.08**		0.08**	0.07**
Prior ties					0.30**		0.31**	0.28*	0.30**
JV duration					-0.00		0.00	-0.00	0.00
Constant	n/s	(-)**	(-)**	(-)**	(-)**	(-)**	(-)**	(-)**	(-)**
N	146	146	144	142	146	140	144	142	140
R ²	0.13	0.42	0.46	0.46	0.45	0.49	0.49	0.49	0.52
Adj. R ²	0.11	0.41	0.44	0.44	0.43	0.47	0.47	0.46	0.49
Max VIF	1.00	1.03	1.49	1.07	1.09	1.59	1.50	1.10	1.61
Mean VIF	1.00	1.02	1.20	1.04	1.06	1.22	1.18	1.07	1.21

[†] Significant at p < .10

* Significant at p < .05

** Significant at p < 0.01

The constant term was found to be negative and significant in all but one model (i.e., Model 1, where the constant is not significant). The increase in the R² upon inclusion of subsequent explanatory variables, however, suggests that the explanatory power of our models is considerable. We observe the largest increase in R² between Models 1 and 2, upon

inclusion of the sharing control variable. Also, addition of the focal explanatory variables (in Models 3 through 9) results in an increase of 0.1 in R^2 (compare model 9 with model 2). Across all models the four control variables are significant. Three of them, in particular—sharing, alignment and turnover—demonstrate a positive effect on inter-partner learning. The effect of the alliance being a separate entity, in contrast, negatively affects the extent of learning.

Focusing now on Models 3 through 9, calculation and reputation demonstrate a positive and significant effect on interorganizational learning. Hypotheses 1 and 2 are thus supported. As for Hypothesis 3, we find only partial support; hypothesis 3a is supported, 3b is not. While past collaborative experience between partners appears to stimulate learning between them, this is not so for the current experience as measured with JV duration¹⁹.

4.7. Discussion

Our results support the argument that the presence of sources of strategic-level trust between collaborating organizations positively affects learning between them. We find that higher calculation of the JV, higher perceived reputation of the partner, and past collaborative experience of both, result in a superior learning outcome for the JV. Current collaborative experience does not have such an effect.

We find that sharing has a positive and significant effect on learning. This finding is not surprising; the more knowledge the organizational boundary spanners share with each other, the more learning can be expected to take place between organizations. Related to that, we find the effect of boundary spanner turnover on the inter-organizational learning to be positive. Apparently higher turnover contributes to greater scope for learning as new boundary spanners bring in fresh knowledge. This points to the direct effect of turnover on the learning outcome, i.e., turnover affecting the novelty of knowledge, rather than an indirect effect, i.e., turnover negatively effecting sharing through the mediating effect of decreased level of trust.

The above two findings have important implications for our other findings; even after controlling for the two effects (sharing of knowledge and the turnover of the boundary

¹⁹ Since our dependent variable besides knowledge transferred might have captured some knowledge created in the alliance, a curvilinear effect of the duration variable could be expected (Nooteboom, 1999). The model was re-specified to include a quadratic effect of alliance duration, however, the corresponding coefficient proved to be insignificant while all other results remained unaffected.

spanners), we still find substantial support for (most of) our hypotheses. What that implies is that besides the actual sharing of knowledge between organizational boundary spanners, there are other conditions (i.e., collaborative arrangements) that determine the interorganizational learning process. Not only that, the significant effects that we find, demonstrate that the conduciveness of these conditions to learning is (partially) explained by the presence of sources of inter-partner trust at the strategic-level. Therefore, although the effect of sharing accounts for a large portion of the explained variance in our models, the positive effect of strategic level trust on the conduciveness of collaborative arrangements to knowledge flows between the partners, is substantiated by our models. Consequently, in our further discussion we will refer to the effect of various sources of trust on collaborative arrangements, rather than the overall learning process.

The results of experience on the collaborative arrangements offer interesting findings. The current collaborative experience, captured by the duration of the present collaboration, remains insignificant throughout the models. In contrast, prior experience as reflected in prior ties of the partners, turns out to have a positive and significant effect on the conduciveness of the collaborative arrangements to knowledge sharing. That finding appears to be in line with our argument that trust between executive boundary spanners (strategic-level trust) is based on more instrumental grounds than the trust between interacting boundary spanners. In specific, it supports our claim that executive boundary spanners do not engage in the direct, day-to-day implementation of the alliance tasks—therefore the level of their trust would not change within the timeframe of a given collaboration and would not have an effect on the conduciveness of the collaborative arrangements to knowledge sharing. Yet, since the decisions makers would treat each collaboration more instrumentally, prior successful collaborations with a specific partner would result in higher strategic-level trust and thus willingness to authorize higher knowledge flows between operational boundary spanners. Our results, therefore, seem to support the argument of strategic-level trust being based on more strategic and instrumental grounds, than that of lower level boundary spanners.

We find that calculative bases of trust have a positive effect on the conduciveness of the collaborative arrangements to knowledge sharing. The higher the stakes of preserving the collaboration for the JV, the more trustworthy it is perceived to be and consequently the more willing the foreign partner tends to be to make its knowledge accessible. This translates into collaborative arrangements that allow for greater sharing between boundary spanners. More generally, this finding supports our argument that higher calculation of the partners with

respect to their collaborative relationship results in higher mutual knowledge transfers between them.

Finally, better reputation of the partner as perceived by the JV appears to have a positive effect on the conduciveness of the collaborative arrangements to knowledge flows. Two different effects may be at play here. First, higher perceived reputation of the foreign partner may be a source of trust and a proxy for the quality of tacit knowledge it holds and therefore result in an increased learning intent on the JV's part. Second, foreign partner's well established reputation, may result in more trustworthy behavior on its part, as the incentives for opportunism are curbed by the potential damage it may engender for the reputation. This in turn is likely to be reflected, among others, in the willingness to make the knowledge more accessible to the JV. Overall the higher esteem of each other the partners hold, the greater their mutual trust is likely to be, with the resulting higher conduciveness of the collaborative arrangements to mutual knowledge flows.

The control variables also provide some compelling findings. The alignment of the partners' strategic goals appears to result in higher partner openness to knowledge sharing as reflected in the collaborative knowledge arrangements. We argued that partners would be more willing to make knowledge accessible to and acquire knowledge from the partner if they did not perceived each other to be competitors. We indeed find that the higher the alignment of the strategic goals of the collaborating parties, the more learning takes place between them.

Finally, the governance structure of the alliance appears to have a significant impact on learning between the partners. In specific, the conduciveness of collaborative arrangements to knowledge sharing turns out to be lower in JVs formed as a separate entity. Apparently partners are not ready to share as much knowledge in the context of separate entity JVs, as in the case of minority share alliances. This might have to do with the possibility to monitor the knowledge flows being higher in minority share alliances. This would be relevant in particular for the Polish partner on whose premises the collaboration and thus the knowledge sharing take place. The question remains, however, as to why there would be more willingness on the foreign partner's part to allow for greater flows of knowledge to a JV that is a minority share alliance as compared to separate entity alliances. This issue requires further investigation in future research.

4.8. Conclusions and limitations

We have presented an explicit argument for the effect of interorganizational trust at the strategic level on interorganizational learning in the context of a strategic alliance. We have posited that due to their position in the organizational hierarchy, executive decision makers have the power to shape collaborative knowledge arrangements. We defined these as a sum of structure, system and process related factors in the interorganizational collaboration, which determine the extent of possible knowledge sharing between partner boundary spanners at the operational level. Therefore, we argued, that while the actual sharing of knowledge between boundary spanners of the partnering organizations affects the interorganizational learning directly, the collaborative knowledge arrangements do so indirectly. We have posited that the latter is a function of interorganizational trust at the strategic-level.

We have tested our theoretical predictions on a sample of Polish-foreign joint ventures. To that end, we have employed an alternative approach to empirical measurement of trust. Namely, we have identified relevant sources of strategic-level trust and used those as proxies for the level of trust in the collaboration. In formulating our hypotheses, therefore, we have related the different sources of trust at the strategic level to the learning outcome directly, without the mediating effect of an umbrella concept of trust. Our results reveal that calculation, reputation and past experience, three out of four bases of strategic-level trust we have identified, significantly affect the conduciveness of the collaborative arrangements to knowledge sharing between alliance partners. These findings support our argument that trust at the strategic level is determined by factors of calculative and strategic nature.

This study is marked by a number of limitations. From the theoretical point of view, inter-organizational learning incorporates both acquisition and internalization of partner knowledge (Kale et al., 2000). Newly acquired knowledge can further organization's goals only inasmuch as it is disseminated and integrated within the organization (Jelinek, 1979). While, trust between organizations is likely to affect the transfer of knowledge, the internalization of knowledge can be argued to depend on the level of trust between organizational members. The latter being an intraorganizational process, falls beyond the scope of this paper. Our dependent variable, however, being composed of items that next to knowledge acquisition refer to the resultant organizational change and efficiency improvements as well as knowledge application to organization's operations, captures both knowledge acquisition *and* internalization. Yet, on the independent variable side, we capture

the determinants of inter-partner knowledge transfer only. Not all knowledge transferred (acquired) from the partner is subsequently assimilated, and the factors that hinder the full assimilation of the acquired knowledge are not taken into account in our analysis. This is the likely reason for the negative and significant effect of the constant term in our models. If our dependent variable captured knowledge transfer explicitly, we would expect the constant term to be around 0. However, our dependent variable captures the learning from the foreign partner, which by definition can only be equal to or lower than the amount of knowledge transferred. From that perspective the negative effect of the constant term can be interpreted to be a correction for the overstatement of the magnitude of transfer.

Second, in obtaining our data, we were able to interview one side of the collaboration only. This is an obvious limitation to the study, especially since such elusive aspects of collaboration as trust are considered. Comparing the attitudes of the foreign partner organization would have greatly enriched the data and strengthened the findings. However, by attempting to gauge the presence of sources of trust in the relationship, rather than trust itself, we believe, we have been able to alleviate part of the bias inherent in our research design. This is due to the fact that sources of trust can be considered to be, to a large extent, symmetrical for the collaborating parties, which would be much less so for the subjective perception of trust by one of the collaborating parties.

Third, a critique can be raised that the conditions, which we consider to be sources of trust between partners, may have a direct impact on learning, independent of their effect on trust. This seems to be particularly a concern for the experience variable—JV duration. The length of the ongoing collaboration could be argued to directly affect learning between partners through its influence on knowledge novelty; as the partners collaborate the scope for learning between them would decrease. On the other hand, duration could also have a positive direct effect on learning, by allowing partners to get to know each others' knowledge-bases and develop routines for collaboration and knowledge sharing in specific. However, the fact that we find a positive significant effect of prior ties on learning and no such effect for JV duration suggests that we are in fact capturing the effect of experience on trust and not a direct effect of experience on learning. If the latter were the case, we would have expected to find an effect of duration on learning (whichever direction the effect would take) and no effect of prior ties. As for calculation and reputation, there does not seem to be a reason to suspect they would have a direct effect on learning, i.e., not mediated by trust. Therefore, we believe the results we obtain testify against this possible limitation of our study, i.e. the potential direct effect of sources of trust on learning.

More in general, one could criticize our approach to measuring trust based on the idea that it is impossible to prove that sources of trust (i.e., mechanisms of its formation) lead to trust and thus cannot be treated as proxies thereof. However, a similar argument can be raised with respect to instruments that measure trust by tapping its behavioral manifestations, e.g., generous information sharing, task coordination, informal agreements, or low surveillance and monitoring (cf. Currall & Inkpen, 2002). Trustworthy behaviors cannot be proven to result from trust only—they can be conditioned by other factors, unilateral dependence for example (cf. Nooteboom et al., 1997). From that perspective, outcomes or manifestations of trust can be criticized for not being good proxies of trust in the same way as sources of trust can. Of course, there are also a number of instruments aiming to measure trust directly by probing into the perceived trustworthiness, fairness, benevolence, reliability, honesty of the partner or the overall harmony of the relationship (e.g., Cummings & Bromiley, 1996; Mohr & Spekman, 1994; Zaheer & Venkatraman, 1995). However, all such measurements of trust are bound to be strongly subjective due to interpretational biases of the individuals reporting it (i.e., different respondents would likely understand those differently). What all of the above points to is that trust being an unobservable variable, there is no perfect way to measure it—any approach is likely to suffer from some weaknesses.

Fourth, since all the joint ventures in our sample were based in one institutional context, we were not able to evaluate the effect institutions as a source of trust between partners on learning between them. We consider further investigation of this issue as a direction for future research. Finally, future research should undertake to factor the effect of partners' wider networks of relationships into the analysis of interorganizational trust and knowledge flows, as these are likely to affect their dyadic relations (Nooteboom, 1999).

Chapter 5

Determinants of interorganizational knowledge sharing: operational-level trust and collaborative arrangements

5.1. Background

The growth in the number of strategic alliances since the beginning of the '90s has exceeded 25 percent annually (Inkpen, 1998). Strategic alliances encompass a broad range of contractual forms, from arm's-length contracts to equity joint ventures (Gulati & Gargiulo, 1999). Learning between partners is an important aspect of inter-firm collaboration, because of the opportunities and threats it poses to the cooperating firms (Hamel 1991; Kogut 1988). Concurrently, the notion of trust emerges as an important factor for understanding human nature and exchange relationships of market participants, while the emphasis on opportunism in, for example transaction cost economics (Williamson, 1985), is subjected to much criticism (Ghoshal & Moran, 1996). In specific, trust, as an expectation of the partner's reliability with regard to his obligations, predictability of behavior, and fairness in actions and negotiations while faced with the possibility of behaving opportunistically (cf. Zaheer, McEvily & Perrone, 1998), is argued to be an important variable in interorganizational cooperation (e.g., Gulati, 1995; Madhok, 1995).

A high level of trust is suggested to have a positive effect on knowledge sharing (McEvilly, Perrone, & Zaheer, 2003) in both *intra*-organizational (e.g., Kostova, 1999; Makino & Inkpen, 2003; Tsai & Ghoshal, 1998) and *inter*-organizational contexts (Geringer, 1988; Dyer & Chu, 2003; Inkpen, 1997; Hedlund, 1994). However, most of the studies take the effect of trust on learning for granted or handle it marginally. Yet, there is need to understand what it means for collaborating organizations to trust each other, as those who

frame their strategic intentions are often distinct from those who actually implement them at the operational level; a consideration that is rarely reflected in research on learning in interorganizational alliances (Salk & Simonin, 2003).

In investigating the effect of trust on interorganizational learning, therefore, one should consider the potential role of trust at (at least) two levels. As it was argued in chapter 3, trust between boundary spanners of the top management level, i.e., strategic-level trust, affects interorganizational learning differently than trust between operational level boundary spanners, i.e., operational-level trust. In this chapter, we focus specifically on the latter and argue that it is likely to differ from strategic-level trust not only in its effects, but also in its character. We also identify sources of trust likely to be relevant for the formation of trust at this level. Overall, we use social learning theory to analyze how trust at the operational level, with its distinct antecedents and consequences, affects learning between partners. Yet, the extent of knowledge sharing between partner boundary spanners depends not only on their willingness, but also on the opportunity they have to do it. The opportunities for knowledge sharing are determined by the organizational decision makers of the allying organizations. We endeavor therefore to identify the different structures, systems and process through which the top managers can stimulate (or hinder) knowledge flows between organizations.

In light of the above the contribution of this paper is threefold. First, we formulate an *explicit* theoretical argument for why trust between the operational-level boundary spanners of the alliance partners would result in superior knowledge sharing between them. In doing that, we point out the qualitative differences between trust at the strategic and operational level and the unequal role they play in interorganizational knowledge transfer. Second, we identify sources of trust relevant for the operational level of analysis and argue that they can be used as predictors of trust at this level. This yields theoretical insight into the formation of interorganizational trust at the operational level but also constitutes a basis for an alternative approach to tapping trust in interorganizational relationships, which we subsequently demonstrate. We empirically test the link between sources of trust at the operational level and the knowledge sharing between organizations boundary spanners. Third, we identify the different elements of collaborative arrangements and investigate their effect on the sharing of tacit knowledge in alliances.

The paper proceeds as follows. First, we explore the issue of inter-partner knowledge transfer in alliances. We delineate the process of knowledge sharing and collaborative arrangements that determine its possible extent. Second, we define the concept of operational level trust and explicate why we believe it to be conducive to knowledge sharing. Finally, we

formulate and test hypotheses linking sources of operational-level trust and elements of collaborative arrangements to the process of inter-partner knowledge sharing. Conclusions follow.

5.2. Inter-partner knowledge transfer

Some authors point to interorganizational learning as the primary reason for the existence of alliances (Salk & Simonin, 2003; Hamel, 1991; Kogut, 1988; Kogut & Zander, 1992; Lyles, 1988). Others, however, argue that many alliance partners do not have a well-defined learning objective (e.g., Hagedoorn & Sadowski, 1999; Inkpen, 2000). We distance ourselves from that dispute, and assume that whether some alliances are formed for the sole purpose of acquiring knowledge from the partner or not, they do offer opportunities for learning between the partners (cf. Inkpen, 1997). In particular, extant literature views alliances as a particularly suitable environment for allowing partners' to mutually access and share each other's knowledge-based, organizationally embedded, tacit resources (Hall, 1992; Inkpen, 1997; Powell, Koput, & Smith-Doerr, 1996). Whether the partners actually take advantage of this opportunity, is a question we do not seek to address here.

Knowledge may be explicit or tacit (Polanyi, 1962). The former is systematic, formalized and transferable without loss of integrity (Kogut & Zander, 1992; Polanyi, 1962). Its transfer across organizational boundaries is thus likely to be for the most part unproblematic. Tacit knowledge in contrast is intuitive and unarticulated, cannot be verbalized, and thus cannot be easily transferred (Martin & Salomon, 2003; Kale, Singh, & Perlmutter, 2000; Polanyi, 1962). Tacit knowledge is the personal judgment that comes in between explicit formulations of knowledge (e.g., rules, formulae) and the actual experience of an individual's senses (Tsoukas, 2003). It finds expression in the skills of an individual, the rules of behavior which s(he) is usually not consciously aware of (Polanyi, 1962). Compared to explicit knowledge, the flows of tacit knowledge necessitate more informal control mechanisms (Makhija & Ganesh, 1997) as well as a higher level of understanding and commitment of the learning parties (Brown & Deguid, 1991). Tacit knowledge transfers are thus best achieved by means of strong ties that assure the necessary intensity of interaction (Dyer & Nobeoka, 2000), quality of communication and "intimacy" between the partners (Szulanski, 1996). Arguably, the effectiveness of such mechanisms is contingent on the level

of trust between the parties. We conclude, therefore, that trust between the partners would be more relevant for the transfer of tacit knowledge than for the transfer of explicit knowledge and so in our further analysis focus on this type of knowledge only.

5.2.1. Knowledge sharing

Successful transfer of tacit knowledge between alliance partners requires wide-ranging, continuous, face-to-face interactions between individual members of the two organizations (Inkpen & Dinur, 1998; Lane & Lubatkin, 1998; Kale et al., 2000). These can be achieved, among others, by means of organized personnel contacts, meetings and transfers of managers (Makhija & Ganesh, 1997). In fact, the greater the tacitness of knowledge the more individuals must be the transfer agents (Inkpen & Dinur, 1998; Hedlund, 1994). Yet, although the cognitive process of learning is individual in nature, the social context in which it takes place is of crucial importance (Brown & Deguid, 1991; Powell et al., 1996).

One of the basic precepts of the social learning theory is that learning is situated in the context of social activity and practice, (Plaskoff, 2003; Elkjaer, 1999, 2003; Fox, 2000) and accomplished through socialization, “observation and emulation of skilled practitioners” (Easterby-Smith & Arujo, 1999: 5). Learning emerges thus as a product of social interactions of individuals within the context of communities of practice (Fineman, 2003), one of the primary notions of this theory (Fox, 2000). Communities of practice encompass individuals working closely together towards accomplishment of certain tasks (Fox, 2000). In the process, their members develop shared identity, which allows for the built-up of social networks along which tacit knowledge can travel efficiently (Brown & Deguid, 1991). The shared practice that members of a community of practice engage in can thus be said to constitute the rail along which tacit knowledge can travel within a community of practice. What the above implies is that sharing of tacit knowledge across organizational boundaries requires the formation of communities of practice that would cut across these boundaries. This can be achieved by creating conditions in which the operational-level boundary spanners of alliance partners can interact closely together, for example by jointly engaging in the effectuation of alliance tasks.

5.2.2. Collaborative arrangements

We use the term *collaborative arrangements* to refer to conditions that contribute to the emergence of crosscutting communities of practice and thus affect the extent of possible knowledge flows between organizations. In other words, collaborative arrangements

determine to what extent the intimate, face-to-face, interactions between organizational boundary spanners from the partner organizations, which enable tacit knowledge sharing, are possible (Kale et al, 2000; Inkpen & Dinur, 1998; Dyer & Singh, 1998). We conceptualize collaborative arrangements as any combination of interorganizational structure, systems and management process elements that are put in place and modified in the course of collaboration by the decision makers (cf. Prahalad & Bettis, 1986) with the aim to stimulate or prevent knowledge flows between the organizations they represent. These knowledge management mechanisms, by fostering, blocking or delaying knowledge flows between partners, are a strong determinant of learning between the partners (Doz, 1996; Tiemessen, Lane, Crossan & Inkpen, 1996).

An optimal configuration of the collaborative arrangements assures the flow of information necessary for the alliance to function successfully, while simultaneously preventing uncontrolled flow of proprietary knowledge (Ireland, Hitt, & Vaidyanath, 2002). The above also implies that although “most learning takes place at the lower levels of alliance”, where the operating employees “play a vital role in acquiring knowledge”, the learning process must begin at the top (Hamel, Doz, Prahalad, 1989: 138), with top management’s commitment to knowledge acquisition from the partner. Consequently in our further analysis we differentiate between the flow of knowledge along the lines of practice within cross-organizational communities of practice *and* the collaborative arrangements making this flow possible. While the former affect knowledge transfer directly, the latter do so indirectly.

5.3. Interpartner trust at the operational level

Organizations are made up of and managed by individuals (Aulakh, Kotabe & Sahay, 1996) through whom inter-firm relations come into effect (Inkpen & Currall, 1997; Nootboom, Berger & Noorderhaven, 1997). These actors, however, play different roles in organizations and thus have unequal power to impact organization’s behavior in the collaborative context. Every position in organizational hierarchy is associated with a certain role, which reflects the expectation with respect to the position holder’s contribution to the operational and strategic tasks (Floyd and Lane, 2000). Organizational roles thus restrict and guide individuals’ conduct in an organizational (Nootboom et al., 1997). This implies that

individuals involved in an alliance on both sides are likely to play different roles depending on the position they occupy in the organizational hierarchy. While the roles of the top management are dominated by decision-making tasks (e.g., ratifying or directing), those of the non-executive managers encompass primarily communication of and reaction to information (e.g., implementing, facilitating, conforming or responding) (Floyd and Lane, 2000). Therefore, while top (executive) managers can influence the overall cooperation policy of the organization, this is clearly not the case for operational level employees, who will likely be responsible for its implementation. Therefore, strategic-level trust defined as the attitude held by the company's executives towards the partner firm (cf. Inkpen & Currall, 1997) and its members (cf. Gulati & Gargulio, 1999) is bound to be manifested in the collaboration policy of the firm in general and collaborative knowledge arrangements in specific.

In contrast, and more importantly from the point of view of this paper, operational-level trust between organizations captures trust held by the non-executive boundary spanners of the collaborating organizations, who "provide the linking mechanism across organizational boundaries" (Inkpen & Currall, 1997) as they carry out the operational tasks of the collaboration. Currall & Inkpen (2002) define 'trust network' as the sum of interpersonal trust in a joint venture, i.e., trust present in all dyadic relationships of boundary spanners from the partnering organizations. Our definition of operational-level trust includes a trust network thus defined but is still broader; it additionally comprises the boundary spanners' trust towards the partner organization. Therefore, the object of the operational-level trust can be the partner organization as an entity and/or its individual members. Although previous research has shown that individuals with ease distinguish between trust towards the partner organization and an individual counterpart boundary spanner (for example Zaheer, Lofstrom, & George, 2002), we do not expect the extent of knowledge sharing to be systematically affected by whether the object of trust is an individual or an organization. In fact, it seems plausible to assume that a certain level of trust in both is needed for knowledge sharing to occur. Of course, the effect of trust in a counterpart boundary spanner and in the partner organization are unlikely to be independent. We expect that the two are positively associated.

5.3.1. Effect of operational level trust on knowledge sharing

In the context of social learning theory, we expect operational-level trust to play a positive role in stimulating knowledge sharing between partner boundary spanners (cf. McEvilly et al., 2003). First, undertaking learning involves risk as admitting an error or asking for help can signal incompetence and negatively affect one's image (Edmondson,

1999). Potential for embarrassment and interpersonal threat can thus impede learning (Argyris, 1982). Social construction of knowledge is argued to be a process fraught with conflict inherent in any social process (Easterby-Smith & Arujo, 1999). Learning is thus an emotional process (Elkjaer, 1999), and knowledge “an emotionalized commodity.” (Fineman, 2003: 65). “Excessive concern about others’ reactions to actions that have the potential for embarrassment or threat, which learning behaviors often have” (Edmondson, 1999: 355) can be alleviated by team psychological safety. Trust is one of the foundations for creating the climate of psychological safety (Edmondson, 1999) and thus can be expected to positively affect learning behavior of team members.

Second, as Brown & Starkey (2000) argue, individuals may resist learning because it might challenge their existing concepts of self. Resistance to internalize knowledge from a given source (Szulanski, 1996) can be at least partially overcome if the source is perceived to be trustworthy. A trusting disposition towards another person makes one more open and susceptible to the influence exerted by this person (Chiles & McMackin, 1996) in terms of selection of goals, choice of methods, and evaluation of progress (Porter, 1997). Trustworthiness of the source can thus be conceived of as “a proxy for quality and veracity of the knowledge conveyed” (McEvelly et al., 2003). Perceived value of the knowledge, in turn, is likely to influence student’s openness to assimilate it. Polanyi (1962: 53) stresses:

“to learn by example is to submit to authority. You follow your master because you trust his manner of doing things even when you cannot analyze and account in detail for its effectiveness. By watching the master and emulating his efforts in the presence of his example, the apprentice unconsciously picks up the rules of the art, including those which are not explicitly known to the master himself. These hidden rules can be assimilated only by a person who surrenders himself to that extent uncritically to the imitation of another”.

Thirdly, individuals who view knowledge as a source of power may resist sharing it (Kim & Mauborgne, 1998; Szulanski, 1996) or even erect barriers to prevent its incidental leakage. Trust between actors fosters free exchange of information, as they do not feel the need to guard themselves against opportunistic behavior of the other party (Jarillo, 1988). Therefore, if the sender of knowledge trusts the receiver, the former is likely to be more open in sharing the knowledge (Nahapiet & Ghoshal, 1998). In fact Edmondson & Moingeon,

(1999) argue that in the context of organizational learning “trust can be seen as a decision to place resources (i.e. knowledge) at others’ disposal”.

Based on the above, we posit that higher operational-level trust, by increasing the parties’ willingness to make themselves vulnerable to each other (cf. Sarkar, Cavusgil, & Evirgen, 1997), mitigates the perceived risks involved in the learning process and thus leads to higher knowledge sharing between the interacting boundary spanners of the two partner organizations.

5.4. Sources of trust at the operational level

Extant literature on trust posits that the overall attitude of a trustor towards a trustee is a product of a number of conditions. Experience, reputation, similarity, institutions²⁰ (Zucker, 1986) and calculation (e.g., Rousseau, Sitkin, Burt, & Camerer, 1998; Doney & Cannon, 1997) have been identified in the literature as the primary modes of trust formation between partners. We believe that new insights can be derived from applying the trust production modes approach to analyzing the effect of multilevel trust on interorganizational learning, as different mechanisms of trust formation are likely to be relevant at different levels (cf. Doney & Cannon, 1997). Therefore, we subsequently undertake to identify those modes of trust production, which we believe to be of primary importance at the operational level. We do not wish to suggest that these particular modes are exclusive of others. Rather the argument is intended to reflect our belief in the *dominating role* of the identified sources of trust for the operational level of analysis.

Using social learning theory we have argued that shared practice leads to the development of shared identity among people, and thus constitutes a rail along which tacit knowledge can travel between the interacting boundary spanners of the alliance partners. Brown & Deguid (1999) posit that such shared identity can come about in the context of two kinds of networks. The first, and already mentioned, is the *community* of practice, characterized by high intensity of personal interactions among the members who engage in joint execution of tasks. Zucker (1986: 62) argues that extensive interaction of a small number of “individuals involved in a limited set of exchanges” over long periods of time results in the development of trust between them. In the process of working closely together members of

²⁰ Zucker (1986) distinguished in fact three mechanisms, with experience-based and reputation-based trust jointly constituting process-based trust. We choose to focus on each of the sub-types separately.

communities of practice can therefore be expected to develop trust, i.e., experience-based trust, which in turn facilitates knowledge sharing between them.

Experience-based trust between partners is based on their repeated, past interactions (Rousseau et al., 1998; Lewicki & Bunker, 1996), under the assumption that these were accompanied by successful fulfillment of mutual expectations (Rousseau et al., 1998: 399). In its deepest form, trust based on experience takes the form of identification (Rousseau et al., 1998), where parties learn to recognize and understand each other's desires, preferences and intentions (Lewicki & Bunker; 1996). Identification of members of a community of practice with each other has been argued to make the efficient sharing of tacit knowledge between them possible (cf. Brown & Deguid, 1999; Plaskoff, 2003). We argue therefore that through processes of repeated, close interactions within crosscutting communities of practice boundary spanners develop trusting relationships which result in higher knowledge sharing between them. The experience-based trust between organizational boundary spanners may be related to the past as reflected in the previous collaborations of the partners or to the present as reflected in the duration of the current collaboration. We thus hypothesize the following:

- Hypothesis 1:** The extent of tacit knowledge sharing between boundary spanners of collaborating organizations will be positively affected by the level of their:
- a) past collaborative experience with each other,
 - b) current collaborative experience with each other.

Besides a community of practice, trust between individuals can come about in the context of yet another kind of network. Individuals who engage in a similar practice, but do not work on common tasks and may never come to know each other personally are part of a *network* of practice (Brown & Deguid, 1999). This implies that by practicing the same profession, individuals become part of one network of practice, regardless of whether they are members of the same organization or will ever meet in person or not. According to social identity theory individuals use groups to which they belong (i.e., social aggregates) to construct their own identity and accordingly categorize others as in-group or out-group members (Kane, Argote & Levine, 2002). At the same time, individuals' identities (i.e., social groups with which they identify) determine the extent to which they perceive each other to be similar.

When people identify with a given social group, it allows them to “surface certain cognitive assumptions about themselves in relation to others” (Child & Rodrigues, 2003: 537) as well as “expectations about the behaviors and intentions of the members of a collectivity” (McEvelly et al., 2003: 98). In particular, social similarity, in terms of values and beliefs, as well as personalities, demographics, educational and professional backgrounds, leads to the assumption that common background expectations exist and opportunistic behavior is unlikely (Zucker, 1986). As a result of social categorization and in-group bias processes, in-group members therefore tend to be evaluated more positively than out-group members, in terms of their cooperativeness, commitment (McEvelly et al., 2003) as well as honesty, loyalty, benevolence, and trustworthiness (Kane et al., 2002; Doney & Cannon, 1997). These positive attributions stemming from social similarity are likely to produce trust between individuals (Brewer, 1981; Burt, 1992; Porter, 1997; McGuire, 1968)—the type of trust called characteristic-based trust by Zucker (1986). Participation in the same network of practice, by providing the basis for the formation of characteristic-based trust (cf. Zucker, 1986) therefore, can be considered a condition that supports the development of trust between members of a community or practice.

In the alliance context, shared occupational identity of the gatekeepers may thus “serve as a bridge” between the alliance partners (Child & Rodriguez, 2003: 544). Linking of collaborating organizations along the lines of networks of practice, therefore, by fostering practice-based social identity, is likely to be conducive to operational-level trust and knowledge sharing between their boundary spanners. Consequently, we expect the following:

Hypothesis 2: The extent of tacit knowledge sharing between boundary spanners of collaborating organizations will be positively affected by the level of their professional similarity.

Thus, we expect experience and similarity to be the most important determinants of operational-level trust and thus to have a positive affect on knowledge sharing between partner boundary spanners. These two types of trust are likely to reinforce each other. Plaskoff (2003) stresses that development of in-group identification is fostered by the alignment of cultural elements, as well as common reference points (e.g., experiences, frameworks). This would suggest that similarity would not only result in more trust (direct effect) but also stimulate the boundary spanners’ propensity to interact and thus positively affect experience-based trust.

5.5. Effect of collaborative arrangements on knowledge sharing

Earlier, we have defined collaborative arrangements as those elements of interorganizational structure, systems and management process that condition the flow of knowledge between alliance partners. We now take a closer look at each group of elements and discuss their impact on interorganizational knowledge sharing in more detail. First, decisions about alliance *structure* include the choice of a partner and ownership form. The choice of a partner determines what tacit knowledge resources can be contributed to the alliance (Tiemessen et al., 1996) and the ease with which they can be transferred (Prahalad & Bettis, 1986; Bettis & Prahalad, 1995; Lyles & Salk, 1996). Partners whose primary business activities are more similar are likely to find each other's knowledge more relevant. Therefore, they would have more to learn from each other. Also they would likely be able to do so with more ease (cf. Cohen & Levinthal, 1990); Lane and Lubatkin (1998) found that firms learn more from each other when their knowledge bases are more similar. Also, firms are likely to learn from each other with more ease when their norms and values are compatible (Prahalad & Bettis, 1986; Bettis & Prahalad, 1995). In contrast, culturally distant partners are likely to experience obstacles to knowledge sharing (cf. Kostova, 1999). Empirical research has shown that cultural distance is negatively associated with the efficiency of knowledge transfers between partners (Parkhe, 1991, 1993; Mowery, Oxley & Silverman, 1996).

Ownership and governance structures are likely to have a bearing on knowledge acquisition in alliances (cf. Lyles & Salk, 1996) as some structures may offer greater opportunity for knowledge flows than others. Structures that allow for closer and more intimate interactions between the partner boundary spanners are likely to be characterized by more extensive knowledge flows between the organizations. Also, structures that require greater commitment of the partners are likely to be more conducive to knowledge sharing between boundary spanners of the collaborating partners. This is because partners' commitment is likely to translate into greater involvement of their part and thus more opportunities for knowledge flows. We hypothesize, therefore, the following:

- Hypothesis 3:** The extent of tacit knowledge sharing between boundary spanners of collaborating organizations will be positively affected by the:
- a) similarity of the partners' primary business activity,
 - b) partners' cultural similarity,
 - c) alliance form(s) granting possibility for more intense interactions,
 - d) alliance form(s) requiring more commitment on the partners' part.

Among collaborative management *systems* two categories can be distinguished; those, which by providing opportunities for knowledge sharing have a direct effect on knowledge, transfer, and those that by affecting the level of control over the alliance by the partners (i.e., control mechanisms) have an indirect effect on knowledge transfer. The first group comprises mechanisms that provide the opportunity for evolution of communities of practice and the 'bleeding of ideas' between the organizations (Inkpen & Dinur, 1998; Ireland et al., 2002; Lyles and Salk, 1996; Lane, Salk & Lyles, 2001). Training provided by the partners to each other is argued to be a conduit of both explicit as well as tacit knowledge (cf. Nonaka, 1994). Lyles & Salk (1996) found strong empirical support for training programs being an important knowledge acquisition mechanism. Second, control mechanisms may stimulate knowledge sharing, by assuring the necessary reciprocal information flow capacity in an alliance (Kumar & Seth, 1998; Tiemessen et al., 1996). They may also help the partners protect themselves against the adverse effects of unintended flows of knowledge (Geringer & Hebert, 1989). Expatriate managers delegated by the partner(s) to the alliance are argued to be an efficient channel for knowledge flows across the organizational interface (Hamel, 1991; Kogut & Zander, 1992). Empirically, higher numbers of foreign partner employees working in an international joint venture have been shown to be associated with higher levels of knowledge acquisition by the IJV (Lyles and Salk, 1996). Expatriates can also be argued to be an effective venue for a foreign parent to acquire local knowledge from the alliance. We therefore hypothesize that:

- Hypothesis 4:** The extent of tacit knowledge sharing between boundary spanners of the collaborating organizations will be positively affected by the:
- a) frequency of training provided by the partners to alliance employees,
 - b) number of expatriates delegated by the partners to the alliance.

Finally, besides structure and systems, interpartner knowledge flows require appropriate *processes* (Zaheer & Vankatraman, 1995; Lane et al., 2001). Fairness of the decision processes, by increasing the perception of procedural justice, is likely to positively affect the extent of knowledge sharing the parties engage in. Steensma and Lyles (2000) found that balanced approach to decision-making power in international JVs reduces the level of inter-partner conflict. Lower conflict, in turn, can be expected to result in higher knowledge sharing. It is also argued that knowledge sharing is facilitated by the creation of an integrating frame of reference (cf. Child & Rodrigues, 2003) by means of context-oriented, culture-based mechanisms (Geringer & Hebert, 1989; Das & Teng, 1998). These include rituals, traditions, ceremonies or networks (Makhija & Ganesh, 1997) as well as other processes of manager socialization, which can assure the necessary reciprocal information flow capacity in an alliance (Kumar & Seth, 1998). Partners are likely to learn more from each other, not only when their knowledge bases are similar (hypothesis 1a) and norms and values are compatible (hypothesis 1b) but also when their “dominant logics”, or ways of doing things are aligned (Prahalad & Bettis, 1986; Bettis & Prahalad, 1995). We expect, therefore, that similarity of partner business practices would likely stimulate knowledge sharing between their boundary spanners.

Hypothesis 5: The extent of tacit knowledge sharing between boundary spanners of collaborating organizations will be positively affected by the:

- a) perceived fairness of the decision processes in the alliance,
- b) similarity of the partners’ business practices.

5.6. Data and method

Hypotheses developed in this paper have been tested on a sample of 149 joint ventures formed in Poland between a local and a foreign partner. Poland constitutes an especially suitable setting for an empirical study of the role of trust in interorganizational knowledge transfer, in the context of it joining of the European Union. In order to be competitive in the common market, Polish companies need to catch up with their European rivals in terms of new technologies and market-oriented management practices. Transition-economy organizations view foreign partners as rich reservoirs of new knowledge (Lyles & Salk, 1996)

and collaboration with them as an effective learning mechanism (Child & Markoczy, 1993; Markoczy, 1993).

The data was gathered by way of a survey, which was carried out in the fall of 2002 and spring of 2003. An address database of international JVs operating in Poland, including the name and function of a contact person (usually the CEO or another top manager), was acquired from a Polish commercial address provider, Teleadreson. A package containing a questionnaire, a cover letter, a recommendation letter from the Dutch Embassy in Poland as well as a stamped return envelope was sent to 1218 JVs. 129 filled-out questionnaires were returned, five of which were found to be unusable²¹. This constitutes a 10,6% response rate. The nonrespondents were subsequently contacted by phone²² to inquire about the questionnaire. In 313 cases the firm was found not to be a joint venture (any more). Additional 79 firms were found not to be independent entities, not to exist any more, to have suspended their operations and/or to be in liquidation. 166 replacement questionnaires were sent out to firms that confirmed their JV status and indicated willingness to respond²³. The second wave of mailing resulted in additional 26 responses (1 of them being unusable). The total response rate therefore reached the level of 18,6% and is deemed to be of an acceptable level considering the standards for transition economy²⁴. The sample included both JV's that came to existence by way of a new, separate entity as well as those where the foreign partner acquired a minority share in an existing Polish company.

The questionnaire itself was directed to the Poland-based JV organization. It was developed based on extensive literature review in the area of interorganizational learning and inter-partner trust as well as on an exploratory study which involved interviews with top managers of 9 Polish-foreign JVs. Questions were formulated with the aim to gauge the knowledge transfer between partners as well as the different sources of trust. The questionnaire was proof-read by a number of scholars both from the organization theory field and outside, with some having extensive experience with the survey method and some being native speakers of Polish. Subsequently, the questionnaire was tested on 4 JV managers to

²¹ Due to clear misinterpretation of the purpose of the project by the respondent (as inferred from the respondent's comments) and thus unreliability of the answers provided.

²² In some cases the attempt was unsuccessful, due to missing or faulty phone numbers and companies not being listed in the on-line phone directory. There were a number of cases where despite the fact that the attempt was successful, it was impossible (despite numerous attempts) to obtain information about the questionnaire or the company's ownership status (JV or not).

²³ In most cases the firms said not to have received the first questionnaire. Address or contact person misspecification was found to be a frequent occurrence.

²⁴ Low response rates are due to: (1) lack of tradition to collaborate with academia and (2) large number of questionnaires received by most companies, which results in their reluctance to participate.

assure relevance and understandability of the questions as well as the appropriateness of the response scales.

We measured knowledge sharing, the dependent variable, with two items, addressing the extent of knowledge sharing between the foreign partner employees and those of the JV. Similarity of the boundary spanners was operationalized with two items relating to the similarity of their educational backgrounds and professional experience. All the above four items were measured on a 7-point Likert scales. For both the composite variables, the scores on the individual items were summed and divided by the number of items. The effect of experience-based trust was captured by two variables, one for hypothesis 1a and one for hypothesis 1b. First, the effect of past experience was tapped with a dummy variable reflecting whether the partners collaborated in any form in the past. It took on value of 1 when it was the case and 0 when it was not. Second, the effect of current experience was captured with the JV duration item. It took on values from 0 (set up in 2002) to 19 years.

Turning now to the independent variables related to the collaborative arrangements, the similarity of the partners in terms of primary activity was captured with a single item measured on a 7-point Likert scale. The (lack of) cultural similarity was measured with the composite cultural distance index based on the Hostede's 4 dimensions as developed by Kogut & Singh (1988). The extent to which the alliance structure grants possibility for intense interactions between partner boundary spanners was proxied with the governance form of the alliance. In minority share alliances knowledge sharing is likely to be greater since they offer possibility for more extensive and intimate interactions between the partner firms compared to separate entity alliances. The variable was a dummy, which took on the value of 1 when the joint venture was set up by way of a separate entity and 0 when it was formed through an acquisition of a share in an existing venture. The extent to which the alliance requires commitment on the partners' part was proxied with its ownership structure. The higher the share held by a partner in the JV, the more involved in the functioning of the alliance the partner can be expected to be. The respondents were asked to indicate the share held by the foreign partner in 20% intervals. The scores on this item were later recoded into a 5-point scale. Collaborative systems were proxied with the frequency of training offered to the JV employees by the foreign partner, and the number of expatriates delegated to the JV by the foreign partner (both variables were measured on 7-point Likert scales). Due to their pronounced skewness (2.24 and 3.18 respectively) both system variables were transformed into logarithmic terms prior to their inclusion in the models. The process aspects of collaborative arrangements, finally, were captured with two perceptual, single-item measures,

referring to the perceived fairness of the decision processes and similarity of the business practices of the partners. Again, both of them were measured on a 7-point Likert scale.

In our analyses we also controlled for two additional effects. First, sharing of knowledge between boundary spanners may result not only from trust but also from conformance to their superiors' expectations to sustain good working relationship with their counterparts. In other words, some of the trustworthy behavior of the boundary spanners might result from their compliance to job requirements, rather than from their intrinsic motivation to do so. We measured the level of such expectation with a single item variable, related to the extent to which superiors expect the boundary spanners to sustain good cooperation with their counterparts. Second, yet related to the above, the extent to which the partner employees engage in knowledge sharing with each other might depend on the strategy adopted by the organization's management concerning knowledge sharing. Organizational decision makers may decide to intervene in the knowledge sharing processes not only by way of the collaborative arrangements, but also by explicit instructions given to their subordinates. We tapped this effect with a dummy variable, which equaled 1 when the employees were instructed to limit the amount of knowledge sharing with their counterparts, and 0 when this was not the case.

Before proceeding with the analyses, we need to evaluate the reliability and discriminant validity of the two composite variables, sharing and similarity. First, we assessed their reliability by calculating coefficients alpha and $\rho_{vc(\eta)}$ indicators. Coefficient alpha for sharing equaled 0.86 and 0.77 for boundary spanner similarity. The $\rho_{vc(\eta)}$ for sharing and similarity equaled 0.77 and 0.63. A value of more than 0.50 indicates that the variance captured by each construct is larger than the variance due to measurement error, which supports the validity of the constructs as well as the individual indicators that constitute them (Fornell & Larcker, 1981). Thus for both the variables the above condition was satisfied and reliability of the measures assured. Discriminant validity of two constructs (η and ξ) is assured when indicator $\rho_{vc(\eta)} > \gamma^2$ and $\rho_{vc(\xi)} > \gamma^2$, where γ^2 is equal to squared correlation between the two constructs (Fornell & Larcker, 1981). This was the case for our two constructs, the square correlation of which equals 0.13. The requirement for discriminant validity was thus satisfied.

We tested for the possibility of non-response bias by evaluating the differences in the means of the 16 variables (12 single item variables and 4 items constituting the 2 composite variables) between the early and the late respondents (Armstrong & Overton, 1977). The early respondents included the first 60% batch of returned questionnaires, while the late

respondents the remaining 40% of responses. Such categorization approximately reflected the actual inflow of the questionnaires (cf. Lages & Lages, 2003). No significant differences between the early and late respondents were found. Therefore, we do not find any evidence of non-response bias in our data.

The instrument (i.e., questionnaire) used in this study could have created a common method variance. This would be particularly likely have the respondents known the theoretical framework used in designing the tool (Lages & Lages, 2003). This was, however, not the case. Additionally the items were not presented to the respondents in any way that would suggest the purpose of the study. To further check for a possible common method bias, we have performed a principal component analysis on the perceptual items in our model. Three factors with eigenvalues above 1 were identified, with the first factor accounting for 38% of the total variance. Based on the above, we conclude that common method bias is unlikely to be present in our data. Table 5.1 presents descriptive statistics for the variables used in the models.

5.7. Results

All the hypotheses were tested by means of multiple regression²⁵. Some missing values were encountered. They were dealt with by applying list-wise deletion. To make the fullest possible uses of the scarce data, this was done, however, on a model-by-model basis, hence differences in sample size across the models. The models were tested for the presence of multicollinearity by means of variance inflation factors (VIF's). There is evidence of multicollinearity if the largest VIF is larger than 10, and the mean of all VIF's is considerably larger than 1 (StataCorp, 2001). As reflected in Table 5.2. no such evidence is to be found in our sample. Additionally, all the models were tested for the presence of omitted variable bias and heteroskedasticity²⁶. No evidence of either of those problems was found. Table 5.2 presents the results of multiple regression analysis.

²⁵ STATA 7.0 statistical package was used.

²⁶ With 'vif', 'ovtest' and 'hettest' commands in STATA 7.0.

Table 5.1. Descriptive statistics and correlations

	Mean	St.dev	N	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
<i>1. Good collaboration required</i>	5.61	1.60	147	1.00										
<i>2. BRP similarity</i>	5.13	1.52	148	0.32**	1.00									
<i>3. JV duration</i>	9.26	2.86	149	0.05	-0.03	1.00								
<i>4. Similarity in business activity</i>	4.63	2.32	147	0.12	0.21*	-0.24**	1.00							
<i>5. Cultural distance</i>	1.79	1.26	147	-0.07	-0.08	0.09	-0.14	1.00						
<i>6. Foreign partner share</i>	3.53	1.12	149	-0.01	0.05	-0.00	0.26**	0.05	1.00					
<i>7. Frequency of training (ln)</i>	0.45	0.53	149	0.17*	0.24**	-0.11	0.28**	-0.02	0.24**	1.00				
<i>8. Number of expatriates (ln)</i>	0.25	0.42	148	0.15	0.05	-0.04	0.12	-0.04	0.02	0.27**	1.00			
<i>9. Procedural justice</i>	4.82	1.98	148	0.10	0.09	-0.01	-0.07	0.09	-0.10	0.06	-0.03	1.00		
<i>10. Organizational practices</i>	4.07	1.65	148	0.24**	0.48**	0.02	0.16	-0.03	0.16*	0.20*	0.07	0.28**	1.00	
<i>11. Sharing</i>	3.60	1.89	149	0.33**	0.36**	-0.15	0.49**	-0.04	0.22**	0.54**	0.25**	0.14	0.21**	1.00
<i>12. Protectiveness^a</i>	0.22	0.22	148											
<i>13. Prior ties^a</i>	0.39	0.39	149											
<i>14. Separate entity vs. minority share alliance</i>	0.81	0.81	149											

^a We do not report correlations for prior ties and separate entity as the two variables are binary.

Table 5.2. Parameter estimates (standardized)

<i>Sharing</i>	1	2	3	4	5	6	7	8	9	10	11
<i>Good cooperation. required</i>	0.41**	0.43**	0.30**	0.32**	0.28**	0.24**	0.30**	0.20*	0.22*	0.22**	0.19*
<i>Protectiveness</i>	-0.73*	-0.81*	-0.76*	-0.83*	-0.61 [†]	-0.67*	-0.84*	-0.53 [†]	-0.69*	-0.69*	-0.55 [†]
<i>Prior ties</i>		0.32		0.18	0.31	0.19	0.11	0.17	0.29	0.13	0.17
<i>JV duration</i>		-0.11*		-0.10*	-0.04	-0.07	-0.10*	-0.03	-0.04	-0.07	-0.02
<i>BRP similarity</i>			0.37**	0.35**	0.26**	0.25**	0.35**	0.19*	0.28**	0.27**	0.21*
<i>Business similarity</i>					0.29**			0.24**	0.29**		0.25**
<i>Cultural distance</i>					0.01			0.01	-0.01		-0.01
<i>Separate entity</i>					-0.17			0.46	-0.31		0.36
<i>Foreign partner share</i>					0.17			0.08	0.21		0.12
<i>Training (ln)</i>						1.43**		1.34**		1.40**	1.28**
<i>Expatriates (ln)</i>						0.61 [†]		0.62 [†]		0.64*	0.67*
<i>Fairness of decisions</i>							0.07		0.16*	0.09	0.14*
<i>Practices alignment</i>							-0.00		-0.08	-0.04	-0.08
<i>Constant</i>	(+)**	(+)**	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>N</i>	146	146	145	145	142	144	143	141	140	142	139
<i>R²</i>	0.14	0.18	0.22	0.25	0.37	0.42	0.25	0.51	0.39	0.42	0.51
<i>Adj. R²</i>	0.13	0.15	0.20	0.22	0.33	0.39	0.21	0.46	0.33	0.38	0.46
<i>Max VIF</i>	1.01	1.02	1.12	1.15	1.23	1.19	1.41	1.35	1.52	1.43	1.53
<i>Mean VIF</i>	1.01	1.02	1.08	1.07	1.13	1.11	1.16	1.18	1.20	1.18	1.24

[†] Significant at $p < .10$

* Significant at $p < .05$

** Significant at $p < 0.01$

Model 1 presents the effect of control variables on knowledge sharing. Models 2, 3, and 4 test the effects of boundary spanner similarity as well as past and current experience, separately and jointly. Models 5, 6, and 7 present the effects of structure, systems and process elements on sharing separately. Models 8, 9 and 10 include two of the collaborative arrangements categories each, while model 11 includes all hypothesized and control explanatory variables simultaneously.

The constant term turned out to be insignificant in almost all models. The two exceptions are Models 1 and 2. We also observe a steady increase in the value of R^2 upon the addition of additional explanatory variables. Both the above findings suggest that we are able to capture a significant amount of variance in the dependent variable. Across all models the two control variables are significant and in the expected direction. As for our focal variables, past experience (i.e., prior ties) fails to reach significance in any of the models; Hypothesis 1a is therefore not supported. Current experience (i.e., JV duration) reaches significance in some models only (see Model 2, 4 and 7), and not otherwise. However, even in the models where it is significant the coefficient takes on a negative value, which is contrary to our expectations and indicates lack of support for Hypothesis 1b²⁷. Overall, we do not find support for Hypothesis 1. We find that boundary spanner similarity positively and significantly affects knowledge sharing across all models thus supporting Hypothesis 2.

The effect of similarity in primary business activity is strongly significant and of the expected direction across all models (see Models 5, 8, 9, 11). None of the other structure variables reach significance in any of the models. Therefore, Hypothesis 3a is supported while Hypotheses 3b through 3d are not. Among system variables, the frequency of training provided by the foreign partner is strongly significant and positive in all the models, yielding support for hypothesis 4a. The number of expatriates delegated to the JV, also takes on the expected positive value, and is significant. Hypothesis 4b, therefore, is also supported. Hence we find overall support for Hypothesis 4. Finally, among process variables, fairness of decision process reveals an expected positive effect, which however, is only significant in two out of four models (see Model 9 & 11). We therefore find some support for hypothesis 5a. As for similarity of business practices of the partners, it not only fails to reach significance in any of the models, but it also takes on a consistently negative sign. Hypothesis 5b is thus not supported.

²⁷ We ran two alternative specifications of the model, one to check for a curvilinear effect of the alliance duration variable and one to check for the presence of a similar effect of cultural distance variable. The quadratic terms in both cases failed to reach significance, while the other results remained unaltered.

5.8. Discussion

Our results support the argument that both the presence of certain sources of operational-level trust and various elements of collaborative arrangements are conducive to knowledge sharing between partner boundary spanners in alliances. First, we find strong support for the effect of characteristic-based trust (based on occupational identity) on the extent of knowledge sharing. It points to the importance of allocating appropriate individuals to the boundary spanner functions. Boundary spanners who are similar in terms of their educational and professional backgrounds will be able to build trust faster and share knowledge more efficiently as they engage in the joint execution of the day-to-day operational tasks of collaboration.

In all the models, the effect of current experience is consistently negative, which is contrary to our predictions. However, the effect remains for the most part insignificant. The negative estimates are counterintuitive from the point of view of the expected build-up of operational-level trust as the collaboration continues. A likely explanation for this finding is that JV duration is a poor proxy for experience-based trust, which fails to probe into the actual experiences of the partners in interacting with each other, whether their expectations were met or not. It does not reflect the extent to which these experiences increased partners' regard for each others' competence, benevolence and integrity. If the above is true, the negative experience effect that we capture, rather than being a source of trust, would reflect the direct impact that duration of a collaborative relationship has on sharing. As the collaboration continues, the novelty of knowledge held by the partner would likely go down, and the intensity of knowledge sharing could be expected to decrease.

We also did not find support for trust-based on experience being a determinant of knowledge sharing. The effect of prior collaborations on sharing between partner boundary spanners remains insignificant throughout the models. This in fact seems to be an intuitive finding as prior collaborations between organizations as a whole are unlikely to affect the level of trust between the operational-level boundary spanners within one specific JV. The sharing of knowledge, as we argued, is a highly social process, based on intimate, personal interactions and interpersonal trust. Such trust is unlikely to carry from one collaboration to another, as probability is high that different persons would hold the boundary-spanning functions. Past collaborative experiences should therefore rather be expected to affect strategic level trust rather than trust between individuals. Unlike in the case of current

experience, we do not have concerns about the quality of the measure used here. We consider the dummy variable for previous collaborations to be a good proxy for (past) experience-based trust; partners' willingness to engage in collaboration *again* is a reflection of their mutual expectations having been met in the past.

A second major finding of our study is the positive effect of various collaborative arrangements on the knowledge sharing processes. All three groups of factors turn out to have some effect on the process. Among the structural elements, only similarity in the partners' primary business activity has the expected positive effect on interorganizational knowledge sharing. What this implies is that the choice of a partner firm with a relevant knowledge base is crucial for stimulating sharing of knowledge between the boundary spanners. This, of course, is a highly intuitive finding. Surprisingly the cultural distance between partners does not seem to affect the knowledge sharing processes in any way. The reason for that might be that our dependent variable captured the extent of sharing the boundary spanners engage in rather than the efficiency of the process, which is likely to be affected by cultural distance. This would not be a concern for similarity in primary business activity, as it would affect not only the efficiency of sharing but also its extent; it would make the knowledge more relevant to the boundary spanners thus stimulating their motivation to share more with each other. Neither the governance nor the ownership structure of the collaboration appear to have a significant effect on how much knowledge the boundary spanners are willing to share with each other. Evidently, the two governance structures and the various ownership levels do not significantly differ in terms of how much opportunity they offer for knowledge sharing between boundary spanners. More in general, it can be argued that the process of knowledge sharing between boundary spanners, being very social in nature, would not be affected by such strictly structural considerations. In short, the governance and ownership structures would not affect how much knowledge the organizational boundary spanners would be inclined to share with their counterparts.

Both the collaborative systems elements, training and expatriates, have a positive and significant effect on knowledge sharing between partner boundary spanners. First, the frequency of training provided by the foreign partner to the JV employees has a strong and positive effect on knowledge sharing. This supports our argument that collaborative systems that foster the close interactions between individuals from the partnering organizations would stimulate knowledge sharing. Second, and in line with our expectation, the number of expatriates delegated by the foreign partner to the JV turns out to not only be a control mechanism but also an effective channel for knowledge sharing. Both these mechanisms can

therefore be considered to be conducive to fostering knowledge flows between alliance partners.

Among the process elements, only the effect of fairness of decision processes on knowledge sharing receives some support. The corresponding coefficient reaches significance in two out of four models. In all four models, however, it takes on the hypothesized positive sign. This suggests that the perception of procedural justice between the partners is conducive to knowledge sharing between their boundary spanners. Finally, the similarity of the partners in terms of their business practices does not appear to have any effect on the knowledge sharing processes. Apparently, similarly to the national culture, the proximity of organizational culture of the collaborating partners does not affect the extent of sharing between the boundary spanners. That is not to say, however, that the efficiency of the process would be affected. This effect should be subjected to further investigation in future research.

Finally, the control variables provide some interesting findings. Our results indicate that when JV employees are expected to sustain good collaboration with the counterpart boundary spanners, the extent of knowledge sharing is greater. The question can be raised as to why such expectation on one side of the collaboration should affect the *bilateral* knowledge sharing. While it is readily obvious that JV boundary spanners' compliance to the expectation of good collaboration may (partly) find expression in superior knowledge sharing on their part, this is not so for increased knowledge sharing on the part of the foreign partner's employees. Yet, it is plausible to assume that when JV boundary spanners comply to the good cooperation expectation of their superiors, they are perceived as more trustworthy by their foreign partner counterparts, who in turn may share more knowledge with the JV employees.

We also find strong support for the effect of 'enforced' protectiveness on knowledge sharing between the boundary spanners. When the boundary spanners are instructed by their superiors to limit the amount of knowledge they share with their counterparts, the actual extent of sharing is significantly lower. Both the above findings reflect the importance of accounting for the fact that operational-level boundary spanners are subject to control by their superiors. The expectations and instructions of the latter would affect the boundary spanners' behavior towards their counterpart boundary spanners and the extent of knowledge they are willing to share with them.

Overall, our findings support the view of interorganizational knowledge flows as being affected by processes at both the operational and the strategic level of analysis. Knowledge sharing between operational boundary spanners is the means by which the interorganizational learning actually happens. This 'spontaneous' process is a function of the

level of trust between the boundary spanners. The managers and top executives, in contrast, while not involved in the direct sharing of the knowledge, affect the extent of interorganizational knowledge flows through the inter-partner collaborative arrangements they put in place *and* the instructions and expectations they impose on their subordinates in the intraorganizational context.

5.9. Conclusions and limitations

We have used social learning theory to develop an argument for the effect of operational-level trust on interorganizational knowledge sharing. We have posited that the level of inter-partner knowledge sharing and the conduciveness of collaborative arrangement to this process jointly, positively affect learning between alliance partners. From that perspective, operational level trust has a direct effect on the extent of learning between organizations, since it affects the sharing of knowledge between operational-level boundary spanners involved in the crosscutting communities of practice. Collaborative arrangements, in contrast, affect interorganizational learning indirectly through their facilitating effect on knowledge sharing. Additionally, we have argued that operational-level trust stems primarily from the personal experience that boundary spanners gain through frequent and intense interactions within the context of communities of practice, and is reinforced by the characteristic-based mechanism of trust production, which hinges on social identity of the interacting actors. Accordingly we have identified experience and similarity as the most relevant sources of trust at the operational level.

We have tested 5 hypotheses relating the extent of knowledge sharing between partner boundary spanners to the presence of the sources of trust at the operational level as well as various elements of collaborative structure, systems and process. We found that trust based on commonality of practice is conducive to knowledge sharing. We found no such effect for the experience-based trust, which as we argued, might be partly due to methodological reasons. As far as the collaborative arrangements are concerned, we found that the choice of a partner with a related knowledge base is an important structural determinant of knowledge sharing. Also, the frequency of training and number of expatriates delegated to the JV positively affect knowledge sharing. Finally, some support was found for procedural justice considerations having an impact on the extent of sharing boundary spanners engage in.

Our study is marked by a number of limitations. First, in obtaining our data, we were able to interview one side of the collaboration only. This is an obvious limitation to the study, especially that such elusive aspects of collaboration as trust are considered. Comparing the attitudes of the foreign partner organization would have greatly enriched the data and strengthened the findings. However, by attempting to gauge the presence of sources of trust in the relationship, rather than trust itself, we believe, we have been able to alleviate part of the bias inherent in our research design. This is due to the fact that sources of trust can be considered to be, to a large extent, symmetrical for the collaborating parties, which would be much less so for the subjective perception of trust by one of the collaborating parties.

Second, a critique can be raised that the conditions, which we consider to be sources of trust between operational boundary spanners, may have a direct impact on knowledge sharing, independent of their effect on trust. In case of the current experience variable—JV duration—the length of the ongoing collaboration could be argued to directly affect learning between partners by its influence on knowledge novelty; as the partners collaborate the scope for knowledge sharing between them would decrease. On the other hand, duration could also have a positive direct effect on knowledge sharing, by allowing the boundary spanners to get to know each other, learn to understand each other and develop routines for more efficient knowledge sharing. Considering the negative (and unstable) results, it is likely that many different effects get conflated in this measure. We conclude that JV duration is a poor proxy for any of the effects (trust, knowledge novelty or familiarity).

Also the similarity of boundary spanners in terms of their educational and professional backgrounds, rather than being a source of trust, could be argued to affect knowledge sharing directly. We obviously cannot rule out that possibility. Similar boundary spanners might share more with each other, as they are likely to find their respective knowledge to be more relevant and easier to understand and absorb. In all likelihood, similarity of the boundary spanners variable would capture some of this direct effect on learning as well as some indirect, mediated by trust. However, by controlling for similarity of primary business activity of the partners as well as the alignment of partners' national and organizational cultures, we believe to capture most of the direct effect of knowledge relatedness aspect on knowledge sharing and thus to factor (some of) it out of the boundary spanner similarity variable. We find the boundary spanner similarity to have a significant effect on knowledge sharing even after controlling for all the above effects.

Additionally, it is worth pointing out that the direct effect of boundary spanner similarity on knowledge sharing should not automatically be assumed to be positive. In fact,

higher similarity of the boundary spanners could result in higher overlap between their knowledge bases and consequently smaller scope for mutual learning. Additionally, belonging to the same professional community can make individuals more competitive and unwilling to share knowledge to avoid losing face or to preserve superior expertise. Therefore, we believe that we likely capture the positive effect of similarity on perception of others and assumptions that are made about their trustworthiness. All the above considerations make us reasonably, though cautiously, comfortable with using the boundary spanner similarity variable as a proxy for the level of operational-level trust.

Fourth, in our analysis we have assumed a unidirectional effect of trust on interorganizational knowledge transfer. It is much more realistic, however, to view the effect as bi-directional. Also, we have implicitly assumed that more trust always results in a better learning outcome. In reality, however, limits to knowledge sharing based on trust are to be expected. Elaboration on these issues, however, is beyond the scope of this paper. For a more thorough discussion we refer chapter 3 of this dissertation.

On a practical note, our work identifies the mechanisms through which trust at the operational level in an alliance is formed as well as collaborative arrangements that allow for the sharing to take place. Thus, it points to ways of stimulating tacit knowledge sharing between alliance partners. Yet our argument and finding that more trust between partner boundary spanners results in superior tacit knowledge sharing between them should not be taken as a normative statement; more tacit knowledge sharing between partners might not necessarily be desirable from the point of view of an organization's performance. Future research should endeavor to address the question of what the optimal level of tacit knowledge sharing between alliance partners is.

Chapter 6

Conclusions

6.1. Theoretical model and empirical approach: a summary

The overarching aim of this research project was to further our understanding of the process of inter-partner learning in the context of strategic alliances and the role that interorganizational trust plays therein. To this end, first, a critical review of conceptualizations of interorganizational trust and its levels in the extant literature was carried out. This led to the elaboration of a new, multi-level conceptualization of interorganizational trust in which the *trustor* is always an individual, while the *trustee* can be either the partner organization as a whole or its individual members. Based on the assumption that trustor's position in his or her own organization matters, trust of the strategic-level organizational actors, i.e., strategic-level trust, was distinguished from trust of the operational-level actors, i.e., operational-level trust.

The above conceptualization of interorganizational trust and its levels was subsequently used to develop a model of the role of trust in inter-partner learning. Trust between boundary spanners at the top management level is likely to affect interorganizational learning differently than trust between operational level boundary spanners. Tacit knowledge flows between organizations are accomplished through intimate interactions of their operational boundary spanners, whose involvement in knowledge sharing is determined by the level of their mutual trust (operational-level trust). At the same time, however, knowledge flows between organizations, depend on how much opportunity for the intimate interactions the boundary spanners have. These opportunities are determined, in turn, by the collaborative arrangements designed by organizational decision makers. The conduciveness of such arrangements to formation of interorganizational communities of practice depends on the level of trust held by the organizational decision makers (i.e., strategic-level trust).

Interorganizational trust at the two levels was argued to be different not only in its effects on interorganizational learning but also in its antecedents. Since assessing trust or trustworthiness directly is difficult individuals and organizations use certain indicators to assess the presence or absence of trust (Zucker, 1986). Trust can thus be said to stem from different sources. Moreover, different antecedents and sources of trust are likely to be relevant for different levels of interorganizational trust (cf. Doney & Cannon, 1997). At the operational level interorganizational trust can thus be argued to be based on experience acquired in interactions with representatives of the partner in question and similarity of occupational identities of the gatekeepers. At the strategic level stakes involved in preserving collaboration, institutions providing safeguards, organizational reputation and experience in collaboration with the partner can be expected to be the most important sources of trust.

The above constitutes a basis for the approach to empirically gauging interorganizational trust at the two levels of analysis, as employed in this dissertation. It rests on two assumptions. First, since in the proposed conceptualization of interorganizational trust the trustor is always an individual, data collection at the level of the individual is also adequate. However, if trust at the operational and strategic level were to be tapped separately, reliance on a single respondent per company would pose the threat of confounding the two effects due to common method bias. Identifying distinct antecedents of trust at each of the two levels helps to go around the problem of measuring trust directly. Although several measures of the overall level of trust have been developed (e.g., Cummings & Bromiley, 1996; Mohr & Spekman, 1994; Zaheer & Venkatraman, 1995), any direct measurement of trust is bound to be strongly subjective, due to interpretational biases of the individuals reporting it. In contrast, the presence or absence of conditions that facilitate the development of trust, as well as their degree/intensity across alliances can be assessed more objectively than the level of trust *per se*, which is a highly subjective and elusive phenomenon. The second assumption therefore is that, if the presence of sources of trust in a relationship rather than trust as such is measured, a well-positioned individual actor can be a reliable source of information concerning interorganizational trust at both the strategic and operational-level.

Additionally, since trust reported by respondents is likely to have various origins, it would not be very helpful or informative to determine that an overall high level of trust facilitates interorganizational learning, without knowing which factors influence this level. This is particularly so since the sources of trust are manipulable while trust, the level of which can only be affected indirectly, is not. Therefore, resorting to the analysis of the sources of

trust carries the promise of identifying possible means of stimulating the growth of trust and thereby indirectly the learning between JV partners.

Overall, reliance on the sources of trust appears to be a promising approach for future research into multi-level analysis of interorganizational trust in the (very common) situation where one respondent per organization is available. This approach guided the formulation of hypotheses in this dissertation. Accordingly sources of trust at the operational and strategic level were related to knowledge sharing between partner boundary spanners and the collaborative arrangements that contribute to the process, respectively. These theoretical predictions were subsequently tested on a sample of 149 Polish-foreign joint ventures surveyed in the fall of 2002 and spring of 2003.

6.2. Discussion of findings

Our results support the argument that the presence of sources of strategic-level trust and operational-level trust between collaborating organizations positively affects learning between them. At the strategic level, higher stakes of preserving the collaboration for the JV and higher perceived reputation of the foreign partner were found to result in collaborative arrangements more conducive to knowledge flows. Also past collaborative experience of the partners was found to positively affect the conduciveness of the collaborative arrangements to formation of crosscutting communities of practice. Current collaborative experience did not have such an effect. At the operational level, the results revealed that the similarity of the partner boundary spanners had a strong positive impact on the extent of knowledge sharing between them. Neither past nor present collaborative experience as measured in the study appeared to have such an effect.

The effect of past and current experience was assessed at both levels of analysis. The difference in the effect of these two variables on collaborative arrangements and on knowledge sharing calls for attention. Starting with past experience, while the effect of prior ties on knowledge sharing was insignificant, this was not the case for the collaborative arrangements, the conduciveness of which to knowledge flows was significantly and positively affected by previous collaborations of the partners. This finding seems to be in line with our argument that, compared to operational level trust, trust at the level of executive managers would be much more strategic in character. It is unlikely that the same persons

would act as boundary spanners in subsequent collaborations; therefore repeated interorganizational ties should not be expected to result in either higher trust at the operational level or superior knowledge sharing between persons currently serving as boundary spanners.

The situation is very different at the strategic level; decision makers who shape the collaborative arrangements and whose trust is based on strategic considerations are likely to take the outcome of prior collaborations into account, even if they were not at the time personally involved in the decision processes. Prior collaborative experiences of the two organizations would likely find reflection in how the current collaboration is managed; they could be said to be preserved in the 'institutionalized memory' of the organization. Thus, while trust of the top decision makers and the resultant collaborative arrangements would likely be affected by the record of prior experiences between organizations, that would not be the case for the trust of the lower level managers and the extent of knowledge sharing taking place between them.

The effect of current collaborative experience was proxied with the duration of the present collaboration. Its effect on collaborative arrangements and knowledge sharing was in both cases insignificant; however, the signs of the corresponding coefficients were different. In case of collaborative arrangements, the effect was neutral. The coefficients were virtually equal to zero and their sign oscillated between positive and negative. In case of knowledge sharing, the corresponding coefficients consistently took on negative values (in a few models even reached significance). Similarly as was the case with past experience, these findings seem to support our argument for trust of executive level employees being more strategic in nature than that of operational employees.

The experience accumulated in the current collaboration would likely have no affect on the trust of executive managers since this trust is determined by strategic considerations that are unlikely to change in the duration of a given alliance. Also, assuming JV duration has a direct effect on knowledge sharing, i.e., not mediated by trust (compare with Chapter 4) it is unlikely that collaborative arrangements would become less conducive to knowledge sharing once the novelty of knowledge decreases. At the level of operational employees, however, the non-neutral (i.e., negative) effect of current JV duration points to the social nature of the processes taking place at the operational level. The negative coefficient indicates that our variable captured the direct effect of alliance duration on learning (rather than the indirect, mediated by trust) as over time the novelty of knowledge and consequently the scope for learning could be expected to decrease.

Besides the decreasing novelty of knowledge, there are other possible, more empirical explanations of the observed negative effect of JV duration on knowledge sharing. First, the effect might be specific for the transition economy from which the JV's have been sampled. Collaborations undertaken in the periods directly following the transformation can be expected to be different from those that were formed more recently. While the early JV's might have served the purpose of gaining a foothold in the market, the more recent ones might be orientated more towards knowledge transfers between the partners. Second, a possible survivor bias might be present in the sample. If some JV's had been formed for the purpose of learning, the ones that did meet these goals might have dissolved sooner than those which did not have such objective or did not meet it.

There is yet another variable, the effect of which was evaluated at both levels. This was governance structure. At the operational level the governance structure of the JV was found to have no effect on how much knowledge operational boundary spanners share with each other. At the strategic level, in contrast, separate entity JVs were found to have collaborative arrangements less conducive to inter-partner learning. We suggested that this might indicate that from the strategy point of view, the risk of transferring knowledge to an independent entity would likely be higher compared to a minority share alliance. This would hold at least for the Polish partner. The interpretation of this result notwithstanding, the two findings seem to support our argument that the sharing of knowledge between partner boundary spanners is a process different in nature from the collaborative arrangements designed and implemented by the organizational decision makers. Accordingly, the governance structure would not affect how much knowledge the employees are inclined to share with each other, but it would affect how much knowledge flows the organizational decision makers are willing to authorize by way of collaborative arrangements.

Finally, the lack of a significant effect of the JV ownership structure on the extent of boundary spanner knowledge sharing deserves a few additional words of comment. Results in Chapter 4 revealed that, contrary to the expectation, the share of the joint venture held by the foreign partner does not significantly affect how much knowledge is shared. This finding can be explained in the same way as the lack of effect of governance structure on knowledge sharing (see above). However, lack of such effect may also be due to the empirical context in which the hypotheses have been tested. Steensma & Lyles (2000) argue that in a transitional economy the deep-rooted attitudes towards ownership are likely to affect the dynamics between the local and the foreign partner. In particular, local managers may not associate the level of foreign partner ownership with the power to influence international JV operations

(Steensma & Lyles, 2000). Steensma & Lyles (2000) found that in contrast to management control imbalance, an inequality in equity holdings did not contribute to inter-partner conflict or to IJV failure. What this implies is that local partner respondents, who are the source of the data in this dissertation, may possibly underestimate the effect that ownership structure (i.e., share held by a foreign partner) can have on the JV processes, knowledge transfers in specific. That would indicate that our findings in this respect might be specific to an economy in transition, and possibly not generalizable to other contexts. This issue should be subject to further investigation by future research.

In light of the above, investigation of how the differences between the transitional economy partners and their Western counterparts contribute to the difficulty of transferring knowledge appears to be a fruitful venue for future research. Transferring knowledge is always a challenging task (Szulanski, 1996), but even more so in a transitional economy context (Lane, Salk, & Lyles, 2001). Part of the challenge stems from the fact that partners of different national origins are likely to learn to trust in a different manner (Doney, Cannon, and Mullen, 1998). That would imply that trust formation process in a context of any given international JV would depend on the nationalities of the partners involved (Parkhe, 1998a,b). Another part of the challenge, however, would likely be specific to collaboration with a transitional economy partner, whose attitudes (to control, for example) have been shaped by the communist regimes (Steensma & Lyles, 2000).

Based on our results the overall conclusion can be drawn that interorganizational learning in the context of strategic alliances is a combination of strategic and social processes and therefore, factors affecting both need to be considered. The positive effects of calculation, reputation and prior ties on the conduciveness of collaborative arrangements to knowledge sharing between partners point to the importance of calculative considerations in trust formation at the strategic level. The positive effect of boundary spanner similarity and negative (albeit insignificant) effect of JV duration on knowledge sharing indicate that more relational aspects of collaboration are of importance in stimulating knowledge sharing at the operational level. This leads us to the conclusion that both self-interested as well as the less calculative aspects of trust are at play in assuring knowledge flows between collaborating organizations. What this implies is that quality of the relationship as much as appropriate incentive structure of the collaboration are pivotal for achieving knowledge transfer in an alliance context. While incentive alignment can help assure that it is in the partners' best interest to act in a trustworthy manner, it cannot be assumed to persist indefinitely; misalignment can result from exogenous shifts (cf. Arino & De la Torre, 1998) as well as

from evolving partner capabilities and their strategic choices (Parkhe, 1998b). This is what makes the positive relational aspects of collaboration so crucial—they can be considered to be much more robust in the collaboration.

The limitations of this research have been mentioned in the subsequent chapters of the dissertation. The primary ones include the one-sided evaluation of the level of trust in the collaborative relationship, and the impossibility to tap the effect of institutional trust, due to all sample observations being based in one institutional environment. Future research should therefore endeavor to replicate our results with respect to the positive impact of trust at two different levels in interorganizational relationship on inter-partner trust with two-sided data on trust and with observations being drawn from various institutional contexts.

Samenvatting

(Summary in Dutch)

Het concurrentievoordeel van een organisatie vindt zijn oorsprong in de idiosyncratische hulpbronnen die de organisatie bezit (Barney, 1991). Om dit voordeel te behouden is het noodzakelijk dat voortdurend nieuwe hulpbronnen worden verworven en dat bestaande hulpbronnen verder ontwikkeld worden (Kogut & Zander, 1992). Voor organisaties die niet in staat zijn om zelfstandig alle benodigde hulpbronnen te ontwikkelen of te verwerven is samenwerking vaak de enige manier om te overleven en te groeien (Dussauge, Garrette & Mitchel, 2000). Echter, belangrijke hulpbronnen zijn vaak verbonden aan diep in de organisatie verankerde impliciete kennis, die sterk intuïtief en niet-gearticuleerd is, en bijgevolg moeilijk transfereerbaar (Martin & Salomon, 2003; Kale, Singh, & Perlmutter, 2000; Polanyi, 1962). Strategische allianties worden beschouwd als een bij uitstek geschikte context voor organisaties om toegang te verkrijgen tot dit soort hulpbronnen (Hall, 1992; Inkpen, 1997; Powell, Koput, & Smith-Doerr, 1996). Het begrijpen van de processen van impliciete kennisoverdracht tussen organisaties en de factoren die deze beïnvloeden vormt de kern van deze dissertatie.

Het delen van kennis brengt aanzienlijke risico's voor de samenwerkende organisaties met zich mee: risico van kennisonteigening, het "weglekken" van kennis, of het maken van hoge kosten voor de overdracht van kennis die vervolgens niet voldoet aan de verwachtingen. Gezien deze risico's wordt verondersteld dat de mate van vertrouwen tussen de partners een belangrijke factor is die de onderlinge kennisstromen beïnvloedt. Vertrouwen verkleint de angst van partners voor opportunistisch gedrag (Kale et al., 2000; Dyer & Chu, 2003), en verhoogt aldus de bereidheid tot het verschaffen van toegang tot kennis (Dirks & Ferrin, 2001; Kale et al., 2000). De betrouwbaarheid van de partner kan door de ontvanger van kennis tevens dienen als een indicatie voor de kwaliteit van de kennis, waardoor het minder noodzakelijk wordt om de waarde van de kennis te verifiëren (Bhatt, 2000).

Naast het verschaffen van een context waarin partners toegang tot elkaars kennis kunnen verkrijgen bieden strategische allianties ook gelegenheid voor het gezamenlijk verder ontwikkelen van deskundigheid (Powell et al., 1996). De theorie van sociaal leren ('social learning theory') concipiëert leren als een geheel van sociale activiteiten, en richt daarmee de aandacht op de interactie tussen individuen, zoals de medewerkers van twee bij een strategische alliantie betrokken organisaties (Plaskoff, 2003; Elkjaer, 1999, 2003). Sociaal leren is beladen met risico's, zoals het moeten toegeven van fouten, het moeten inroepen van

hulp (Edmondson, 1999). Sociaal leren kan ook het zelfbeeld van individuen in het geding brengen (Brown & Starkey, 2000), en de macht van een persoon ondermijnen voorzover deze gebaseerd is op kennis (Kim & Mauborgne, 1998; Szulanski, 1996). Vertrouwen tussen partijen bevordert dat zij zich open stellen voor elkaars invloed, omdat het enerzijds gemakkelijker wordt om de behoefte om te leren toe te geven, en anderzijds het delen van kennis als minder bedreigend wordt ervaren.

Tegen deze achtergrond kan vertrouwen tussen partners als een belangrijke variabele voor kennisoverdracht tussen organisaties worden aanzien. Onderzoek heeft uitgewezen dat vertrouwen een positieve invloed heeft op het delen van kennis (McEvelly, Perrone, & Zaheer, 2003), zowel binnen organisaties (zie bijvoorbeeld Kostova, 1999; Makino & Inkpen, 2003; Tsai & Ghoshal, 1998) als tussen organisaties (Geringer, 1988; Dyer & Chu, 2003; Inkpen, 1997; Hedlund, 1994). Het is echter niet duidelijk hoe vertrouwen het beste geconceptualiseerd en in empirisch onderzoek gemeten kan worden. In de literatuur is een enorme variëteit aan theoretische en empirische benaderingen van vertrouwen tussen organisaties te vinden. Een belangrijk aspect hierbij wordt gevormd door de verschillende niveau's van aggregatie waarop het begrip "vertrouwen" onderscheiden kan worden, dat van de organisatie als geheel, en dat van de individuele medewerkers van organisaties.

Hoofdstuk Twee van deze dissertatie bevat een kritisch overzicht van het onderzoek op dit gebied. De sterke en zwakke punten van de verschillende wijzen waarop in de bestaande literatuur inter-organisatieel vertrouwen wordt geconceptualiseerd worden besproken, en een alternatieve manier om inter-organisatieel vertrouwen op verschillende aggregatieniveau's te definiëren wordt voorgesteld. In deze conceptualisering nemen de verschillende rollen die actoren spelen binnen de betrokken organisaties een belangrijke plaats in. In dit hoofdstuk wordt ook ingegaan op incongruenties tussen de theoretisch te onderscheiden niveau's van vertrouwen en de wijze waarop dit construct wordt gemeten in een aantal empirische studies. Hoewel terecht gewezen kan worden op het probleem van de beperkte beschikbaarheid van data, blijken deze onvolkomenheden ook samen te hangen met de wijze waarop het begrip vertrouwen in deze studies wordt geconceptualiseerd. De in het hoofdstuk voorgestelde alternatieve conceptualisering kan hier uitkomst bieden.

Hoofdstuk Drie ontwikkelt een theoretisch model omtrent de invloed van vertrouwen tussen organisaties op de kennisoverdracht tussen deze organisaties. Een alternatieve conceptualisering van vertrouwen tussen organisaties wordt voorgesteld, berustend op de assumptie dat verschillende groepen van actoren binnen de betrokken organisaties van elkaar onderscheiden moeten worden. Het topmanagement, dat de strategische intenties van een

organisatie in de samenwerking met een andere organisatie moet vormgeven, moet onderscheiden worden van de actoren die deze intenties moeten implementeren op het operationele niveau (Salk & Simonin, 2003). Vertrouwen tussen ‘boundary spanners’ op top management niveau zal naar verwachting het leerproces tussen organisaties op een andere manier beïnvloeden dan vertrouwen tussen individuen op het operationele niveau. Op het operationele niveau zal vertrouwen tussen vertegenwoordigers van de beide organisaties leiden tot het delen van impliciete kennis, terwijl vertrouwen tussen top managers van beide organisaties op het strategische niveau de randvoorwaarden bepalen die dit delen van kennis al dan niet faciliteren. Tot slot stelt Hoofdstuk Drie dat vertrouwen op deze twee onderscheiden niveau’s niet alleen verschilt in zijn effecten, maar ook op uiteenlopende wijzen wordt ontwikkeld. Het hoofdstuk identificeert de verschillende mechanismen die aan de basis liggen van de ontwikkeling van vertrouwen op beide niveau’s. Hoewel de bestaande literatuur omtrent vertrouwen en inter-organisatieel leren de verschillende bronnen die aan de basis liggen van vertrouwen tussen partners erkent en bestudeert, wordt het feit genegeerd dat sommige bronnen belangrijker kunnen zijn voor de ontwikkeling van vertrouwen op het ene niveau, en andere bronnen voor de ontwikkeling van vertrouwen op het andere niveau.

In hoofdstukken Vier en Vijf worden de voorspellingen van hoofdstuk Drie empirisch getoetst. Hoofdstuk Vier richt zich op het strategisch niveau en onderzoekt de invloed van drie bronnen van vertrouwen die op dit niveau van speciaal belang geacht worden te zijn (berekening, reputatie, en ervaring) op mate waarin samenwerkingsovereenkomsten leiden tot kennisoverdracht tussen partners. Vertrouwen gebaseerd op berekening (calculation-based trust) en vertrouwen dat gebaseerd is op reputatie hebben een positieve invloed op kennisoverdracht. Vertrouwen dat gebaseerd is op voorafgaande samenwerkingservaring is eveneens van invloed. Vertrouwen gebaseerd op ervaring binnen de bestaande samenwerking heeft echter geen effect.

Hoofdstuk Vijf richt zich op het operationele niveau, dat wil zeggen het niveau waarop individuele contactpersonen (boundary spanners) van beide organisaties interacteren. Het hoofdstuk analyseert de invloed op de mate van kennisoverdracht tussen deze actoren van de twee op dit niveau meest relevant geachte bronnen van vertrouwen: persoonlijk gelijkenissen tussen de contactpersonen, en de ervaringen die de contactpersonen hebben opgedaan in hun onderlinge interactie. Vertrouwen gebaseerd op persoonlijke gelijkenissen tussen individuen heeft een positief effect op het delen van kennis, terwijl vertrouwen gebaseerd op ervaringen met elkaar dit niet heeft. Aangezien bij een gegeven mate van operationeel vertrouwen de kennisoverdracht tussen partners bepaald wordt door de wijze

waarop de samenwerking is vormgegeven, toetst dit hoofdstuk eveneens de invloed van de vormgeving van de samenwerking in structuren, systemen en processen op de kennisdeling tussen contactpersonen. De bevindingen zijn dat verschillende elementen van de vormgeving van de samenwerking een positieve invloed hebben op kennisdeling tussen de contactpersonen van de partnerbedrijven.

De empirisch analyse van deze dissertatie werd uitgevoerd op een steekproef van 149 joint ventures tussen Poolse en buitenlandse ondernemingen. Zowel de transactiekostentheorie (e.g., Gulati, 1995; Kogut, 1988; Mowery, Oxley & Silverman, 1996) als de 'resource-based view' (Mowery et al., 1996) stelt dat, in vergelijking met contractuele samenwerkingsovereenkomsten, joint ventures met aandeelhouderschap betere mogelijkheden bieden voor de overdracht van impliciete kennis. Dit type van samenwerkingsverband tussen bedrijven vormt bijgevolg een geschikte context voor het testen van de invloed van vertrouwen tussen partners op overdracht van impliciete kennis.

Een groot deel van het bestaande onderzoek naar leren tussen partners in strategische allianties is uitgevoerd in de context van ontwikkelde markteconomieën. Men kan echter significante contextuele verschillen verwachten tussen een economie in transitie (zoals Polen) en een volgroeide markteconomie (Steensma & Lyles, 2000). Het gebrek aan onderzoek naar leren tussen organisaties in de context van transitie-economieën is problematisch, aangezien kennisoverdracht, en vooral de overdracht van impliciete kennis, van groot belang is voor deze economieën. Voor vele organisaties in transitie-economieën vormen buitenlandse partners rijke bronnen voor nieuwe kennis en capaciteiten (Steensma & Lyles, 2000) en samenwerking met hen is een potentiëel effectieve leerstrategie (Child & Markoczy, 1993; Markoczy, 1993). Tegelijkertijd kan samenwerking met een lokale partner voor vele Westerse bedrijven die uitbreiden naar Oost Europa of andere transitie-economieën een efficiënte manier zijn om lokale kennis te verkrijgen (Steensma & Lyles, 2000). Tegen deze achtergrond is Polen als voorbeeld van een economie in transitie een bij uitstek geschikte context voor het bestuderen van kennisoverdracht tussen alliantiepartners.

Traditioneel werd in Oosteuropese landen in onderwijs en training prioriteit gegeven aan techniek, terwijl disciplines als marketing en management verwaarloosd werden (Steensma & Lyles, 2000). Men kan bijgevolg verwachten dat er op het vlak van management een grote kenniskloof tussen de buitenlandse en de lokale partner zal zijn (Steensma & Lyles, 2000). Shenkar & Li (1999) stellen dat in vergelijking met kennis op vlak van de productie en het productieproces, management vaardigheden sterk impliciet en sociaal ingebed zijn, terwijl technologische kennis en kennis omtrent produktontwikkeling en marketing tussen beide

liggen (Lane, Salk & Lyles, 2001). Vandaar dat in het leren tussen een partner uit een transitie-economie en een partner uit een volgroeide markteconomie impliciete kennis een belangrijke plaats zal (moeten) innemen.

Naast de theoretische bijdrage zoals deze hierboven is uiteengezet heeft deze dissertatie ook praktische implicaties. De mate van vertrouwen tussen partners in een alliantie is niet een exogeen gegeven maar kan door acties van leidinggevenden worden beïnvloed (cf. Parkhe, 1998a,b). Deze dissertatie geeft een indruk van de bronnen van vertrouwen die een belangrijke rol spelen bij de inter-organisationale leerprocessen binnen strategische allianties. Op dit moment is onze kennis van de wijze waarop bedrijven vertrouwensrelaties kunnen opbouwen en instandhouden nog beperkt, vooral in de context van internationale joint ventures (cf. Inkpen and Currall, 1997). Het in deze dissertatie gegenereerde inzicht in de verschillen tussen de bronnen en effecten van vertrouwen op de twee onderscheiden niveau's, het topmanagement en het operationele niveau van samenwerking, vormt een eerste uitgangspunt voor het ontwikkelen van samenwerkingsstrategieën die tot betere leeruitkomsten leiden.

References

- Abe, S., Bagozzi, R. P. & Sadarangani, P. 1996. An Investigation of Construct Validity and Generalizability of the Self-Concept: Self-Consciousness in Japan and the United States. *Journal of International Consumer Marketing*, 8(3,4): 97-123.
- Anderson, J. C. & Gerbin, D. W. 1988. Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach. *Psychological Bulletin*, 103(3): 411-423.
- Anderson, J. C. & Narus, J. A. 1990. A Model of Distributor Firm and Manufacturer Firm Working Partnership. *Journal of Marketing*, 54(1): 42-58.
- Andrews, K. R. 1971. *The Concept of Corporate Strategy*. Homewood, Ill: Irwin.
- Argyris, C. 1982. *Reasoning, Learning and Action: Individual and Organizational*. San Francisco, CA: Jossey-Bass.
- Arino, A. & De la Torre, J. 1998. Learning from Failure: Towards an Evolutionary Model of Collaborative Ventures. *Organization Science*, 9(3): 306-325.
- Armstrong, J. S. & Overton, T. S. 1977. Estimating Nonresponse Bias in Mail Surveys. *Journal of Marketing Research*, 14(3): 396-400.
- Aulakh, P. S., Kotabe, M. & Sahay, A. 1996. Trust and performance in cross-border marketing partnerships: A behavioral approach. *Journal of International Business Studies*, Special Issue: 1005-1032.
- Barclay, D. W. & Smith, J. B. 1997. The Effects of Organizational Differences and Trust on the Effectiveness of Selling Partner Relationships. *Journal of Marketing*, 61(1): 3-21.
- Barney, J. B. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17: 99-120.
- Barney, J. B. & Hansen, M. H. 1994. Trustworthiness as a Source of Competitive Advantage. *Strategic Management Journal*, 15: 175-190.
- Barringer, B.R. & Harrison, J.S. 2000. Walking a tightrope: creating value through interorganizational relationships. *Journal of Management*, 26(3): 367-404.
- Berdrow, I. & Lane, H. W. 2003. International joint ventures: creating value through successful knowledge management. *Journal of World Business*, 38: 15-30.
- Bettis, R. A. & Prahalad, C. K. 1995. The Dominant Logic: Retrospective and Extension. *Strategic Management Journal*, 16(1): 5-14.
- Bhatt, G. D. 2000. Organizing knowledge in the knowledge development cycle. *Journal of Knowledge Management*, 4(1): 15-27.
- Bower, J. L. 1986. *Managing the resource allocation process*. Boston, MA: Harvard Business School Press.
- Bradach, J. F. & Eccles, R. G. 1989. Price, Authority, and Trust: From Ideal Types to Plural Forms. *Annual Review of Sociology*, 15: 97-118.

- Brewer, M. B. 1981. Ethnocentrism and Its Role in Interpersonal Trust. In M. B. Brewer, B. E. Collins & D. T. Campbell (Eds.), *Scientific Inquiry and the Social Sciences*: 345-360. San Francisco: Jossey-Bass.
- Brown, J. S. & Duguid, P. 1991. Organizational learning and communities of practice: Toward a unified view of working, learning and innovation. *Organization Science*, 2: 40-57.
- Brown, J. S. & Duguid, P. 1999. *The Social Life of Information*. Boston, MA: Harvard Business School Press.
- Brown, A. D. & Starkey, K. 2000. Organizational identity and learning: a psychodynamic perspective. *Academy of Management Review*, 25(1): 102-120.
- Burgelman, R. A. 1983. A Process Model of Internal Corporate Venturing in the Diversified Major Firm. *Administrative Science Quarterly*, 28(2): 223-244.
- Burt, R. S. 1992. The Social Structure of Competition. In N. Nohria & R.G. Eccles (Eds.), *Networks and Organizations*: 57-91. Boston, MA: Harvard Business School Press.
- Byrne, B. M. 1998. *Structural Equation Modeling with LISREL, PRELIS and SIMPLIS: Basic Concepts, Applications and Programming*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Child, J. & Markoczy, L. 1993. Host-country Managerial Behaviour and Learning in Chinese and Hungarian Joint Ventures. *Journal of Management Studies*, 30(4): 611-631.
- Child, J. & Faulkner, D. 1998. *Strategies of Co-operation: Managing Alliances, Networks, and Joint Ventures*. Oxford: Oxford University Press.
- Child, J. & Rodriguez, S. 2003. Social Identity and Organizational Learning. In M. Easterby-Smith & M. A. Lyles (Eds.), *The Blackwell Handbook of Organizational Learning and Knowledge Management*: 535-555. Oxford: Blackwell Publishers.
- Chiles, T. H. & McMackin, J. F. 1996. Integrating variable risk preferences, trust, and transaction cost economics. *Academy of Management Review*, 21(1): 73-99.
- Churchill, G. A. Jr. 1979. A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16(1): 64-73.
- Cohen, W. M. & Levinthal, D. A. 1990. Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, 35(1): 128-152.
- Cook, S. D. N. & Brown, J. S. 1999. Bridging Epistemologies: The Generative Dance Between Organizational Knowledge and Organizational Knowing. *Organization Science*, 10(4): 381-400.
- Cummings, L.L. & Bromiley, P. 1996. The Organizational Trust Inventory: Development and Validation. In R.M. Kramer & T.R. Tyler (Eds.), *Trust in Organizations: Frontiers of Theory and Research*: 302-330. Thousand Oaks, CA: Sage Publications.
- Currall, S. C. & Judge, T. A. 1995. Measuring Trust between Organizational Boundary Role Persons. *Organizational Behavior and Human Decision Process*, 64(2): 151-170.

- Currall, S. C. & Inkpen, A. C. 2002. A Multilevel Approach to Trust in Joint Ventures. *Journal of International Business Strategies*, 33(3): 479-495.
- Das, T. K & Teng, B. 1998. Between trust and control: Developing confidence in partner cooperation in alliances. *Academy of Management Review*, 23(3): 491-512.
- Das, T. K & Teng, B. 2001. Trust, control, and risk in strategic alliances: An integrated framework. *Organization Studies*, 22(2): 251-276.
- DeVellis, R. F. 1991. *Scale development: theory and applications*. Newbury Park, CA: Sage.
- Dillman, D. A. 2000. *Mail and Internet Survey. The Tailored Design Method*. New York, NY: John Wiley & Sons.
- Dirks, K. T. & Ferrin, D. L. 2001. The role of trust in organizational settings. *Organization Science*, 12(4): 450-467.
- Dollinger, M. J., Golden, P. A. & Saxton, T. 1997. The effect of reputation on the decision to joint venture. *Strategic Management Journal*, 18(2): 127-140.
- Doney, P. M & Cannon, J. P. 1997. An Examination of the Nature of Trust in Buyer-Seller Relationships. *Journal of Marketing*, 61(2): 35-51.
- Doney, P. M., Cannon, J. P. & Mullen, M. R. 1998. Understanding the influence of national culture on the development of trust. *Academy of Management Review*, 23(3): 601-620.
- Doz, Y. L. 1996. The Evolution of Cooperation in Strategic Alliances: Initial Conditions or Learning Processes? *Strategic Management Journal*, 17: 55-83.
- Doz, Y.L. & Hamel, G. 1998. *Alliance Advantage: The Art of Creating Value Through Partnering*. Boston, MA: Harvard University Press.
- Dussauge, P., Garrette, B. & Mitchel, W. 2000. Learning from competing partners: outcomes and durations of scale and link alliances in Europe, North America and Asia. *Strategic Management Journal*, 21: 99-126.
- Dyer, J. H. & Singh, H. 1998. The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23(4): 660-679.
- Dyer, J. H. & Chu, W. 2000. The Determinants of Trust in Supplier-automaker Relationships in the U.S., Japan, and Korea. *Journal of International Business Studies*, 31(2): 259-285.
- Dyer, J. H. & Nobeoka, K. 2000. Creating and Managing a High-Performance Knowledge-Sharing Network: The Toyota Case. *Strategic Management Journal*, 21: 345-367.
- Dyer, J. H. & Chu, W. 2003. The Role of Trustworthiness in Reducing Transaction Costs and Improving Performance: Empirical Evidence from the United States, Japan, and Korea. *Organization Science*, 14(1): 57-68.
- Easterby-Smith, L. & Araujo, L. 1999. Organizational Learning: Current Debates and Opportunities. In M. Easterby-Smith, J. Burgoyne & L. Araujo (Eds.), *Organizational learning and the learning organization*: 1-22. London: Sage Publications.
- Edmondson, A. 1999. Psychological Safety and Learning Behavior in Work Teams. *Administrative Science Quarterly*, 44: 350-383.

- Edmondson, A. & Moingeon, B. 1999. Learning, trust and organization change. In M. Easterby-Smith, J. Burgoyne & L. Araujo (Eds.), *Organizational learning and the learning organization*: 157-175. London: Sage Publications.
- Elkjaer, B. 1999. In Search of a Social Learning Theory. In M. Easterby-Smith, J. Burgoyne, & L. Araujo (Eds.), *Organizational Learning and the Learning Organization*: 75-91. London: Sage Publications.
- Elkjaer, B. 2003. Social Learning Theory: Learning as Participation in Social Processes. In M. Easterby-Smith & M. A. Lyles (Eds.), *The Blackwell Handbook of Organizational Learning and Knowledge Management*: 38-52. Oxford: Blackwell Publishers.
- Fineman, S. 2003. Emotionalizing Organizational Learning. In M. Easterby-Smith & M. A. Lyles (Eds.), *The Blackwell Handbook of Organizational Learning and Knowledge Management*: 557-572. Oxford: Blackwell Publishers.
- Fiol, M. & Lyles, M. 1985. Organizational learning. *Academy of Management Review*, 10: 803-813.
- Floyd, S. W. & Lane, P. J. 2000. Strategizing throughout the organization: Managing role conflict in strategic renewal. *Academy of Management Review*, 25(1): 154-177.
- Fornell, C. & Larcker, D. F. 1981. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1): 39-50.
- Fox, S. 2000. Communities of Practice, Foucault and Actor-Network Theory. *Journal of Management Studies*, 37(6): 853-867.
- Fukuyama, F. 1995. *Trust: The social virtues and the creation of prosperity*. New York: Free Press.
- Geringer, J. M. 1988. *Joint Venture Partner Selection*. Westport, CN: Greenwood Press.
- Geringer, J. M. & Hebert, L. 1989. Control and Performance of International Joint Ventures. *Journal of International Business Studies*, 20(2): 235-254.
- Geringer, J. M. & Hebert, L. 1991. Measuring performance of international joint ventures. *Journal of International Business Studies*, 22(2): 249-263.
- Ghoshal, S., & Moran, P. 1996. Bad for practice: A critique of the transaction cost theory. *Academy of Management Review*, 21(1): 13-47.
- Granovetter, M. 1985. Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology*, 91(3): 481-510.
- Greve, H. R. 1998. Performance, aspirations, and risky organizational change. *Administrative Science Quarterly*, 43:58-86.
- Gulati, R., Khanna T. & Nohria N. 1994. Unilateral commitments and the importance of process in alliances. *Sloan Management Review*, 35 (3): 61-70.
- Gulati, R. 1995. Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of Management Journal*, 38(1): 85-112.

- Gulati, R. & Singh, H. 1998. The Architecture of Cooperation: Managing Coordination Costs and Appropriation Concerns in Strategic Alliances. *Administrative Science Quarterly*, 43: 781-814.
- Gulati, R. & Gargiulo, M. 1999. Where do Interorganizational Networks Come from? *American Journal of Sociology*, 104(4): 1439-1493.
- Gwartney, J., Lawson, R. & Block, W. 1996. *Economic Freedom of the World, 1975-1995*. Vancouver, BC: Fraser Institute.
- Hagedoorn, J. & Sadowski, B. 1999. The Transition from Strategic Technology Alliance to Mergers and Acquisitions: An Exploratory Study. *Journal of Management Studies*, 36(1): 87-107.
- Hagen, J. M. & Choe, S. 1998. Trust in Japanese interfirm relations: institutional sanctions matter. *Academy of Management Review*, 23(3): 589-600.
- Hall, R. 1992. The Strategic Analysis of Intangible Resources. *Strategic Management Journal*, 13(2): 135.
- Hamel, G., Doz, Y. L. & Prahalad, C. K. 1989. Collaborate with Your Competitors – and Win. *Harvard Business Review*, January-February: 133-139.
- Hamel, G. 1991. Competition for competence and inter-partner learning within international strategic alliances. *Strategic Management Journal*, 12: 83-103.
- Harrigan, K. R. 1985. *Strategies for Joint Ventures*. Lexington, MA: Lexington Books.
- Hedlund, G. 1994. A model of knowledge management and the N-form corporation. *Strategic Management Journal*, 15: 73-90.
- Hennart, J-F. 1988. A transaction costs theory of equity joint ventures. *Strategic Management Journal*, 9: 361-374.
- Hogg, M.A. & Abrams, D. 1988. *Social Identifications: A Social Psychology of Intergroup Relations and Group Processes*. Florence, KY: Taylor & Francis/Routledge.
- Huber, G. P. 1996. Organizational Learning. The Contributing Processes and the Literatures. In M.D. Cohen & L.S. Sproull (Eds.), *Organizational Learning*: 125-162. Thousand Oaks, CA: SAGE Publications.
- Inkpen, A. C. & Dinur, A. 1988. Knowledge Management Processes and International Joint Ventures. *Organization Science*, 9(4): 454-468.
- Inkpen, A.C. 1997. An Examination of Knowledge Management in International Joint Ventures. In P.W. Beamish & J.P. Kiling (Eds.), *Cooperative Strategies. North American Perspectives*: 337-369. San Francisco, CA: The New Lexington Press.
- Inkpen, A.C., & Beamish, P.W. 1997. Knowledge, bargaining power, and the instability of international joint ventures. *Academy of Management Review*, 22(1): 177-202.
- Inkpen, A. C. & Currall, S. C. 1997. International joint venture trust. An Empirical Examination. In P.W. Beamish & J.P. Kiling (Eds.), *Cooperative Strategies. North American Perspectives*: 308-334. San Francisco, CA: The New Lexington Press.

- Inkpen, A. 1998. Learning, knowledge Acquisition, and Strategic Alliances. *European Management Journal*, 16(2): 223-229.
- Inkpen, A. 2000. A Note on the Dynamics of the Learning Alliances. *Strategic Management Journal*, 21(7): 775-780.
- Ireland, R. D., Hitt, A. A., & Vaidyanath, D. 2002. Alliance Management as a Source of Competitive Advantage. *Journal of Management*, 28(3): 413-446.
- Janowicz, M., Piaskowska, D. & Trojanowski, G. 2004. The Role of Strategic Investors in Polish Companies: Catalysts for Organizational Change or Opportunists? *European Management Review*, 1(2). Forthcoming.
- Jarillo, J. C. 1988. On strategic networks. *Strategic Management Journal*, 9: 31-41.
- Jeffries, F. L. & Reed, R. 2000. Trust and Adaptation in Relational Contracting. *Academy of Management Review*, 25(4): 873-882.
- Jöreskog, K. G. & Sörbom, D. 1993. *LISREL 8, A Guide to the Program and Applications*. Chicago: SPSS Inc.
- Kale, P., Singh, H. & Perlmutter, H. 2000. Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management Journal*, 21: 217-237.
- Kane, A. A., Argote, L., & Levine, J. M. 2002. *Social identity and knowledge transfer between groups*. Paper presented at the Annual Meeting of the Academy of Management, Denver, CO.
- Kim, W. C. & Mauborgne, R. 1998. Procedural justice, strategic decision making, and the knowledge economy. *Strategic Management Journal*, 19: 323-338.
- Kogut, B. 1988. Joint ventures: theoretical and empirical perspectives. *Strategic Management Journal*, 9: 319-332.
- Kogut, B. & Singh, H. 1988. The Effect of National Culture on the Choice of Entry Mode. *Journal of International Business Studies*, 19(3): 411-432.
- Kogut, B. & Zander, U. 1992. Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3: 383-379.
- Kostova, T. 1999. Transnational transfer of strategic organizational practices: A contextual perspective. *Academy of Management Review*, 24(2): 308-324.
- Kumar, S. & Seth, A. 1998. The Design of Coordination and Control Mechanisms for Managing Joint Venture-Parent Relationships. *Strategic Management Journal*, 19(6): 579-599.
- Lages, L. F. & Lages, C. R. 2004. The STEP Scale: A Measure of Short-Term Export Performance Improvement. *Journal of International Marketing*, 12(1): 36-56.
- Lane, P. J. & Lubatkin, M. 1998. Relative absorptive capacity and interorganizational learning. *Strategic Management Journal*, 19: 461-477.
- Lane, P. J., Salk, J. E., & Lyles, M. A. 2001. Absorptive capacity, learning, and performance in international joint ventures. *Strategic Management Journal*, 22:1139-1161.

- Lewicki, R. J. & Bunker, B. B. 1996. Developing and maintaining trust in work relationships. In R. M. Kramer & T. R. Tyler (Eds.), *Trust in organizations: frontiers of theory and research*: 115-139. Thousand Oaks, CA: Sage Publications.
- Lewis, J. D. & Weigert, A. 1985. Trust as a Social Reality. *Social Forces*, 63(4): 967-985.
- Levinson, N. S. & Asahi, M. 1995. Cross-National Alliances and Interorganizational Learning. *Organizational Dynamics*, 24(2): 50-63.
- Levitt, B. & March, J. G. 1996. Organizational learning. In M. D. Cohen & L. S. Sproull (Eds.), *Organizational learning*: 516-540. Thousand Oaks, CA: SAGE Publications.
- Liker, J.K., Kamath, R.R., Wasti, S.N. & Nagamachi, M. 1996. Supplier involvement in automotive component design: are there really large US Japan differences? *Research Policy*, 25: 59-89.
- Lyles, M. 1988. Learning among Joint Venture Sophisticated Firms. *Management International Review*, 28 (Special Issue): 85-98.
- Lyles, M. A. & Salk, J. E. 1996. Knowledge acquisition from strategic parents in international joint ventures: An empirical examination in the Hungarian context. *Journal of International Business Studies*, 27(5): 877-904.
- Macaulay, S. 1963. Non-contractual relations in business: A preliminary study. *American Sociological Review*, 28: 55-67.
- Madhok, A. 1995. Revisiting multinational firms' tolerance for joint ventures: A trust-based approach. *Journal of International Business Studies*, First Quarter: 117-137.
- Makino, S. & Inkpen, A. C. 2003. Knowledge Seeking FDI and Learning across Borders. In M. Easterby-Smith & M. A. Lyles (Eds.), *The Blackwell Handbook of Organizational Learning and Knowledge Management*: 233-252. Oxford: Blackwell Publishers.
- Makhija, M. V. & Ganesh, U. 1997. The Relationship Between Control and Partner Learning in Learning-related Joint Ventures. *Organization Science*, 8(5): 508-527.
- Markoczy, L. 1993. Managerial and organizational learning in Hungarian-Western mixed management organizations. *The International Journal of Human Resource Management*, 4(2): 277-304.
- Martin, X. & Salomon, R. 2003. Knowledge transfer capacity and its implications for the theory of the multinational corporation. *Journal of International Business Studies*, 34: 356-373.
- Mayer, R. C., Davis, J. H. & Schoorman, F. D. 1995. An integrative model of organizational trust. *Academy of Management Review*, 20(3): 709-734.
- McAllister, D. J. 1995. Affect and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal*, 38(1): 24-59.
- McEvilly, B., Perrone, V., & Zaheer, A. 2003. Trust as an Organizing Principle. *Organization Science*, 14(1): 91-103.
- McGivern, Y. 2003. *The practice of market and social research: an introduction*. Harlow, Essex: Pearson Education.

- McGuire, W. J. 1968. The nature of attitudes and attitude change. In L. Gardner & G. Aronson (Eds.), *The handbook of social psychology*: 136-314. Reading, MA: Addison-Wesley.
- Mohr, J. J. & Spekman, R. E. 1994. Characteristics of Partnership Success: Partnership Attributes, Communication Behavior, and Conflict Resolution Techniques. *Strategic Management Journal*, 15(2): 135-152.
- Morgan, R. M. & Hunt, S. D. 1994. The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing*, 58(3): 20-38.
- Mowery, D. C., Oxley, J. E. & Silverman, B. S. 1996. Strategic alliances and interfirm knowledge transfer. *Strategic Management Journal*, 17 (Winter Special Issue): 77-91.
- Mudambi, R. & Navarra, P. 2002. Institutions and international business: A theoretical overview. *International Business Review*, 11: 635-646.
- Nahapiet, J. & Ghoshal, S. 1998. Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2): 242-265.
- Nelson, R. R. & Winter, S. G. 1982. *An Evolutionary Theory of Economic Change*. Cambridge, MA: Harvard University Press.
- Nonaka, I. 1994. A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*, 5(1): 14-37.
- Nooteboom, B., Berger, H. & Noorderhaven, N. G. 1997. Effects of trust and governance on relational risk. *Academy of Management Journal*, 40(2): 308-338.
- Nooteboom, B. 1999. *Inter-firm alliances. Analysis and design*. London: Routledge.
- Nooteboom, B. 2002. Trust. Forms, Foundations, Functions, Failures and Figures. Cheltenham, UK: Edward Elgar.
- Parkhe, A. 1991. Interfirm diversity, organizational learning and longevity in global strategic alliances. *Journal of International Business Studies*, 22: 579-602.
- Parkhe, A. 1993. Strategic Alliance Structuring: A Game Theoretic and Transaction Cost Examination of Interfirm Cooperation. *Academy of Management Journal*, 36(4): 794-829.
- Parkhe, A. 1998a. Understanding Trust in International Alliances. *Journal of World Business*, 33(3): 219-240.
- Parkhe, A. 1998b. Building Trust in International Alliances. *Journal of World Business*, 33(3): 417-437.
- Perrone, V., Zaheer, A. & McEvily, B. 2003. Free to Be Trusted? Organizational Constraints on Trust in Boundary Spanners. *Organization Science*, 14(4): 422-439.
- Plaskoff, J. 2003. Intersubjectivity and Community Building: Learning to Learn Organizationally. In M. Easterby-Smith & M. A. Lyles (Eds.), *The Blackwell Handbook of Organizational Learning and Knowledge Management*: 162-184. Oxford: Blackwell Publishers.

- Polanyi, M. 1962. *Personal Knowledge. Towards a Post-Critical Philosophy*. London: Routledge & Kegan Paul.
- Porter, G. 1997. Trust in teams: Member Perceptions and the Added Concern of Cross-cultural Interpretations. In M.M. Beyerlein, D.A. Johnson & S.T. Beyerlein (Eds.), *Advances in Interdisciplinary Studies of Work Teams*: 45-77. Greenwich, CT: JAI Press Inc
- Powell, W. W., Koput, K. W., & Smith-Doerr, L. 1996. Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology. *Administrative Science Quarterly*, 41: 116-145.
- Prahalad, C. K. & Bettis, R. A. 1986. The Dominant Logic: a New Linkage Between Diversity and Performance. *Strategic Management Journal*, 7: 485-501.
- Ring, P. S. & Van de Ven, A. H. 1994. Developmental Processes of Cooperative Interorganizational Relationships. *Academy of Management Review*, 19(1): 90-118.
- Ring, P. S. & Van de Ven, A. H. 1992. Structuring Cooperative Relationships between Organizations. *Strategic Management Journal*, 13: 483-498.
- Rossi, P. H., Wright, J. D., & Anderson, A. B. 1983. *Handbook of Survey Research*. New York, NY: Academic Press.
- Rousseau, D. M. 1985. Issues on Level in Organizational Research: Multi-level and cross-level perspectives. In B. M. Staw (Ed.), *Research in Organizational Behavior*, 7: 1-37. Greenwich, CN: JAI Press.
- Rousseau, D. M., Sitkin, S. B., Burt, R. S. & Camerer C. 1998. Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23(3): 393-404.
- Salk, J. E. & Simonin, B. L. 2003. Beyond Alliances: Towards a Meta-Theory of Collaborative Learning. In M. Easterby-Smith & M. A. Lyles (Eds.), *The Blackwell Handbook of Organizational Learning and Knowledge Management*: 253-277. Oxford: Blackwell Publishers.
- Sarkar, M., Cavusgil, S. T. & Evirgen, C. 1997. A commitment-trust mediated framework of international collaborative venture performance. In P.W. Beamish & J.P. Kiling (Eds.), *Cooperative Strategies. North American Perspectives*: 255-285. San Francisco, CA: The New Lexington Press.
- Shapiro, S. P. 1987. The Social Control of Impersonal Trust. *American Journal of Sociology*, 93(3): 623-58
- Shenkar, O. & Li, J. 1999. Knowledge search in international cooperative ventures. *Organization Science*, 10(2): 134-143.
- Soda, G. & Usai, A. 1999. The dark side of dense networks: From embeddedness to indebtedness. In A. Grandori (Ed.), *Interfirm Networks: Organizations and Industrial Competitiveness*: 276-302. London, UK: Routledge.
- StataCorp. 2001. *Stata Statistical Software: Release 7.0*. College Station, TX: Stata Corporation.

- Steenkamp, J-B. E. M. & Van Trijp, H. C. M. 1991. The use of LISREL in validating marketing constructs. *International Journal of Research in Marketing*, 8: 283-299.
- Steensma, H. K. & Lyles, M. A. 2000. Explaining IJV survival in a transitional economy through social exchange and knowledge-based perspectives. *Strategic Management Journal*, 21: 831-851.
- Szulanski, G. 1996. Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17 (Winter Special Issue): 27-43.
- Tiemessen, I., Lane, H. W., Crossan, M. M., & Inkpen, A. C. 1997. Knowledge management in international joint ventures. In P.W. Beamish & J.P. Kiling (Eds.), *Cooperative Strategies. North American Perspectives*: 370-398. San Francisco, CA: The New Lexington Press.
- Tsai, W. & Ghoshal, S. 1998. Social capital and the value creation: the role of intrafirm networks. *Academy of Management Journal*, 41(4): 464-476.
- Tsoukas, H. 2003. Do We Really Understand Tacit Knowledge? In M. Easterby-Smith & M. A. Lyles (Eds.), *The Blackwell Handbook of Organizational Learning and Knowledge Management*: 4100-427. Oxford: Blackwell Publishers.
- Villinger, R. 1996. Post-acquisition managerial learning in Central East Europe. *Organization Studies*, 17(2): 181.
- Von Krogh, G., Nonaka, I., & Aben, M. 2001. Making the Most of Your Company's Knowledge: A Strategic Framework. *Long Range Planning*, 34: 421-439.
- Walker, G., Kogut, B. & Shan, W. 1997. Social capital, structural holes and the formation of an industry network. *Organization Science*, 8(2): 109-125.
- Warwick, D. P. & Liniger, C. A. 1975. *The Sample Survey: Theory and Practice*. New York, NY: McGraw-Hill.
- Williams, M. 2001. In whom we trust: group membership as an affective context for trust development. *Academy of Management Review*, 26(3): 377-396.
- Williamson, O.E. 1985. *The Economic Institutions of Capitalism. Firms, Markets, Relational Contracting*. New York: The Free Press.
- Yan, A. & M. Zeng. 1999. International joint venture instability: A critique of previous research, a reconceptualization, and directions for future research. *Journal of International Business Studies*, 29, 773-796.
- Yoshino, M. Y. & Rangan, U.S. 1995. *Strategic Alliances: An Entrepreneurial Approach to Globalization*. Boston: Harvard Business School Press.
- Zaheer, A. & Venkatraman, N. 1995. Relational governance as an interorganizational strategy: an empirical test of the role of trust in economic exchange. *Strategic Management Journal*, 16: 373-392.
- Zaheer, A., McEvily, B. & Perrone, V. 1998. Does Trust Matter? Exploring the Effects of Interorganizational and Interpersonal Trust on Performance. *Organization Science*, 9(2): 141-159.

- Zaheer, A., Loftrom, S. & George, V. 2002. Interpersonal and Interorganizational Trust in Alliances. In F. J. Contractor & P. Lorange (Eds.), *Cooperative Strategies and alliances*: 347-377. Elsevier Science Ltd.
- Zand, D. E. 1972. Trust and managerial problem solving. *Administrative Science Quarterly*, 17:229-239
- Zucker, L. G. 1986. Production of trust: Institutional Sources of economic structure 1840-1920. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior*, 8: 53-111. Greenwich, CT: JAI Press.

Appendix 1

Learning (composite variable)

1: Have you in the course of collaboration, acquired knowledge from the foreign partner in the area of:

- production / service technology
- firm management
- information and computer technology
- human resource management
- customer service
- business negotiations
- market knowledge
- marketing
- financial and tax management

Scale: “1=yes” --- “0= no” (max=9, min=0)

2: On average how much did you learn from the foreign partner in the above areas?

Scale: “1-nothing” --- “7-a lot”

3: Has the collaboration with the foreign partner result in improvements in the JV in the area of:

- Computerization
- Product quality
- Marketing
- Human resource management
- Top management
- Financial performance or market share
- The way of conducting business

Scale: “1=yes” --- “0= no” (max=7, min=0)

4: What was the scope of the above improvements (on average)?

Scale: “1-very little” --- “7- very large”

5: What we have learned from the foreign partner helped us improve the efficiency of the JV's functioning.

Scale: “1-strongly disagree” -- “7-strongly agree”

6: What we have learned from the foreign partner we use in projects developed independently by the JV.

Scale: “1-strongly disagree” -- “7-strongly agree”

Cronbach's Alpha = 0.83²⁸

²⁸Prior to averaging the scores on the items (to form the composite variable), sum of the positive answers on items 1 and 3 was multiplied by the score on the items 2 and 4 respectively (these products were standardized before averaging)

Calculation (composite variable)

1: If the collaboration were to end in conflict, it would have a negative impact on our reputation.

Scale: "1-strongly disagree" --- "7- strongly agree"

2. The success of our firm depends on the continued collaboration with the foreign partner.

Scale: "1-strongly disagree" --- "7- strongly agree"

3. The foreign partner's withdrawal from the collaboration would cause you:

Scale: "1- great loss" --- "7-great gain" (reverse coded)

Cronbach's Alpha = 0.82

Reputation (composite variable)

1: How much research concerning the foreign partner did you engage in prior to entering the collaboration (market intelligence etc.)?

Scale: "1-none" --- "7-a lot"

2: To what extent did the reputation of the foreign partner influence your decision to engage in the collaboration?

Scale: "1-not at all" --- "7-very much"

Cronbach's Alpha = 0.72

Experience variables (single items)

1: What year was the JV formed? (**Current experience**)

(recoded into a duration variable with the reference point of year 2002)

2: Have you collaborated with the foreign partner in any form in the past? (**Past experience**)

Scale: "1 – yes", "0 – no"

Sharing (composite variable)

1: To what extent are the foreign partners employees willing to share their professional knowledge with the JV employees?

Scale: "1 – not at all", "2", "3", "4", "5", "6", "7 – very much"

2: To what extent are the JV employees willing to share their professional knowledge with their foreign counterparts?

Scale: "1 – not at all", "2", "3", "4", "5", "6", "7 – very much"

Cronbach's Alpha = 0.86

Boundary spanner (BRP) similarity (composite variable)

1. Our employees and their foreign counterparts have similar educational backgrounds.

Scale: "1-strongly disagree" --- "7- strongly agree"

2. Our employees and their foreign counterparts have similar professional experience.

Scale: "1-strongly disagree" --- "7- strongly agree"

Cronbach's Alpha = 0.77

System variables (single items)

1. In the course of one year, how often do JV employees on average participate in training sessions organized by the foreign partner in Poland or at its headquarters? (**Training**)

Scale: "0", "1-2", "3-5", "6-9", "10-14", "15-20", "more" (recoded into a 7-point scale)

2. On average how many foreign partner representatives are permanently working in the JV and living in Poland? (**Expatriates**)

Scale: "0", "1-2", "3-5", "6-9", "10-14", "15-20", "more" (recoded into a 7-point scale)

Structure variables (single items)

1: What is the degree of similarity between the JV and the foreign partner in terms of the primary business activity? (**Business similarity**)

Scale: "1- very small" --- "7-very large"

2: Kogut & Singh (1988) cultural distance index (**Cultural similarity**)

3: Was the JV formed by way of a separate entity creation or a minority share acquisition? (**Governance structure**)

Scale: "1 – separate entity", "0 – minority share"

4: What is the equity share held by the foreign partner in the JV? (**Foreign partner share**)

Scale: "0-19.9%", "20-39.9%", "40-59.9", "60-79.9%", "80-100%" (recoded into a 5-point scale)

Process variables (single items)

1. Both sides have an adequate saying in the decisions concerning the JV. (**Procedural justice**)

Scale: "1-strongly disagree" --- "7- strongly agree"

2. The foreign partner's way of doing business is similar to ours (**Practices alignment**)

Scale: "1-strongly disagree" --- "7- strongly agree"

Control variables (single items)

1: Our goals and those of the foreign partner often collide. (**Goal structuring**)

Scale: "1-strongly disagree" --- "7- strongly agree" (reverse coded)

2: How often do the employees responsible for contacting the foreign partner change?
(**Turnover**)

Scale: "1-very rarely" --- "7-very frequently" (logarithmically transformed)

3. Was the JV formed by way of separate entity creation or a minority share acquisition?
(**Governance structure**)

Scale: "1 – separate entity", "0 – minority share"

4: As an employer, we expect of our employees the ability to cooperate well with the foreign partner counterparts (**Good cooperation required**)

Scale: "1-strongly disagree" --- "7- strongly agree"

5: Have you instructed your employees to restrict the amount of information they share with their foreign counterparts? (reverse coded) (**Protectiveness**)

Scale: "1 – yes", "0 – no"
