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**THE ROLE OF CULTURAL LEARNING AND COLLECTIVE TEACHING  
INITIATIVES IN M&A KNOWLEDGE TRANSFER**

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## **ABSTRACT**

This paper focuses on the roles of collective learning and teaching initiatives in mergers and acquisitions. We examine how these managerial processes influence different types of knowledge flows. We also explore the antecedents of these managerial processes, including knowledge complementarity, knowledge complexity, cultural acceptance and cultural preservation. We test our hypotheses on a sample of domestic and cross-cultural acquisitions conducted by Finnish companies.

## **INTRODUCTION**

According to the knowledge-based view (KBV), knowledge is a key resource for creating competitive advantage (Spender and Grant, 1996). Acquisitions contribute to the firm's value creation in several ways (Gomes et al., 2001), particularly through knowledge transfer that provides access to new knowledge and enables unique combinations of the knowledge bases of the acquiring and target firms (Ahammad and Glaister, 2011; Almor, Tarba and Benjamini, 2009; Björkman, Stahl and Vaara, 2007; Weber, Rachman-Moore and Tarba, 2011). Because of the importance of knowledge transfer in M&As, researchers have focused on identifying influencing factors, ranging from knowledge and relationship characteristics to managerial processes. While certain factors, such as knowledge tacitness and post-acquisition communication, have received much attention in empirical research on M&A knowledge transfer (e.g. Bresman, Birkinshaw, and Nobel 1999; Ranft and Lord, 2002), other factors have been

explored less. In particular, previous M&A research calls for studies to further elaborate on the roles of specific managerial processes in M&A value creation (Haleblian et al., 2009; Lakshman, 2011; Weber and Tarba, 2011; Weber, Tarba and Bachar, 2011). More specifically, the effects of teaching (Zhao and Anand, 2009) and learning processes (Zou and Ghauri, 2008) require further specification. Therefore, based on the dynamic capabilities perspective (Teece, Pisano, and Shuen, 1997), we focus on examining the influence of managerial processes that involve *cultural learning* (Schweiger and Goulet, 2005) and *collective teaching* (Zhao and Anand, 2009) on M&A knowledge transfer. In cultural learning, employees of *both* companies participate collectively in managerial initiatives aimed at facilitating mutual learning about each other's cultures. In collective teaching, either the acquirer or the target can be the knowledge sender, depending on the goals of the acquisition.

Also, scholars recommend future studies to consider not only the influence of managerial processes, but also their antecedents in order to understand the factors that influence the implementation of managerial processes in M&As (Zollo and Singh, 2004). Based on the knowledge-based view and social identity theory, we identify the knowledge and relationship characteristics that influence the extent to which cultural learning and collective teaching initiatives are used. More specifically, we focus on *knowledge complementarity* and *knowledge complexity* as knowledge characteristics (Haspeslagh and Jemison, 1991; Lam, 1997) and *cultural acceptance* and *cultural preservation* as characteristics of the relationship between the firms (Nahavandi and Malekzadeh, 1988). While previous research has linked many knowledge characteristics directly to knowledge transfer, their indirect influence through specific managerial processes remains less explored (for a notable theoretical exception see Björkman et al., 2007). Concerning relationship characteristics, further work on elaborating the role of culture in M&A integration has been called for in previous studies (Teerikangas and Very, 2006), particularly concerning M&A knowledge transfer (Björkman et al., 2007).

Furthermore, most M&A studies on knowledge transfer do not examine multidirectional knowledge flows - those from the acquirer to the target and vice versa (for a notable exception see Bresman et al., 1999). However, these flows may differ because they are often associated with different acquisition strategies and managerial processes (Haspeslagh and Jemison, 1991). Therefore, we distinguish between the directions of knowledge transfer in our model and include both knowledge transfer from the acquirer to the target and knowledge transfer from the target to

the acquirer. Finally, previous empirical studies on knowledge transfer in M&As have largely relied on a small number of case studies (Empson, 2001, Westphal and Shaw, 2005, Zou and Ghauri, 2008) and many of the findings from these studies have not been validated on larger scale quantitative data. We address this by using quantitative survey data on domestic and foreign acquisitions conducted by Finnish companies.

In conclusion, our aim is to contribute to the literature on knowledge transfer in M&As by modelling knowledge transfer as consisting of two-directional knowledge flows (knowledge transfer from the acquirer to the target and vice versa) that are indirectly influenced by knowledge characteristics (complementarity and complexity) and relationship characteristics (cultural acceptance and preservations) through managerial processes (cultural learning and collective teaching initiatives).

We will first discuss knowledge transfer in acquisitions in general. Then, we elaborate on the positive role of cultural learning and collective teaching initiatives in knowledge transfer, followed by a discussion on knowledge characteristics (knowledge complementarity and knowledge complexity) and relationship characteristics (cultural acceptance and cultural preservation) as antecedents of cultural learning and collective teaching initiatives. After describing the data collection process and the empirical measures used in the study, we reflect on our findings and offer suggestions for future research and managerial practice.

## **THEORETICAL BACKGROUND**

We understand *knowledge transfer* as the extent to which the sender's knowledge is used by the receiving firm (Minbaeva, 2007). Knowledge transfer in M&As consists of two kinds of knowledge flows: those from the target to the acquirer and vice versa (Bresman et al., 1999). In the former, the acquirer's goal is usually to access the target's knowledge ranging from knowledge about the target's business network or local practices (Schoenberg, 2001) to technical R&D knowledge (Bresman et al., 1999; Ranft and Lord, 2002), to marketing or manufacturing know-how (Capron, 1999). In the latter, the acquirer often chooses to transfer its knowledge to the target, often in the form of best practices, in order to improve the target's performance (Haspeslagh and Jemison, 1991). Because these knowledge flows may differ markedly from each other, their influencing factors may also be different. However, with the notable exception of Bresman et al. (1999), most previous studies have not distinguished between knowledge flows

from the acquirer to the target and vice versa (e.g. Lam, 1997; Sarala and Vaara, 2010) or have examined only one side of the knowledge transfer process (Ranft and Lord, 2002; Zou and Ghauri, 2008). This may have concealed important differences between the directions of knowledge flows and their influencing factors. We thus aim to contribute to the literature on knowledge transfer in M&As by including knowledge flows in both directions.

We focus on examining knowledge transfer because it is an essential component of M&A value creation (Capron, 1999; Haspeslagh and Jemison, 1991). However, it is not without its difficulties. Acquisitions can create organizational conflict, often as a result of change resistance on the part of the target (Buono and Bowditch, 1989; Sarala, 2010; Weber et al., 2011), which can reduce the motivation of organizational members to engage in knowledge transfer (Vaara et al., 2010). Therefore, a growing body of M&A literature has tried to identify factors that influence knowledge transfer outcomes. In line with the dynamic capabilities perspective (Teece et al., 1997), the roles of select managerial processes have been examined. In general, these studies suggest that communication (Bresman et al., 1999; Castro and Neira, 2005; Zou and Ghauri 2008), cultural integration (Junni & Sarala, 2011; Sarala and Vaara, 2010), incentives (Westphal and Shaw, 2005), and the retention of key personnel (Ranft and Lord, 2002) can facilitate knowledge transfer. In addition, it has been suggested that the degree of target autonomy influences knowledge transfer (Haspeslagh and Jemison, 1991; Ranft and Lord, 2002). However, managerial processes related to cultural learning and collective teaching initiatives have not been examined regarding knowledge transfer in M&As. Thus, we explore how knowledge transfer is influenced by the managerial processes of *cultural learning initiatives* – mechanisms for bridging cultural differences and creating shared understandings and constructive employee attitudes (Schweiger and Goulet, 2005), and *collective teaching initiatives* – mechanisms for collectively imparting the knowledge, routines, and mindset of the sender organization (Zhao and Anand, 2009).

Drawing on the KBV, researchers have also linked knowledge characteristics to knowledge transfer in M&As. For instance, they have suggested that knowledge tacitness (Bresman et al., 1999; Castro and Neira, 2005; Junni, 2011) and context specificity (Westphal and Shaw, 2005) impede knowledge transfer by making knowledge more difficult for the sender to articulate and for the receiver to understand. In contrast, it has been suggested that knowledge complementarity facilitates knowledge transfer (Westphal and Shaw, 2005; Zou and Ghauri,

2008), partly because the receiver feels less “threatened” that its knowledge will be replaced. Nevertheless, our understanding of the processes through which knowledge characteristics influence knowledge transfer has been largely unexamined in the general knowledge transfer literature (Foss, Husted, and Michailova, 2010) and even less in the context of M&As. We concentrate on examining the effects of two types of knowledge characteristics: *knowledge complementarity* – the distinct and non-redundant knowledge of the acquisition partners, which they can use to “fill out, or complete, each other’s performance” (Jap, 1999, p. 465), and *knowledge complexity* – the extent to which knowledge is linked to various interdependent technologies, routines, individuals, and resources (Simonin, 1999) and is embedded in organizational culture (Haspeslagh and Jemison, 1991). We suggest that these knowledge characteristics influence knowledge transfer through the increased use of managerial processes (cultural learning and collective teaching initiatives) that support knowledge transfer.

Finally, according to social identity theory, M&A studies have examined how the quality of the relationship between the knowledge sender and receiver influences post-acquisition knowledge transfer. These studies suggest that a positive view of the partner can enhance knowledge transfer (Empson, 2001; Westphal and Shaw, 2005). While it has been argued that differences between the acquisition partners in terms of cultures and knowledge bases impede knowledge transfer (Castro and Neira, 2005; Lam, 1997), it has also been suggested that they facilitate it (Sarala and Vaara, 2010) or even have a curvilinear relation to it (Ahuja and Katila, 2001; Björkman et al., 2007). In this study we examine the cultural characteristics of the relationship between the acquisition partners: the *target’s cultural acceptance* – i.e. the extent to which the target values the acquirer’s culture (Schweiger and Goulet, 2005), and the *target’s cultural preservation* tendency – the target’s desire to protect its own culture after the acquisition (Nahavandi and Malekzadeh, 1988). We focus on the target firm based on the social identity theory, according to which target firm members are particularly likely to perceive the acquisition as a threat to their social identity and to construct notions of “us” versus “them” in order to protect their pre-acquisition identity (Terry and Callan, 1998; Van Knippenberg et al., 2002). Thus, acceptance of the partner’s culture and cultural preservation are likely to be particularly important on the target’s side because they influence the extent to which the acquirer is viewed as a threat vs. legitimate and acceptable (Nahavandi and Malekzadeh, 1988). We propose that these relationship characteristics influence knowledge transfer through the use of managerial

processes of cultural learning and collective teaching initiatives. This addresses a call for research on the more complex and indirect determinants of knowledge transfer (Foss et al., 2010).

We will now discuss in greater detail how cultural learning and collective teaching initiatives influence knowledge transfer in M&As. Then, we will suggest how knowledge characteristics (complementarity and complexity) and relationship characteristics (cultural acceptance and cultural preservation) influence cultural learning and collective teaching initiatives.

## **HYPOTHESES**

### **Cultural learning initiatives and knowledge transfer**

We conceptualize *cultural learning* as a specific form of organizational learning that results from members of both merging firms collectively exploring “the root values and assumptions of both organizations in order to understand why each, as a collective, functions the way it does” (Schweiger and Goulet, 2005: 1480). Thus, cultural learning is explorative learning about the cognitive, emotional, and political aspects of the acquisition partners’ organizational cultural identities, which often remain hidden (Schweiger and Goulet, 2005). Cultural learning has both a “collective” aspect because it requires organizational members of both merging firms to come together in order to learn through collective exploration and a “cultural” aspect because it focuses on learning about culture as reflected in organizational values and assumptions. In line with this, *cultural learning initiatives* can be defined as managerially initiated collective activities aimed at simultaneously generating cultural learning on the part of employees in both the acquiring and target firms. These initiatives include both formal and informal activities such as formal cultural seminars where cultural differences are explored and informal gatherings where employees socialize with each other across functional and organizational boundaries (Schweiger and Goulet, 2005). The acting entities in cultural learning are employees of *both* the acquiring and the target firms, who learn together about each other’s ways and cultures.

We suggest that cultural learning facilitates knowledge transfer by increasing motivation on the part of the recipient to absorb knowledge from the sender. Kostova and Roth (2002) suggest that the recipient’s motivation to take up and make use of the sender’s knowledge increases when the sender is viewed as legitimate. Because the “cultural” aspect of cultural

learning contributes to a better understanding of *why* the source organization operates the way it does, the sender and its knowledge is perceived as more legitimate. In turn, the “collective” aspect of bringing individuals together informally from the merging firms in cultural learning generates positive interactions between the members of both organizations. This is essential for bridging organizational cultural differences, building trust and reducing ingroup-outgroup categorizations (Schweiger and Goulet, 2005). We thus suggest that the collective aspect reduces organizational conflict (Lakshman, 2011; Louw and Mayer, 2011; Weber et al., 2011; Weber and Tarba, 2010), which further increases the motivation of the sender and the recipient to participate in knowledge transfer.

Furthermore, cultural learning can increase the ability of the recipient to take up and make use of the sender’s knowledge. For example, Weber and Tarba (2010) argue that successful post-acquisition integration requires the acquisition partners to be aware of the structure, culture and roles of both firms. As mentioned above, cultural learning initiatives help participants understand each other’s assumptions and values (Schweiger and Goulet, 2005). Previous research suggests that valuable knowledge is often complex and culturally embedded (Haspeslagh and Jemison, 1991; Simonin, 1999). By assisting the recipient in understanding the cultural context of the sender’s knowledge, the recipient is better able to take up and make use of this type of knowledge.

**Hypothesis 1a:** Cultural learning initiatives are positively associated with knowledge transfer from the acquirer to the target.

**Hypothesis 1b:** Cultural learning initiatives are positively associated with knowledge transfer from the target to the acquirer.

### **Collective teaching initiatives and knowledge transfer**

*Collective teaching* can be conceptualized as “a process in which members of the source organization collectively impart the knowledge, routines, and mindset of their organization to the individuals of the receiving organization” (Zhao and Anand, 2009: 962). *Collective teaching initiatives* are managerially initiated collective activities that are aimed at improving the dissemination of knowledge. They involve collective participation (e.g. joint meetings and projects) and demonstration (e.g. showing how employees carry out projects as teams) (Zhao and Anand, 2009). Collective teaching initiatives can be carried out by the knowledge sender inviting

and hosting organizational members from the receiving firm in specific job-related activities such as on-the-job training or joint projects (Inkpen and Dinur, 1998; Zhao and Anand, 2009). Alternatively, the sender can dispatch a team to the receiving organization to work on-site or to occupy key operational positions (Galbraith, 1990; Zhao and Anand, 2009). In collective teaching, either the acquirer or the target can be the knowledge sender, depending on the goals of the acquisition and whether the focus is on transferring the knowledge of the acquirer or that of the target.

We suggest that collective teaching facilitates knowledge transfer by increasing the recipient's ability to absorb knowledge from the sender. Collective teaching initiatives allow individuals in the receiving organization to directly observe how the source unit works as a collective to solve complex problems (Zhao and Anand, 2009). On-the-job training has been linked to better skills particularly in cross-cultural situations (Pagon, Banutai, and Bizjak, 2011). By observing and participating in the sender's daily organizational routines, the receiver gains a more practical understanding of how the sender's organization works and how to best implement the sender's knowledge. Furthermore, Simonin (1999) found that cultural and institutional differences reduced the ability of the receiver to understand the sender's knowledge in organizational alliances. By allowing the receiver "direct access" to the sender's knowledge, collective teaching initiatives provide the receiver with a more practical understanding of the sender's context specific knowledge (Zhao and Anand, 2009), which is likely to increase the receiver's ability to make use of the sender's knowledge (Almor et al., 2009; Weber and Tarba, 2010). With an enhanced understanding of the sender's context specific and organizationally embedded knowledge (Simonin, 1999), the receiver is likely to be better able to adapt the sender's knowledge in its own context. Collective teaching initiatives are thus essential for improving the receiver's understanding of how the sender organization works, which increases the recipient's ability to implement the sender's knowledge.

**Hypothesis 2a:** The acquirer's collective teaching initiatives are positively associated with knowledge transfer from the acquirer to the target.

**Hypothesis 2b:** The target's collective teaching initiatives are positively associated with knowledge transfer from the target to the acquirer.

### **Knowledge complementarity and complexity, cultural learning and collective teaching initiatives**

Drawing on the KBV, knowledge is viewed as one of the most central resources for value creation (Spender and Grant, 1996). Value is created when the knowledge bases of the acquirer and the target are combined in ways that result in more valuable combinations than if the firms operated separately (Haspeslagh and Jemison, 1991). More specifically, previous research suggests that *knowledge complementarity* between the merging firms – i.e. when both firms bring unique knowledge that “fills” the other’s knowledge gaps (Jap, 1999) – offers the greatest potential for post-acquisition value creation (Eschen and Bresser, 2005; Haspeslagh and Jemison, 1991).

We suggest that specific managerial processes are needed to realize the potential value of complementary knowledge. First, the acquisition partners need to understand the benefits of the partner’s knowledge in order to be motivated to transfer it. Second, they need to understand how the partner’s knowledge works in order to be able to make use of the knowledge (Weber et al., 2011; Westphal and Shaw, 2005). As suggested in the previous hypotheses, the acquisition partners can use cultural learning and collective teaching initiatives to increase motivation and ability. Thus, we propose that a strategy that focuses on cultural learning and collective teaching initiatives will be used more in acquisitions characterized by a high level of complementary knowledge.

**Hypothesis 3a:** Knowledge complementarity is positively associated with cultural learning initiatives.

**Hypothesis 3b:** Knowledge complementarity is positively associated with the acquirer’s collective teaching initiatives.

**Hypothesis 3c:** Knowledge complementarity is positively associated with the target’s collective teaching initiatives.

Another important knowledge characteristic is knowledge complexity. It makes knowledge more difficult to imitate and, therefore, more likely to contribute to a sustainable competitive advantage (Barney, 1991). However, complex knowledge is deeply embedded in an organization’s culture (Lam, 1997) and linked to various interdependent structures, individuals and processes (Simonin, 1999) and therefore transferring it requires more articulation and

explanation (Minbaeva, 2007). We propose that a high level of knowledge complexity increases the need for the managerial processes of cultural learning and collective teaching in order to enhance organizational members' understanding of each others' underlying organizational cultures and of interpersonal routines in which the knowledge is embedded. More specifically, because cultural learning initiatives provide the receiving firm with a better understanding of the sender's culture (Schweiger and Goulet, 2005), they are likely to support the transfer of the source's complex culturally embedded knowledge. By allowing members of the receiving firm to observe how the sending firm members' work together as a collective (Zhao and Anand, 2009), collective teaching initiatives are also likely to support the transfer of complex knowledge that is part of interpersonal routines. Hence, we suggest that the acquisition partners are likely to initiate cultural learning and collective teaching when they perceive their knowledge to be complex, in order to facilitate the transfer of this knowledge.

**Hypothesis 4a:** The complexity of the acquirer's knowledge is positively associated with cultural learning initiatives.

**Hypothesis 4b:** The complexity of the acquirer's knowledge is positively associated with the acquirer's collective teaching initiatives.

**Hypothesis 4c:** The complexity of the target's knowledge is positively associated with cultural learning initiatives.

**Hypothesis 4d:** The complexity of the target's knowledge is positively associated with the target's collective teaching initiatives.

### **Cultural acceptance, cultural preservation, cultural learning and collective teaching initiatives**

While most research on culture in M&As has focused on exploring cultural differences as triggers of organizational conflict (Buono and Bowditch, 1989; Weber, Shenkar, and Raveh, 1996; Weber and Tarba, 2011), a shift to cultural factors that determine the conflict potential of these differences is increasingly called for (Teerikangas and Very, 2006; Weber et al., 2011). Accordingly, we identify the *target's cultural acceptance* and the *target's cultural preservation* as important characteristics that influence the relationship that develops between the acquirer and the target (Nahavandi and Malekzadeh, 1988; Schweiger and Goulet, 2005). Because previous research suggests that these factors are particularly important on the target's side (Nahavandi and

Malekzadeh, 1988), we will focus on examining the *target's* acceptance of the acquirer's culture and the *target's* cultural preservation.

Building on Schweiger and Goulet (2005), we define the *target's cultural acceptance* as the extent to which individuals in the target firm value and respect the acquirer's culture. While the target's positive perceptions of the acquirer's culture can create an atmosphere that encourages collaboration (Birkinshaw et al., 2000), the absence of cultural acceptance can lead to organizational conflict (Nahavandi and Malekzadeh, 1988). We suggest that the target's cultural acceptance will influence the extent to which the target is motivated to initiate and participate in managerial processes that involve the acquiring firm. More specifically, when the target perceives the acquirer's culture as valuable, it is more likely to consider the acquirer's culture worth learning about and therefore more willingly contribute to initiating and participating in cultural learning initiatives. Similarly, a high opinion of the acquirer's culture is likely to reduce the two "fears" identified by Empson (2001): the fear of being "exploited" as a result of departing from knowledge and the fear of being "contaminated" by the acquirer's inferior knowledge. We propose that this will encourage the target to both initiate collective teaching and to participate in the acquirer's collective teaching initiatives.

**Hypothesis 5a:** The target's acceptance of the acquirer's culture is positively associated with cultural learning initiatives.

**Hypothesis 5b:** The target's acceptance of the acquirer's culture is positively associated with the acquirer's collective teaching initiatives.

**Hypothesis 5c:** The target's acceptance of the acquirer's culture is positively associated with the target's collective teaching initiatives.

In addition, we suggest that the target's cultural preservation after the acquisition will reduce its willingness to initiate and participate in cultural learning and collective teaching. We define *cultural preservation* as the desire to protect the pre-acquisition culture from the cultural influences of the acquiring firm (Nahavandi and Malekzadeh, 1988). Cultural preservation arises from viewing the acquirer as a threat to the target's pre-acquisition identity (Terry and Callan, 1998). The negative consequences of cultural preservation include ingroup-outgroup categorizations and increased organizational conflict (Nahavandi and Malekzadeh, 1988; Sarala, 2010). A resulting hostile atmosphere between the firms reduces the target's willingness to

initiate and participate in cultural learning and collective teaching. Over time, this may also decrease the acquirer's motivation to initiate these types of collective managerial processes.

**Hypothesis 6a:** The target's cultural preservation is negatively associated with cultural learning initiatives.

**Hypothesis 6b:** The target's cultural preservation is negatively associated with the acquirer's collective teaching initiatives.

**Hypothesis 6c:** The target's cultural preservation is negatively associated with the target's collective teaching initiatives.

The theoretical propositions are presented in Figure 1.

---Insert Figure 1 about here---

## **METHOD**

### **Data collection**

We conducted two surveys – one in 2010 and another in 2011 – of acquisitions by Finnish companies in Finland and abroad during the period from January 2006 to September 2009 and October 2009 to September 2010. The acquisitions were identified from a list maintained by the Finnish business magazine *Talouselämä* of all acquisitions conducted by Finnish companies. We contacted the CEOs of the acquiring firms by e-mail and asked them to identify respondents who had played a key role in the acquisition, including themselves, other high level managers and/or board members. This ensured that the respondents had enough knowledge about the acquisitions to complete the questionnaire. Then, we e-mailed the survey to these respondents. To decrease the likelihood of common method variance (CMV), we emphasized confidentiality, used pre-validated measures, scattered the questions in the questionnaire, conducted complex analysis methods and tested for CMV effects (Chang, van Witteloostuijn, and Eden, 2010).

The final data set included 123 responses from 106 acquisitions and the response rate was 17% for the first survey round and 18% for the second round: 87 were from the acquirer and 36 from the target. We received 93 single responses and 19 multiple responses. We conducted inter-rater reliability tests for multiple responses by calculating intraclass correlation coefficients. The results showed a high level of inter-rater reliability between multiple answers in most of the

cases<sup>1</sup>. We thus used the average scores of the multiple responses in the data analyses. The responses were from domestic acquisitions (69 cases) and cross-cultural acquisitions (37 cases). A Finnish company was the acquirer in all cases, and 81% of the responses from cross-cultural acquisitions involved a European target. The distribution of the responses from the cross-cultural acquisitions was: Australia (1 acquisition), Belarus (1), Canada (2), the Czech Republic (1), Denmark (2), Estonia (1), France (2), Germany (2), the UK (1), Italy (2), Latvia (2), Lithuania (3), the Netherlands (1), Norway (2), Poland (4), Russia (1), Spain (1), Sweden (5), and the USA (3).

### **Dependent variables**

#### *Knowledge transfer from the acquirer to the target*

We asked respondents to what extent the acquirer's knowledge had been used in the target in the following areas: i) general management expertise, ii) product innovation capabilities, iii) know-how in manufacturing processes, iv) sales and marketing expertise, v) supplier relations, and vi) distribution and logistics expertise (Capron, 1999) (1="not at all" to 7="very much").

#### *Knowledge transfer from the target to the acquirer*

Similar to the construct above, we asked respondents to estimate to what extent the target's knowledge had been used by the acquirer. We used the above 7-point scale.

### **Independent variables**

#### *Knowledge complementarity*

Based on Jap (1999), the respondents assessed the complementarities between the acquirer's and target's knowledge by responding to the following statements: The acquirer and target i) contribute different capabilities to the relationship, ii) have complementary strengths that are useful to the relationship, iii) have separate abilities that, when combined together, enable them to achieve goals beyond their individual reach (1="strongly disagree" to 7="strongly agree").

#### *Complexity of the acquirer's knowledge*

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<sup>1</sup> However, in order to improve the reliability of the data, we removed two cases from the analysis for which the coefficients were not significant (e.g. Lubatkin et al., 1998).

The respondents were asked to describe the knowledge residing in the acquiring company that could be used in the target company (Haspeslagh and Jemison, 1991; Lam, 1997; Minbaeva, 2007; Simonin 1999): The knowledge is i) a part of various structures and processes, ii) deeply embedded in the acquirer's culture, iii) consists of highly interdependent routines, individuals and technologies (1="do not agree" to 7="completely agree").

#### *Complexity of the target's knowledge*

Similar to the previous construct, we asked respondents to describe the complexity of the target's knowledge using the above 7-point scale.

#### *Target's acceptance of the acquirer's culture*

Based on Schweiger and Goulet (2005), the respondents evaluated: To what extent did the personnel of the target company i) think that the acquirer's culture has valuable aspects, ii) see why their colleagues at the acquiring company are proud of their organizational culture and iii) think that there are parts of the acquiring company's culture that they like and would enjoy working within (1="not at all" to 7="very much").

#### *Target's cultural preservation*

To measure the target's cultural preservation, we considered the extent to which the target wanted to protect i) its own culture and ii) organizational practices (Nahavandi and Malekzadeh, 1988; Sarala, 2010) (1="not at all" to 7="very much").

### **Mediating variables**

#### *Cultural learning initiatives*

Based on Schweiger and Goulet (2005), we included four questions: To what extent have the acquirer and target arranged i) for supervisors from the acquiring and target companies to introduce members of each company to each other, ii) informal gatherings (such as picnics, excursions or parties) for all employees from the acquiring and target companies, iii) cultural awareness seminars to explore cultural differences between the acquirer and target, and how they can be managed, iv) activities to decide which cultural attributes should be retained, eliminated

or adopted, and how to integrate the acquirer's and target's cultures (1="not at all" to 7="very much").

#### *Acquirer's collective teaching initiatives*

Adapting the construct of Zhao and Anand (2009), the respondents were asked the following: To what extent did the acquiring company i) involve the target in their cross-functional meetings, ii) involve the target to carry out joint projects with its employees, iii) demonstrate to the target how its employees resolve cross-functional issues as a team, and iv) demonstrate to the target how its employees jointly plan and carry out projects (1="not at all" to 7="very much").

#### *Target's collective teaching initiatives*

Similar to the construct above, we measured the extent to which target involved the acquirer in the types of activities listed above (1="not at all" to 7="very much").

### **Control variables**

#### *Elapsed time*

A stronger social community is likely to develop in later stages of integration, which can influence knowledge transfer (Bresman et al., 1999). Thus, we controlled for the number of years that had passed after the acquisition (1-4 years).

#### *Organizational cultural differences*

Organizational cultural differences have been linked to knowledge transfer in acquisitions (Ahuja and Katila, 2001; Lam, 1997). We measured perceived organizational cultural differences in i) management and control, ii) sales and marketing, iii) production, iv) research and development, v) company values in general, and vi) values of the decision makers ("no differences" and 7="significant differences").

#### *National cultural differences*

Knowledge transfer may be influenced by national cultural differences (Junni, 2001). We used an average of the GLOBE practices scores between Finland and the target country (House et al., 2004).

## RESULTS

We used partial least squares (PLS) analysis with the SmartPLS program (Ringle, Wende, and Will, 2005). PLS is an established method in management research (Birkinshaw, Morrison, and Hulland, 1995; Meznar and Nigh, 1995) and better suited for estimating complex models (Henseler, Ringle, and Sinkovics, 2009) than regression analysis. Also, PLS is accurate for smaller sample sizes (Gefen, Straub, and Boudreau, 2000) and takes all path coefficients and item loadings into account simultaneously which minimizes parameter estimates biases (White, Varadarajan, and Dacin, 2003).

### Model fit

Unlike other structural equation models, PLS does not use fit indices such as CFI, TLI and RMSEA (Braunscheidel, Suresch, and Boisnier, 2010; Gefen et al., 2000). In PLS, the measurement model is evaluated by calculating reliability and validity statistics such as composite reliability, standardized factor loadings, average variance, and cross-loadings (Braunscheidel et al., 2010; Gefen et al., 2000; Ko, Kirsch, and King, 2005; Lee and Tsang, 2001). The overall fit of the structural model (Figure 2) is assessed by the level of variance explained ( $R^2$ ) by each construct (Braunscheidel et al., 2010; Gefen et al., 2010). Furthermore, the significance of each structural path is established by a path beta coefficient and its corresponding  $t$ -statistic ( $p$ -value), and effect size ( $f^2$ ) (Braunscheidel et al., 2010; Gefen et al., 2000). In the following, these fit statistics are reported for our measurement and structural models.

### Measurement model

Concerning reliability, the Cronbach's alphas exceeded 0.60 (Nunnally, 1967)<sup>2</sup>, the composite reliability for each construct was over 0.60 and the standardized factor loadings of most items were above 0.7 (Henseler et al., 2009)<sup>3</sup> (see Table 1).

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<sup>2</sup> Nunnally (1967) has recommended that Cronbach alpha be equal to or greater than 0.6 for research purposes (Minbaeva, 2007).

<sup>3</sup> While standardized factor loadings of individual items that are equal to or greater than 0.7 indicate high item reliability, items below this threshold should not be removed from the analysis unless their standardized factor loadings are below 0.4, and removing the item greatly increases composite reliability (Henseler et al., 2009).

---Insert Table 1 about here---

Convergent validity was supported by average variance greater than 0.50 for all constructs (Fornell and Larcker, 1981). Discriminant validity was established by the square root of average variance exceeding all corresponding correlations (Fornell and Larcker, 1981) and cross loadings showing that all items loaded highest on their respective constructs (White et al., 2003). The descriptive statistics and correlations are presented in Table 2.

---Insert Table 2 about here---

We tested for possible CMV by conducting Harman's single factor test. Items were entered into an exploratory, unrotated principal component analysis. The resulting first and second factors explained low levels of variance (19% and 12%), which suggests that CMV is not a significant problem (Podsakoff and Organ, 1986).

### **Structural model**

The  $R^2$  scores of knowledge transfer from the acquirer and from the target were acceptable: 0.30 and 0.24 (Henseler et al., 2009).  $R^2$  scores for cultural learning initiatives (0.27), and the collective teaching initiatives of the acquirer and target (0.26 and 0.23) were also acceptable. Taken together, these values suggested a good overall fit of the structural model. Concerning the significance of the model paths, cultural learning initiatives were positively related with knowledge transfer from the target to the acquirer ( $\beta=0.237$ ,  $p<0.01$ ,  $f^2=0.07$ ), but not with knowledge transfer from the acquirer to the target. Thus H1b was supported but H1a was not. The acquirer's collective teaching initiatives were positively associated with knowledge transfer from the acquirer ( $\beta=0.483$ ,  $p<0.001$ ,  $f^2=0.21$ ) and target's collective teaching initiatives positively related with knowledge transfer from the target ( $\beta=0.334$ ,  $p<0.001$ ,  $f^2=0.13$ ), thereby supporting H2a and H2b.

Knowledge complementarity was positively related to cultural learning initiatives ( $\beta=0.366$ ,  $p<0.001$ ,  $f^2=0.15$ ) and to the acquirer's and the target's collective teaching initiatives ( $\beta=0.377$ ,  $p<0.01$ ,  $f^2=0.21$  and  $\beta=0.444$ ,  $p<0.001$ ,  $f^2=0.15$ ), thereby supporting H3a, H3b and

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While 2 items were below 0.7, none of them were below 0.4. Also, removing these items did not substantially increase composite reliability.

H3c. The complexity of the acquirer's knowledge was positively related to the acquirer's collective teaching initiatives ( $\beta=0.204$ ,  $p<0.05$ ,  $f^2=0.05$ ), but not to cultural learning initiatives, thereby supporting H4a but not 4b. The complexity of the target's knowledge was not related to the target's collective teaching initiatives or to cultural learning initiatives (H4c-d). The target's acceptance of the acquirer's culture was related to the acquirer's collective teaching initiatives ( $\beta=0.167$ ,  $p<0.05$ ,  $f^2=0.03$ ), thereby supporting H5b. Conflicting H5c, the target's acceptance of the acquirer's culture was weakly negatively related to the target's collective teaching initiatives ( $\beta=-0.172$ ,  $p<0.1$ ,  $f^2=0.04$ ), and not related to cultural learning initiatives (H5a). Finally, the target's cultural preservation was negatively associated with cultural learning initiatives ( $\beta=-0.336$ ,  $p<0.001$ ,  $f^2=0.11$ ), with the acquirer's collective teaching initiatives ( $\beta=-0.243$ ,  $p<0.05$ ,  $f^2=0.04$ ), and weakly negatively associated with the target's collective teaching initiatives ( $\beta=-0.185$ ,  $p<0.1$ ,  $f^2=0.04$ ). Thus, H6a and H6b were supported and H6c was weakly supported.

Out of the control variables, elapsed time was positively related to the target's collective teaching initiatives ( $\beta=0.223$ ,  $p<0.05$ ,  $f^2=0.05$ ), organizational cultural differences were negatively related to the target's collective teaching initiatives ( $\beta=-0.271$ ,  $p<0.05$ ,  $f^2=0.08$ ) and weakly positively to knowledge transfer from the acquirer ( $\beta=0.158$ ,  $p<0.1$ ,  $f^2=0.03$ ), whereas national cultural difference were negatively related to knowledge transfer from the acquirer ( $\beta=-0.140$ ,  $p<0.05$ ,  $f^2=0.02$ ).

---Insert Figure 2 about here---

## DISCUSSION

Our aim in this paper was to contribute to the literature on knowledge transfer in M&As by modelling it as consisting of two-directional knowledge flows (knowledge transfer from the acquirer to the target and vice versa) that are influenced by knowledge characteristics (complementarity and complexity) and relationship characteristics (cultural acceptance and preservations) through their impact on managerial processes (cultural learning and collective teaching initiatives). This answers the call of previous M&A research to focus on the influence of specific managerial processes on M&A value creation and to examine the factors that determine the use of these managerial processes (Haleblian et al., 2009; Zollo and Singh, 2004).

By examining knowledge flows from the target to the acquirer and vice versa, we were able to establish that *collective teaching* benefits knowledge transfer in both directions. This

suggests that collective teaching through observing how the source unit collectively solves complex problems improved the recipient's understanding of the sender's knowledge and facilitated its implementation in the recipient organization. We attribute this to the general effect of collective teaching in allowing the recipient to gain a more "practical" understanding of the sender's knowledge which facilitates knowledge transfer. Concerning *cultural learning*, we found that this managerial process was particularly well suited for increasing knowledge transfer from the *target to the acquirer*. We think that the primary effect was through increased motivation: engaging in "non-threatening" collective activities and cultural explorations motivated the target to depart from its knowledge. At the same time, the acquirer was able to learn more about target's culture in order to better identify and implement the target's culturally embedded knowledge. However, contrary to our expectations, cultural learning did not increase knowledge transfer from the *acquirer to the target*. This type of knowledge transfer may have been unaffected mainly because motivational problems were less prevalent in the acquirer to begin with. In fact, previous research indicates that negative employee reactions to the M&A are most often experienced in the target firm (Terry and Callan, 1998; Van Knippenberg et al., 2002), which makes the creation of a "social community" especially relevant in the target (Bresman et al., 1999). These differing effects of cultural learning point to the importance of including both directions of M&A knowledge transfer in models instead of lumping them together or only focusing on one-directional knowledge flows, as has often been done in the previous literature.

Regarding the antecedent of the managerial processes of cultural learning and collective teaching, *knowledge complementarity* emerged as the strongest factor. This implies that, in the presence of complementary knowledge, managers focus on supporting knowledge transfer by both learning and teaching initiatives. Whereas previous research has proposed that knowledge complementarity facilitates knowledge transfer in acquisitions by increasing knowledge transfer potential (Björkman, Stahl, and Vaara, 2007; Westphal and Shaw, 2005), our study expands these previous findings by suggesting that complementarities also influence knowledge transfer through increased managerial agency: resource interdependencies such as complementary knowledge influence the post-acquisition implementation strategy by prompting managers to focus on post-acquisition initiatives related to cultural learning and collective teaching. These

managerial actions are, in turn, essential for value creation in terms of knowledge transfer as discussed in the previous paragraph

While we examined *knowledge complexity* separately in both the acquirer and the target, we only found a significant positive link between the complexity of the *acquirer's* knowledge and the use of acquirer's collective teaching. This suggests that the acquirer realized that, in order to break down its complex knowledge, "hands-on" collective teaching initiatives were essential. We find it interesting that we did not find a similar link between the *target's* complex knowledge and target's collective teaching. One explanation could be that the acquirer did not initially realize the full complexity of the target's knowledge and was less supportive of these initiatives on the target's side. Alternatively, the target may have resisted collective teaching to protect its complex, valuable knowledge, which may have been viewed as an important part of the target's knowledge-based power (Empson, 2001; Junni, 2011). It is also interesting to note that neither the complexity of the acquirer's nor the target's knowledge resulted in increased use of cultural learning. This suggests that focusing on cultural aspects was not considered important in transferring complex knowledge. However, considering our earlier findings of cultural learning as a key mechanism in transferring the *target's* knowledge to the acquirer, cultural learning may be an under-utilized managerial process to transfer the target's complex knowledge.

Concerning relationship characteristics, in line with our hypothesis, the *target's acceptance of the acquirer's culture* increased the acquirer's collective teaching initiatives. In other words, when the target viewed the acquirer's culture as valuable, it was likely to be more willing to participate in the acquirer's collective teaching initiatives, encouraging the acquirer to arrange more of these kinds of activities. This may have been due to the target's reduced fear of being "contaminated" by the acquirer (Empson, 2001). However, contrary to what we expected, the *target's acceptance of the acquirer's culture* did not increase, but slightly decreased the target's collective teaching initiatives. This finding may be explained by the target's "admiration" of the acquirer (Hogg and Terry, 2000), which encouraged it to learn the acquirer's practices through acquirer's collective teaching, rather than to disseminate its own practices. However, the target's acceptance of the acquirer's culture did not result in increased cultural learning initiatives. Perhaps it was perceived that these kinds of initiatives were less needed because the target was already favourable towards the acquirer's culture. Alternatively, the

target's acceptance of the acquirer's culture may have allowed dismantling of the target's culture entirely (Nahavandi and Malekzadeh, 1988), making reciprocal cultural explorations unnecessary.

As to the *target's cultural preservation*, we established that it decreased cultural learning and collective teaching initiatives, although the relationship was only weakly significant for the target's teaching initiatives. This was likely to result from the target's general resistance to participate in teaching initiated by the acquirer that could have potentially "contaminated" the target's knowledge base (Empson, 2001; Junni, 2011). The target may also have resisted initiating and participating in cultural learning because of the desire to protect its culture from an "invasion" of the acquirer and to protect its culturally embedded knowledge.

In conclusion, our study illustrates some of the complex influence mechanisms of knowledge transfer in M&As. First, the managerial processes of cultural learning and collective teaching are both beneficial. This emphasized the general importance of taking into account how the management of the integration process influences post-acquisition outcomes (Haleblian et al., 2009; Zollo and Singh, 2004). Second, these managerial processes are influenced both by knowledge and relationship characteristics. The positive relationships between knowledge characteristics (complementarity and complexity) and the managerial processes of cultural learning and collective teaching highlights the importance of considering the impact of initial knowledge transfer potential of the post-acquisition integration strategy (Haspeslagh and Jemison, 1991).

Finally, as called for in previous studies (Teerikangas and Very, 2006; Björkman et al., 2007), this study elaborates on the important role of culture in M&As in general and in M&A knowledge transfer in particular, by illustrating the positive/negative effects of the target's cultural acceptance/preservation.

As to the limitations of our study, we relied mostly on subjective evaluations of high level managers, many of them from the acquiring firm. Although we believe that these managers were able to provide realistic evaluations because of their intimate knowledge of and participation in the integration process, we hope that our study inspires more research on these issues with more balanced samples of the acquiring and target firms as well as at the lower organizational levels. In addition, even though our sample provides enough statistical power and compares relatively well with samples used in similar studies (e.g. Ranft and Lord, 2000;

Simonin, 1999), the findings are based on a relatively small number of respondents. Finally, we rely on quantitative data. Further qualitative studies are needed to complement our study in order to provide more in-depth and longitudinal analysis of dynamic learning and teaching processes. Our study also has managerial implications. Most importantly, knowledge transfer can be effectively facilitated by appropriate managerial processes. Collective teaching is important when transferring knowledge in both directions and cultural learning is particularly beneficial for knowledge transfer from the target to the acquirer. Thus, it is important to support the integration process with these types of collective efforts and adjust them depending on the desired direction of knowledge transfer. Second, complementary knowledge is related to the increased use of both cultural learning and collective teaching initiatives, which suggests that managers are aware of the importance of collective processes in turning the value potential of complementary knowledge into actual knowledge transfer. However, our study shows that cultural learning initiatives were not increasingly used when the knowledge base was complex and collective teaching was only increased when the acquirer's knowledge was complex. This suggests that the types of collective initiatives discussed in our study may be underutilized mechanisms in transferring valuable, but complex knowledge. Finally, while cultural acceptance can increase the acquirer's collective teaching initiatives, cultural preservation tendencies can have a profound negative effect on post-acquisition integration by limiting the extent to which the collaborative processes of cultural learning and acquirer's collective teaching initiatives can be used.

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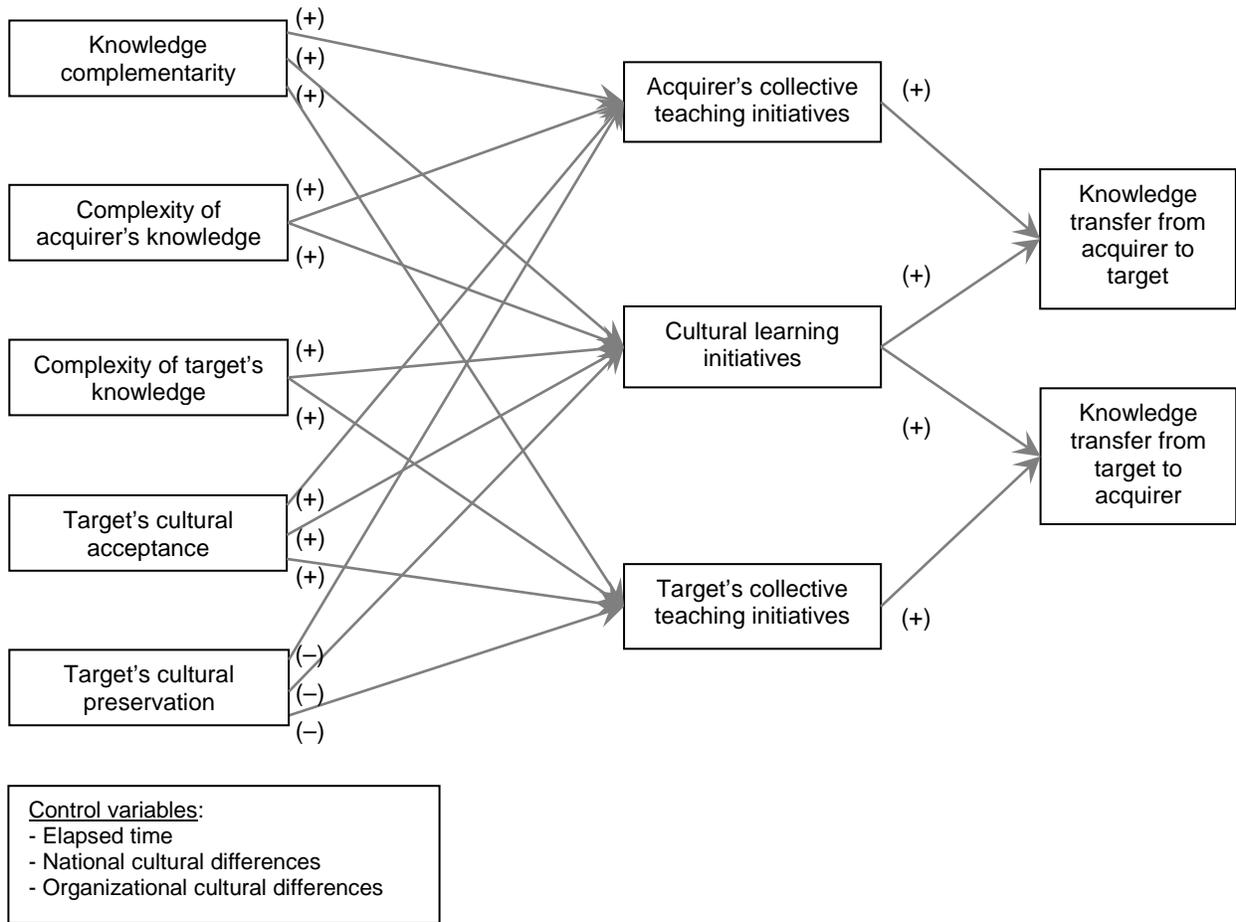
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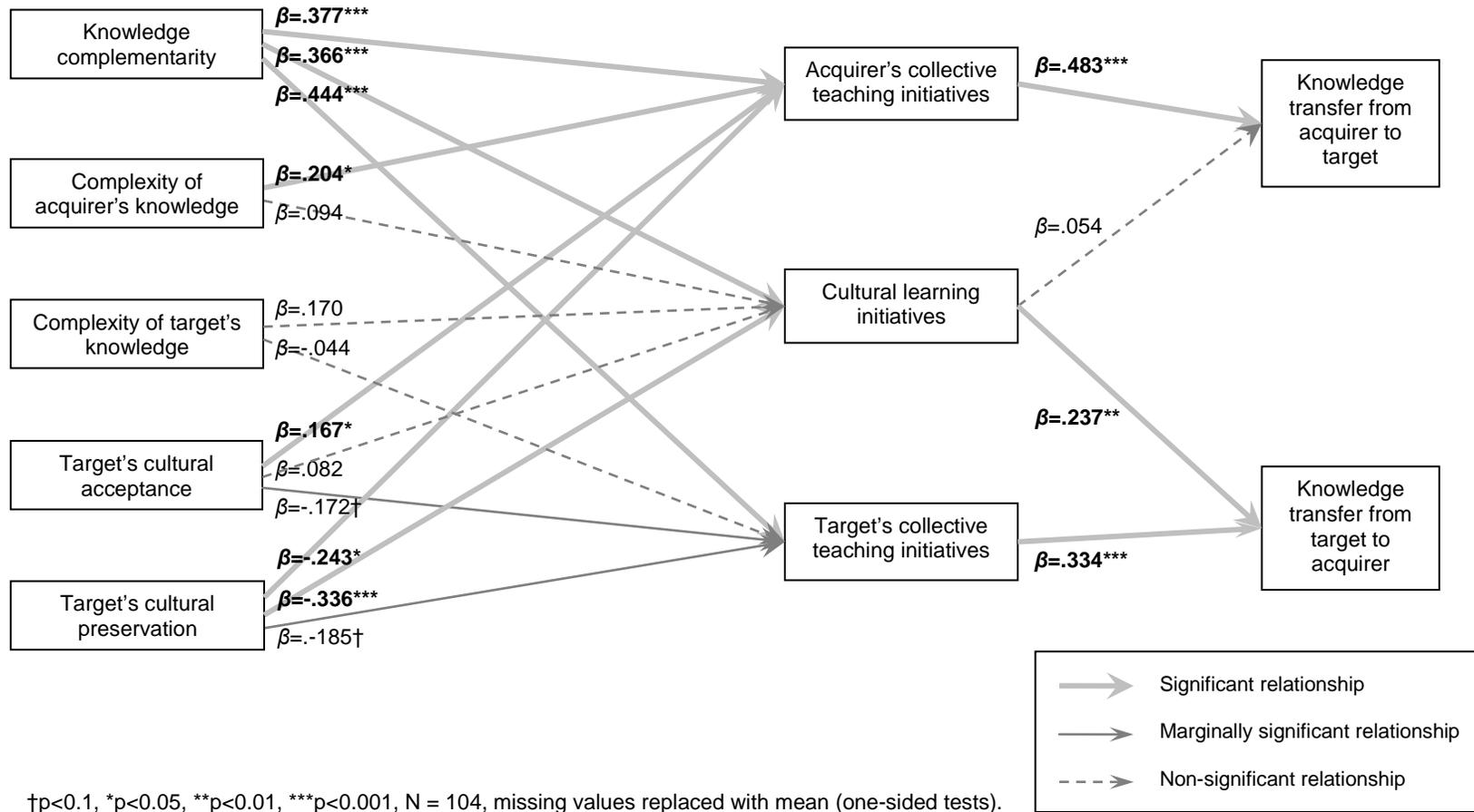
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**FIGURE 1**

**Theoretical model of knowledge transfer in M&As**



**FIGURE 2**  
**The result of the PLS analysis**



**TABLE 1**  
**Assessment of multi-item constructs**

<b>Constructs</b>	<b>Cronbach's alpha</b>	<b>Composite reliability</b>	<b>Average variance extracted</b>	<b>Range of factor loadings</b>
Knowledge transfer from acquirer to target	0.85	0.89	0.57	0.71-0.85
Knowledge transfer from target to acquirer	0.83	0.87	0.54	0.69-0.84
Cultural learning initiatives	0.79	0.86	0.61	0.71-0.85
Acquirer's collective teaching initiatives	0.90	0.93	0.77	0.86-0.93
Target's collective teaching initiatives	0.93	0.95	0.82	0.91-0.95
Knowledge complementarity	0.72	0.84	0.64	0.70-0.88
Complexity of acquirer's knowledge	0.66	0.81	0.58	0.74-0.86
Complexity of target's knowledge	0.66	0.79	0.56	0.55-0.88
Target's cultural acceptance	0.86	0.91	0.78	0.85-0.95
Target's cultural preservation	0.86	0.93	0.87	0.92-0.99
Organizational cultural differences	0.80	0.86	0.51	0.60-0.86

**TABLE 2**  
**Descriptive statistics and correlations**

<b>Constructs</b>	<b>Mean</b>	<b>S.D.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>
1. Elapsed time	2.388	1.022	(1.000)												
2. Organizational cultural differences	4.743	1.137	0.120	(0.713)											
3. National cultural differences	0.913	1.807	0.073	0.097	(1.000)										
4. Cultural learning initiatives	3.166	1.180	-0.097	0.151	0.033	(0.779)									
5. Acquirer's collective teaching initiatives	4.444	1.362	-0.063	0.040	0.121	0.568	(0.876)								
6. Target's collective teaching initiatives	3.847	1.451	0.031	-0.140	0.086	0.263	0.418	(0.908)							
7. Knowledge complementarity	5.355	1.129	-0.329	0.045	0.025	0.345	0.343	0.326	(0.803)						
8. Complexity of acquirer's knowledge	4.869	0.975	-0.104	-0.041	0.215	0.238	0.297	0.079	0.194	(0.763)					
9. Complexity of target's knowledge	4.858	0.980	0.004	0.029	0.117	0.183	0.152	0.008	0.187	0.376	(0.749)				
10. Target's cultural acceptance	4.772	1.163	-0.034	-0.234	0.040	0.035	0.156	-0.119	-0.006	0.012	-0.062	(0.882)			
11. Target's cultural preservation	5.105	1.223	0.137	-0.204	-0.074	-0.250	-0.189	-0.058	0.144	-0.094	0.242	0.033	(0.933)		
12. Knowledge transfer from acquirer to target	4.497	1.348	-0.070	0.166	-0.067	0.352	0.506	0.069	-0.065	0.206	0.054	0.252	-0.271	(0.752)	
13. Knowledge transfer from target to acquirer	3.777	1.336	-0.137	-0.138	-0.073	0.316	0.392	0.400	0.418	0.104	0.264	0.080	0.192	0.186	(0.733)

Numbers in brackets denote the square root of the average variance extracted (all constructs are reflective).

Mean values are based on unstandardized variables, other values are based on standardized variables. N = 104.