Informal Social Ties and Relationship Orientation in Korean Business Exchanges: A Content Analysis of Ten Inter-Organizational Research Collaborations

MARTIN HEMMERT
JAE-JIN KIM

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MARTIN HEMMERT

Professor of International Business, School of Business, Korea University, Seoul; Visiting Research Fellow at the IN-EAST School of Advanced Studies, June–July 2018

W biz1.korea.ac.kr/en/faculty/international%20business
E mhemmert@korea.ac.kr

JAE-JIN KIM

Assistant Professor of Business Administration, Hoseo University, Cheonan

W biz.hoseo.ac.kr
E jkim@hoseo.edu
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Abstract
We examine the role of informal social ties and of relationship orientation in two types of inter-organizational research collaborations in South Korea: new product development (NPD) collaborations and university-industry research collaborations (UICs). An in-depth content analysis of five NPD collaborations and five UICs reveals that whereas both informal social ties and relationship orientation are prevalent in research collaborations in Korea, they play different roles for relationship quality and collaboration outcomes. Informal social ties strongly vary in their types and strength, and enhance relationship quality and outcomes only when they are well-aligned with the task-specific requirements for a given collaboration. Relationship orientation manifests itself both in task-related and social exchanges between collaboration partners. A strong relationship resulting from such exchanges often enhances outcomes such as knowledge acquisition and business performance.

Keywords
inter-organizational research collaboration, informal social ties, relationship orientation, relationship quality, knowledge acquisition, Korea
Informal social ties between individuals are widely believed to be highly important in the societies and business systems of East Asian countries (Gu, Hung & Tse 2008; Yang & Horak 2018). In particular, the relevance of guanxi ties in China has attracted much attention in business and management research (e.g., Tsang 1998; Gold, Guthrie & Wank 2002; Luo 2007; Gu et al. 2008; Li 2007; Luo, Huang & Wang 2012). While China’s ongoing institutional transition may result in a diminishing business relevance of guanxi in the long term (Peng 2003), recent studies suggest that guanxi remains very important for doing business in China (Luo et al. 2012; Yen & Abosag 2016). From a normative perspective, guanxi may potentially exert beneficial or detrimental effects on the performance of firms (Gu et al. 2008). Specifically, while guanxi of managers with representatives of other firms has been found to enhance firms’ performance, guanxi with government representatives appears to have negative performance effects (Li, Zhou & Shao 2009; Luo et al. 2012).

Similarly to China, informal social ties are seen as prevalent in the Korean economy and society (Yee 2000; Lew 2013; Horak 2017). While they have previously received limited research attention, an increasing number of studies about them has been conducted in recent years (e.g., Lew 2013; Horak 2014; Yee 2015; Horak & Klein 2016; Horak & Taube 2016; Horak 2017; Yang & Horak 2018). These recent studies have advanced our understanding of the nature and variety of informal social ties in Korea as well as of the mechanisms through which they influence business practices of Korean firms. However, less is known about the ties’ influence on business outcomes. Two quantitative studies on inter-organizational research collaborations (hereafter research collaborations) have found that informal social ties are unrelated to trust formation between collaboration partners, relationship quality and collaboration outcomes (Bstieler & Hemmert 2010; Hemmert 2018). However, as these studies are based on a statistical analysis of survey data, they do not allow in-depth observations of the processes which result in the observed overall irrelevance of informal social ties for outcomes. For instance, we do not know whether informal social ties are generally unrelated to collaboration performance, or whether they may have a positive performance effect in some cases and a negative effect in other cases. Furthermore, what are the specific factors and processes which result in the irrelevance or, conversely, in the beneficial or detrimental performance effects of informal social ties in research collaborations?

In a similar vein to the role of informal social ties, Korean companies and managers are widely seen as being strongly relationship-oriented in ongoing business exchanges (Yang 2006). While such relationship orientation may gradually recede due to Korea’s rapid economic and institutional advances (Peng 2003), the few empirical studies which have examined relational governance in inter-organizational business exchanges have found that it still plays an important role for relationship quality and outcomes (Goo, Kishore, Rao & Nam 2009; Bstieler & Hemmert 2015). Yet, little is known about the specific mechanisms through which relationship orientation in Korean business articulates itself, and how it may contribute to outcomes of business exchanges and collaborations.

This study intends to advance the understanding of the role of informal social ties and of relationship orientation in research collaborations in Korea. Specifically, we complement extant quantitative studies through a qualitative analysis of ten research collaborations, focusing on the following research questions:

1. What is the specific nature of informal social ties in research collaborations in Korea?
2 Which factors and processes result in the irrelevance of these ties for the performance of research collaborations, or conversely, in their positive and negative performance effects?

3 How strong is relationship orientation in research collaborations in Korea, and through which mechanisms does it manifest itself?

4 How effective is relationship orientation for enhancing relationship quality and collaboration outcomes in research collaborations?

This paper is organized as follows: the extant literature on informal social ties, relationship orientation and research collaborations in Korea is reviewed in Section 2, followed by an elaboration on the research methodology applied in this study in Section 3. The qualitative analysis on the role of informal social ties and relationship orientation in research collaborations is presented in Section 4, and the findings are discussed in Section 5, resulting in the formulation of research propositions. Finally, our study’s contributions and implications are considered in Section 6 and its limitations and further research directions in the concluding Section 7.

2 LITERATURE REVIEW

2.1 INFORMAL SOCIAL TIES IN KOREA

Informal social ties are strongly prevalent in Korea (Lew 2013; Horak 2014), and this prevalence has its origins in pre-modern Korean history. During the Chosun dynasty (1392–1910), Confucianism took deep roots in Korean society, with a particular emphasis on hierarchical social relationships within families and communities (Lew, Chang & Kim 2013). Values such as filial piety (hyo) and loyalty to the country (chung) which are directly related to the five cardinal relationships of Confucianism (king/emperor-subject, father-son, husband-wife, elder brother-younger brother, friend-friend) were emphasized (Lee, Choi & Wang 2013; Hemmert 2017). In essence, devotion to ancestors and living family members became the core of Koreans’ spiritual and social lives.

These traditions resulted in the strong cultivation of particular types of informal social ties among Koreans when the country modernized throughout the twentieth century, namely: family ties (hyulyon; literally: “blood ties”), school ties (hakyon) and regional ties (jiyon) (Lew, Chang & Kim 2013; Horak & Klein 2016). While family ties can be directly linked to Confucian traditions of family orientation, school ties also have strong Confucian roots in Korea, as education is an important Confucian value. As a result, there is a strong education zeal, fierce competition for admission into the best schools and universities, and strong bonding among school and university classmates who build alumni networks after graduation and mutually support each other when pursuing their professional careers (Yang & Horak 2018). Finally, regional ties have not only historical roots in the local community bonds of pre-modern Korea, but are also overlapping with school ties, as school classmates mostly hail from the same town, city or region (Lew, Chang & Kim 2013). While these three types of social ties are most intensively discussed in Korea, there are also other frequent ways of bonding and network building in Korea, such as ties with former comrades who served in the same military unit, friendship circles among company colleagues, local church communities, neighborhood circles, and hobby clubs.

A rich terminological variety related to types and categories of social ties exists in Korea, including the concepts of yongo (“personal relationships”; mostly associated with family, school and regional ties), inmaek (“human networks” in general), pabol (“cliques”) and yonjul (“gains
from connections”) (Yang & Horak 2018). Pabol and yonjual have clearly negative connotations, as they are associated with factionalism and illegal transactions, respectively. In contrast, yongo and inmaek are regarded as more neutral terms to describe informal social ties and networks.

Informal social ties in Korea have been described as a type of social capital (Lew, Chang & Kim 2013) with hierarchical, collectivistic and private attributes which are based on Confucian traditions (Yee 2015). Membership in some types of networks, such as families, is strictly ascribed, while other types of networks, such as friendship circles and hobby clubs, can be joined and exited more flexibly. School and university network ties are ascribed once these networks have been built. However, as there is a strong and open competition to enter the best schools and universities, individuals have an a priori choice with whom they will create informal social ties in the future. Once they become members of specific networks, they feel an obligation to help each other and provide other network members with support when needed. In other words, there is a strong behavioral norm that all network members are obliged to cooperate (Horak & Taube 2016).

Overall, there is agreement that informal social ties play an important role not only in the personal and professional lives of Koreans, but also for various characteristics of Korean business (Yee 2000; Lew, Chang & Kim 2013; Horak 2014; Yee 2015; Horak & Klein 2016; Horak 2017). Furthermore, there is a widespread perception that informal social ties are frequently leveraged in specific business contexts, such as negotiations with business partners or recruitment and promotion decisions (Horak 2014; Horak 2017). These perceptions implicitly suggest that informal social ties are effective not only for the individual career advancement of professionals, but also for enhancing business performance, e.g. when companies seek to acquire business partners such as customers or suppliers. However, there is limited research on the actual influence of informal social ties on business performance.

Two studies on the role of informal social ties in research collaborations have found that informal social ties are unrelated to performance aspects such as trust formation, knowledge acquisition, and project performance (Bstieler & Hemmert 2010; Hemmert 2018). These findings are in clear contrast to widespread perceptions about the importance and effectiveness of informal social ties in Korea, resulting in a need to understand the processes and mechanisms which render informal social ties effective or ineffective in specific business contexts such as research collaborations.

2.2 RELATIONSHIP ORIENTATION IN KOREAN BUSINESS EXCHANGES

Aside from the role of informal social ties in particular, continuous exchanges in Korean business are perceived as strongly relationship-oriented in general (Yang 2006). Similarly to informal social ties, this relationship orientation can be linked to Confucian traditions. The five cardinal relationships of Confucianism emphasize the importance of nurturing and maintaining strong relationships with specific individuals, such as family members or friends (Lee, Choi & Wang 2013; Hemmert 2017). Thus, in contrast to Western thinking, which places high importance on adherence to general rules, Korean thought traditions underscore the precedence of personal relationships over abstract principles (Yum 1988; Chen & Miller 2011).

The influence of Confucian traditions on business exchanges in Korea has been reinforced by the country’s turbulent history and rapid economic growth throughout the 20th century. Korean business leaders and managers had to cope with a series of extreme changes and disruptions in their business environment, including colonization by Japan in 1910, the country’s division in 1945, the Korean War in 1950–1953, changes from civilian to military government in 1961 and back to civilian government in 1987, and the Asian financial crisis in 1997 (Hemmert 2017). In order to mitigate the high risks and uncertain-
ties entailed by these external disruptions, Korean business leaders sought strong relationships with influential individuals such as government officials or business partners who could potentially help them with overcoming major difficulties resulting from drastic changes (Chang 2003). In view of weak rules and institutions in Korea’s emerging economy, such relationships could be viewed as effective safeguards against various risks and uncertainties.

As a result of its rapid growth and development, Korea has entered the group of rich industrialized countries and achieved a per capita income level similar to the European Union or Japan, however. Moreover, various institutional reforms have been implemented in Korea since the Asian financial crisis to strengthen transparency and the rule of law (Kwon 2010). As a result of these economic advances and institutional transitions, the reliance on relational governance in business exchanges may weaken and gradually give way to a rule-based, impersonal exchange regime (Peng 2003).

However, there is limited empirical evidence on the extent to which relational governance is being replaced by contractual, rule-based governance in business exchanges in Korea, and the results of the few studies related to this topic have been mixed. Goo et al. (2009) observed that in inter-firm IT outsourcing agreements, contractual agreements support various aspects of relational governance, while Bstieler and Hemmert (2015) found that relational governance is more relevant than contractual governance for outcomes of new product development (NPD) collaborations, and that there is a substitution effect between contractual and relational governance. These findings overall suggest that relational governance still plays an important role in business exchanges in Korea. However, little is known on the specific mechanisms and processes through which such strong relationship orientation materializes in ongoing exchanges, and how it affects outcomes for companies which engage in it.

2.3 RESEARCH COLLABORATIONS IN KOREA

Research collaborations are a relatively recent phenomenon in Korea. For most of the twentieth century, Korean companies have focused on the imitation and import of technologies from advanced countries as effective methods of technological catch-up (Kim 1997; Lee & Lim 2001). In recent decades, however, many Korean firms have reached the technological forefront, and have therefore rapidly scaled up their research and development (R&D) activities. As a result, Korea now has one of the highest R&D intensities in the world (OECD 2017). Furthermore, various megatrends, including stronger global competition, accelerating technological progress and lower entrance barriers in many technology-intensive industries have induced companies to seek more research collaborations in general (West & Bogers 2014), as it becomes more difficult to stay technologically competitive by purely relying on in-house R&D. Research collaborations with other firms and with universities are a particularly effective means for companies to strengthen their technological competitiveness (van de Vrande, de Jong, Vanhaverbeke & de Rochemont 2009). Therefore, Korean firms are now engaging much more frequently than in the past in such research collaborations (Hemmert, Okamuro, Bstieler & Ruth 2008; Lee, Park, Yoon & Park 2010).

However, many Korean companies find the effective management of research collaborations highly challenging, for two reasons. First, they still have limited experience with managing research collaborations, which were not a highly relevant mode of technological learning for them in the past. Second, cultural features constitute additional hurdles for pursuing external collaborations in a highly sensitive field such as technology development. In Korea’s collectivistic society there is a strong distinction between in-groups and out-groups (Yum 1988), and therefore it is difficult to develop trust into external organizations and their representatives (Huff &
Kelley 2003). In fact, studies of research collaborations in Korea have shown that participating companies struggle to establish trust with their partners (Bstieler & Hemmert 2008) and to leverage collaboration outcomes effectively for innovation (Eom & Lee 2010).

In summary, research collaborations are now a highly relevant mode of technology development for Korean firms, but the management of such collaborations is regarded as difficult due to a lack of experience and for cultural reasons. Therefore, research collaborations are a particularly relevant field to study the role of informal social ties and of relationship orientation in the context of Korean business exchanges, as social ties between representatives of partner organizations and relationship orientation are potential means to overcome the strong inter-organizational barriers in Korea and to achieve positive collaboration outcomes. While Bstieler and Hemmert (2010) and Hemmert (2018) have observed that informal social ties are unrelated to the relationship quality and outcomes of Korean research collaborations, little is known on the processes which render informal social ties ineffective for achieving positive collaboration outcomes. In a similar vein, while Bstieler and Hemmert (2015) have found that relational governance strongly matters for outcomes of research collaborations in Korea, the way how such relationship orientation manifests itself and the mechanisms through which it influences collaboration outcomes remain largely unexplored.

3 RESEARCH METHODOLOGY

3.1 DATA COLLECTION

In this study, two types of research collaborations are examined: (1) NPD collaborations between companies, defined as project-based inter-organizational exchange relations between two independent firms involved in the conception, testing, production, or marketing of a new product, and (2) university-industry research collaborations (UICs), defined as project-based collaborative research relationships between universities and companies aiming at the generation or transfer of new products, technologies, or processes. Specifically, five NPD collaborations and five UICs were studied in-depth through on-site hearings of collaboration partners.

The NPD collaboration cases have been selected among 47 collaboration projects in the Korean machinery industry on which questionnaire responses were initially collected (Bstieler & Hemmert 2010). Key informants of the preceding questionnaire survey were contacted by phone, requesting on-site interviews on a confidential base. As the collaborating companies were reluctant to disclose the identities of their partners, the hearings were limited to one side of each NPD collaboration.

The UIC cases have been selected from a list of 50 UICs in Korea in the fields of biotechnology, micro-electronics and software obtained from the University-Industry Collaborative Technology Development Consortium database collected by the Small and Medium Business Administration which contained the names of both collaboration partners for each UIC. Both partners were contacted by phone, identifying key informants who were most familiar with the focal research collaboration on each side, and requesting confidential on-site interviews. Therefore, both company and university partners were interviewed to examine the five UIC cases included in this study.

The on-site interviews were conducted in a semi-structured manner, asking collaboration partners regarding any pre-existing informal social ties among them, the nature of these ties, how the collaboration progressed, how the part-
ners interacted and resolved conflicts, the role of pre-existing informal social ties and of relationship orientation in the collaboration, and collaboration outcomes. All interviews lasted between 30 and 90 minutes. The interview contents were recorded in detailed protocols which were subsequently analyzed to detect common or divergent patterns of interaction across the research collaborations being studied.

### 3.2 SAMPLE INFORMATION

Sample information on the research collaborations included in this study is provided in Tables 1 and 2. The NPD collaboration projects lasted between 12 and 21 months and they resulted in sale increases for the participating companies of up to 30 percent. The projects focused on the development of new industrial machinery and industrial materials. Two of the interviewed companies have been medium-sized with between 50 and 300 employees and the remaining three companies have been large with more than 300 employees.

The UIC projects all had a duration of two years and modest budgets of between 200 and 500 million KRW (approximately equivalent to 200,000 to 500,000 US$). All of them focused on the development of new technologies in technology-intensive industries, including biotechnology and medicine, robotics and security software. The participating companies had between 32 and 200 employees and the participating university labs between 3 and 25 employees, measured in full-time equivalents.

#### Table 1: Sample information of NPD collaboration projects

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project length</td>
<td></td>
</tr>
<tr>
<td>12–15 months</td>
<td>3</td>
</tr>
<tr>
<td>18–21 months</td>
<td>2</td>
</tr>
<tr>
<td>Resulting sales increase for participating companies</td>
<td></td>
</tr>
<tr>
<td>&lt; 10 percent</td>
<td>2</td>
</tr>
<tr>
<td>10–20 percent</td>
<td>1</td>
</tr>
<tr>
<td>20–30 percent</td>
<td>2</td>
</tr>
<tr>
<td>Industry classification</td>
<td></td>
</tr>
<tr>
<td>Industrial machinery</td>
<td>4</td>
</tr>
<tr>
<td>Industrial materials</td>
<td>1</td>
</tr>
<tr>
<td>Size of companies</td>
<td></td>
</tr>
<tr>
<td>50–300 employees</td>
<td>2</td>
</tr>
<tr>
<td>&gt; 300 employees</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Table 2: Sample information of UIC projects

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project length</td>
<td></td>
</tr>
<tr>
<td>24 months</td>
<td>5</td>
</tr>
<tr>
<td>Project budget (million KRW)</td>
<td></td>
</tr>
<tr>
<td>200–300</td>
<td>2</td>
</tr>
<tr>
<td>300–500</td>
<td>3</td>
</tr>
<tr>
<td>Industry classification</td>
<td></td>
</tr>
<tr>
<td>Biotechnology and medicine</td>
<td>2</td>
</tr>
<tr>
<td>Robotics</td>
<td>2</td>
</tr>
<tr>
<td>Security software</td>
<td>1</td>
</tr>
<tr>
<td>Size of companies</td>
<td></td>
</tr>
<tr>
<td>&lt; 100 employees</td>
<td>2</td>
</tr>
<tr>
<td>100–200 employees</td>
<td>3</td>
</tr>
<tr>
<td>Size of university labs (full-time equivalents)</td>
<td></td>
</tr>
<tr>
<td>&lt; 10 employees</td>
<td>3</td>
</tr>
<tr>
<td>10–30 employees</td>
<td>2</td>
</tr>
</tbody>
</table>

### 4 CONTENT ANALYSIS OF RESEARCH COLLABORATIONS

#### 4.1 OVERVIEW

Subsequently, the contents of the NPD collaborations and UICs which have been subject of this study are analyzed with a focus on the following topics in order to examine the role of informal social ties and relationship orientation in each stage of the research collaborations: relationship history and initiation of each collaboration, interaction intensity and relationship quality, relational challenges and remedies, and collaboration outcomes. The findings are summarized in Tables 3 and 4.
### Table 3: Content summary of NPD collaboration cases

<table>
<thead>
<tr>
<th>Collaboration case</th>
<th>Relationship history and initiation of collaboration</th>
<th>Interaction intensity and relationship quality</th>
<th>Relational challenges and remedies</th>
<th>Outcome evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Long-term business relationship; personal acquaintances</td>
<td>Frequent face-to-face meetings; regular social after-work gatherings</td>
<td>Occasional disagreements on quality issues; overcome by mutual persuasion and compromising</td>
<td>Positive NPD knowledge acquisition</td>
</tr>
<tr>
<td>B</td>
<td>Long-term business relationship; personal acquaintances</td>
<td>Initial capability-based trust extended into personal trust through regular social gatherings</td>
<td>Disagreements on price and product specifications; overcome by continued investment into relationship</td>
<td>Positive technological knowledge acquisition; strengthened NPD capabilities</td>
</tr>
<tr>
<td>C</td>
<td>No pre-existing relationship; met at trade exposition; good reputation of partner company</td>
<td>Daily phone communication; frequent face-to-face meetings in early collaboration stage with subsequent social gatherings</td>
<td>Price and quality disagreements; overcome by compromising and showing commitment to collaboration</td>
<td>Positive technological knowledge acquisition; new patents; increased profits</td>
</tr>
<tr>
<td>D</td>
<td>No pre-existing relationship; introduction via governmental collaboration program</td>
<td>Relatively few official business meetings; informal social gatherings more frequent</td>
<td>Few disagreements due to limited knowledge overlap with partner; partner’s claims occasionally resulted in company internal tensions</td>
<td>Positive technological knowledge acquisition; increased sales and profits</td>
</tr>
<tr>
<td>E</td>
<td>Personal relationships (collaboration team member previously worked for partner company)</td>
<td>Daily phone or E-mail communication; face-to-face meetings one or twice a month with subsequent social gatherings</td>
<td>Perceived breach of trust by partner (development of copy product); no compromising; no resolution</td>
<td>Negative termination of collaboration without positive outcomes</td>
</tr>
</tbody>
</table>

### Table 4: Content summary of UIC cases

<table>
<thead>
<tr>
<th>Collaboration case</th>
<th>Relationship history and initiation of collaboration</th>
<th>Interaction intensity and relationship quality</th>
<th>Relational challenges and remedies</th>
<th>Outcome evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Professor co-founder of company; personal relationship with CEO</td>
<td>Mostly E-mail and phone communication; occasional face-to-face meetings and social gatherings</td>
<td>No particular relational challenges</td>
<td>Positive Company: NPD knowledge; patent; new staff members University: research funding; student training</td>
</tr>
<tr>
<td>B</td>
<td>Professor previously worked for company as head of research department</td>
<td>Mostly E-mail communication; face-to-face meetings for clarification; no social gathering at staff level (women’s university)</td>
<td>No particular relational challenges</td>
<td>Negative No successful business case</td>
</tr>
<tr>
<td>C</td>
<td>Non-regular previous contact through product evaluation; met at academic conference; company well-reputed</td>
<td>Occasional phone and E-mail communication; quarterly face-to-face meetings, but no social gatherings</td>
<td>Difficult to secure contract agreement with US university partner; TTO perceived as unhelpful and bureaucratic; no effective remedies</td>
<td>Negative Company: no successful market introduction University: no good fit of competencies with company expectations</td>
</tr>
<tr>
<td>D</td>
<td>No pre-existing relationship; partners were introduced to each other by a third party</td>
<td>Mostly E-mail and phone communication; face-to-face meetings once or twice a month; regular social gatherings after meetings</td>
<td>Partial lack of motivation in company to collaborate; absence of powerful collaboration champion; overcome by change of collaboration manager</td>
<td>Positive Company: good NPD performance University: research and staff funding</td>
</tr>
<tr>
<td>E</td>
<td>Company has been supplier of research materials for university; professor knows sales manager</td>
<td>Regular E-mail and phone communication; monthly face-to-face meetings and social gatherings</td>
<td>No particular relational challenges</td>
<td>Positive Company: NPD knowledge, sales University: new patent</td>
</tr>
</tbody>
</table>
4.2 NPD Collaborations

4.2.1 Relationship History and Initiation of Collaboration

In two cases, the NPD collaborations were initiated based on long-term business relationships with customer companies, which previously lasted for approximately 20 years. Supplier-customer business relationships for industrial equipment were extended into NPD collaborations.

“OEMs (original equipment manufacturers) ask us to develop pumps for their models. We cannot do business with OEMs without that kind of development and testing collaboration.” (Company A)

“We develop high-end office equipment for OEMs and also produce and sell them later on to these companies.” (Company B)

Therefore, some individual managers from the partner companies knew each other personally beforehand the NPD collaborations. However, from the perspective of interviewees, this relationship history has not been important for the ongoing research collaborations.

“The relationship experience in itself is not relevant. The work is much focused on the current task fulfillment. When we get acquainted with each other, we deliberately avoid exploring common backgrounds, such as school or region. Everything is focused on the actual work, capabilities, and performance.” (Company A)

“The whole relationship is very much task-driven. We do not feel any particular importance of the relationship experience for the current business.” (Company B)

In the remaining three cases, there were no pre-existing business relationships between the NPD collaboration partners. In one case, the partners found each other at a trade exhibition. In the second case, they were introduced to each other through a governmental organization which acted as a mediator for technology collaborations. In the third case, a manager of the interviewed company had previous working experience with the partner company, and therefore there were close informal social ties between NPD collaboration team members from the two companies, which also included common memberships in alumni networks. In all three cases, these mechanisms served as a base to establish working relationships and initiate NPD collaborations between the companies:

“We found our partner at an expo. We knew most of the leading companies in the factory automation industry were German and Japanese. However, we found that the way how the Japanese design the products is more compatible with our standards and easier to understand. … What made us trust this partner was in the first place the conviction that they have significant engineering capabilities to produce the model they design.” (Company C)

“The governmental organization had a program running in which it introduced companies to each other on projects related to technological collaboration. Its role was mainly limited to mediation. However, we felt we could trust the partner since we believed that the partner will not be able to behave opportunistically within this kind of governmentally monitored program. We also thought that all companies which were accepted for participation in the program had a certain minimum level of managerial and technological capabilities.” (Company D)

“Initially, there was a high amount of trust within the (inter-organizational) team, mainly due to the fact that one team member from our company was initially working for the partner company and knew the partner’s team members, who were his former colleagues, very well.” (Company E)
4.2.2 INTERACTION INTENSITY AND RELATIONSHIP QUALITY

The frequency and intensity of interaction between NPD collaboration partners varied among the projects being studied, depending on the geographical distance between the partners and the perceived need for interaction to conduct the collaborative development tasks. However, in all collaborations, the partners invested time and effort to establish and maintain strong working relationships.

“When working with Japanese OEMs, they prefer face-to-face interaction and therefore send people once or twice a month for four to five days each. The Japanese expect to be treated by us and to go with us to Karaoke bars, saunas and so on. We regard this as an extension of our work, and practically there is no clear line between work-related and private interaction.” (Company A)

“Basically the work is all separated. We do the development by ourselves, there are no teams working together. ... We have daily phone contacts and typically face-to-face meetings once or twice a week with the OEM people during the early stages of development. On these occasions, it is common to have dinner together after work. During the later stages, there is less interaction.” (Company C)

“We built a joint team with six members: two from our firm, two from the partner firm, and two from an independent research institute. However, all team members worked separately for their companies. ... We were working intensively together with frequent (daily) phone calls and E-mails. Moreover, we had team meetings twice a month. After these meetings, we used to go out together for some after-work activities.” (Company E)

Across the NPD collaborations, collaborating companies focused primarily on task-related performance for establishing a trusted working relationship with their NPD partners:

“In a supplier-customer relationship with OEMs, the task is how we can gain their trust. Trust clearly develops task- and performance-oriented. In order to develop trustful relations, we have to offer good quality and competitive prices and delivery schedules.” (Company A)

“What made us trust this partner was in the first place the conviction that they have significant engineering capabilities to produce the model they design. We thought that tapping into these capabilities could create a lot of economic benefits for us.” (Company B)

Additionally, trust was in some cases also enhanced by the personal relationship quality between team members of the NPD collaboration partners:

“We were basically starting from the outset under the assumption that we trust each other. Personal relationships were not explicitly considered. However, later on we also noticed that it helps to know each other well when working together. The after-work gatherings definitely helped us to deepen our mutual trust and understanding and to exchange information.” (Company B)

“Both sides have a strong bargaining position in our projects, but at the same time there is also a strong mutual interdependency. As a result, we have to listen to and to work with each other. Also, the whole fuel pump industry is quite small in Korea. After a while, everybody knows each other. You get acquainted to each other and gradually develop trust.” (Company C)

“There were very important ties on the personal level which made it very easy at the beginning to work together.” (Company E)
4.2.3 RELATIONAL CHALLENGES AND REMEDIES

In most NPD collaborations being studied, some disagreements and conflicts between the partnering companies have occurred. These conflicts were mostly on task-related matters such as the price of materials or the quality of newly developed products, and were rooted in diverging financial interests of the partners:

“Disagreements typically evolve over prices and product specifications. We have to demand higher prices in ongoing projects due to things that are out of our control, such as increases in raw material costs.” (Company B)

“Typical disagreements were on the price or on the quality of their supply parts. The quality also has implications for the design which we did together. For instance, we wanted more compact parts which allowed a better design.” (Company C)

In one NPD collaboration, a conflict occurred due to one company’s behavior which was perceived as opportunistic by the partner company. As a result, an initially task-related disagreement evolved into inter-personal conflicts.

“A crucial situation occurred when it became apparent that the partner was developing a copy product of our jointly developed product by using our jointly acquired knowledge to increase its market share and profits. Formally this was not a breach of the partnership contract, since there was no clause forbidding such a thing. However, of course we were unhappy and felt betrayed by the partner. ... Initially the disagreements were clearly task-related, but later on also developed into personal, emotional conflicts.” (Company E)

Conflict resolution efforts focused on overcoming task-related disagreements by mutual persuasion or by making unilateral concessions in the expectation that such concessions are worthwhile to make:

“We try to persuade each other. There is quite a strong knowledge overlap between the OEMs and us. We know each other’s business. At the end, we typically settle on some compromise.” (Company A)

“We have at times made huge concessions when the partner rejected our price raises. Practically this sometimes meant we lost money. However, we kept on collaborating even in such cases and let the partner know about the financial implications of our concessions. We were rewarded with the profitable continuation of the partnership.” (Company B)

“We were taking time and also giving time to our partner to reconsider making changes and concessions. The first priority was always to maintain the partnership.” (Company C)

In the case of the NPD collaboration where the partner’s behavior was seen as opportunistic, however, conflict resolution efforts failed due to a lack of willingness to compromise:

“Still, we tried to save the partnership by setting up a compromise for this issue. However, this compromise was turned down then by the executives of both firms. Each side clearly wanted to maximize its own profits. As a result, the partnership broke apart, and the marketing for the jointly developed product is now done separately.” (Company E)

The strong pre-existing informal social ties between members of the NPD collaboration team were perceived as a reason for this failure, as they resulted in a lack of professionalism as well as in subsequent interaction problems among team members:

“In a way the strong personal ties contributed to the failure of the partnership in the later
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stage since the partnership contract was not written very carefully and professionally. Moreover, when the relationship turned uneasy, the personal ties between several team members made it even more uncomfortable to deal with each other. It would have been easier to work on a purely professional base without any burden of personal acquaintance.” (Company E)

4.2.4 COLLABORATION OUTCOMES
Except for the one project which ended in a failure due to the inability of the partnering companies to resolve their conflict, all managers being interviewed evaluated the outcomes of the NPD collaborations positively. Collaboration outcomes included technological knowledge acquisition as well as financial outcomes, including sales and profits:

“We acquired a lot of technological knowledge which enabled us to develop products on our own. As a result, we are now the market leader in Korea in our main business lines.” (Company B)

“We acquired part of the partner’s design technology. We also acquired joint patents and could use the acquired knowledge for the development of other products. Eventually, the partnership helped us to improve our profits.” (Company C)

“We learned about molding technology to a considerable degree. This partnership had a strong positive impact on our business in general. It helped us to increase our sales and profits. Our market share is also going up.” (Company D)

4.3 UIICS
4.3.1 COLLABORATION INITIATION
Three collaboration cases were initiated based on previous exchange relationships. In the first case, the university professor was a co-founder and stakeholder of the partner company.

“The university professor is a founding member of our company and holds a small ownership share in it. He has offered us a lot of advice in the past and is familiar with the president of the company.” (UIC-A Company)

“We have had a relationship since the company was established and the company has been registered as a university-industry partner in my university. Our graduates went to work for the company and the CEO of the company is teaching in our university.” (UIC-A University)

In the second case, the professor has previously worked for the partner company as the head of its research center. Therefore, the professor and company CEO knew each other personally beforehand the focal UIC project.

“The professor was associated with our company. He discussed with our CEO potential ways of how the company and the university may collaborate.” (UIC-B Company)

“I have worked for the company before on a part-time basis for two years. So I knew what the company needed.” (UIC-B University)

In the third case, the company was a supplier of scientific equipment and materials for the university. As a result of frequent purchasing interactions, the university professor became well-acquainted with operations and sales executives of the company. This relationship triggered the university and company representatives to initiate a research collaboration.

“I became familiar with this company when I purchased their materials for our education programs. I did not have much contact with the CEO of the company, but instead, was able to build a relationship with their sales manager and director through the purchasing transactions.” (UIC-E University)

In the remaining two cases, there were no regular prior exchanges between the collaborating
universities and companies. In one case, the two parties did not know each other at all and the UIC was initiated through an introduction by a different company that was cooperating with the university. In the other case, while the university professor had been previously involved in the evaluation of the company’s dental products in the context of governmental product approval, this product evaluation did not result in regular exchanges with company executives. The collaboration was initiated after the partner representatives met at an academic conference.

“There was no pre-existing relationship. Another company introduced us to this project. We needed technology and the university side was looking for opportunities to use their technology. So we were able to work together as our mutual goals met.” (UIC-D Company)

“I had not known the CEO of the company before. I met him on an academic conference. His company was well-known in this field.” (UIC-C University)

4.3.2 Interaction Intensity and Relationship Quality

All UICs were based on clear a priori agreements on how the work is divided among company and university partners. As a result, everyday interaction between the partners was mostly limited to E-mails and telephone conversations. Face-to-face interaction typically took place only on occasions when collaborative on-site work or major clarifications were necessary.

“We were in charge of electronic circuits and the university was focusing on the machinery. Due to this division of work, most communication was short and done by E-mail or phone. However, when we were conducting comprehensive experiments, we met the university partner face-to-face.” (UIC-A Company)

“We communicated almost daily by E-mail (70% of everyday communication) or phone call (30%). Face-to-face communication was much less frequent. On-site visits had to be pre-arranged.” (UIC-A University)

“More than 90% of the practical work was done in the university lab, and communication was mainly conducted via E-mail. We only visited the university when there was a need for clarification.” (UIC-B Company)

“We made occasional phone calls, on average twice a month. Additionally, E-mails were exchanged from time to time when there was a need for communication. I met our partners in person about once in a quarter to check the progress of the work.” (UIC-C Company)

“We communicated mainly through E-mail and telephone, and had face-to-face meetings once or twice a month.” (UIC-D University)

“As it is inconvenient to meet each other in person, we have communicated by E-mail almost every day.” (UIC-D University)

Basically, UIC teams thought that while social gatherings (e.g., dinner and entertainment) to establish social relationships enhanced communication quality, the quality of such social relationships was also important. In three cases, social gatherings for friendship took place after official meetings, with varying frequency.

“During face-to-face meetings, we had lunch together, but did not have dinner or Karaoke. The professor already knew our company well, but the university researchers did not. If you do not know each other well, social exchange is important. We were once treated for a good dinner by the university.” (UIC-A Company)

“After each meeting, we had a dinner and occasionally drinks. Since we did not know each other well, we tried to have such gatherings for friendship. I think that such a way of forming a relationship is important.” (UIC-D University)
“We tried to have social gatherings for friendship. We had them once when the project started and once when it was finished. We did not meet more often because the schedule was busy at the company. I think such meetings are important. However, our engineers do not want to get too close to the university. They mind that if they become personally acquainted with the university researchers, they may receive a high workload from the collaboration, as they will be frequently asked for help by the university staff.” (UIC-E Company)

Two cases, however, had no such social gatherings of the UIC project teams. In one case, the partnership was with a women’s university, and the company and university researchers did not socialize informally, as they did not feel comfortable to have social gatherings between male company staff members and female university researchers. In the other case, the university professor was not interested in informal social gatherings with company staff.

4.3.3 RELATIONAL CHALLENGES AND REMEDIES

In most UIC cases, there were few open disagreements between the partners. In one UIC, however, different status and motivation was raising the possibility of a conflict. It was resolved by changing the project manager on the company side to a person who is more influential and more interested in the UIC.

“The company was manufacturing-oriented and their research center was not well equipped. This was disappointing to me. The head of the research center did not have leverage over the production manager. I participated in the production process and tried to look into the details more specifically, but it was not easy either, as the production people regarded our presence and frequent questions as a nuisance. So I persuaded the CEO to appoint a more influential project manager, his son, to get a better access to the production line.” (UIC-D University)

“There was a difficulty and conflict in the technology development part in the middle of the project. We did not even previously think about these problems and also they were hard to solve. In this case we did not understand it through E-mail or phone calls, and tried to meet with our partner in person without question.” (UIC-D Company)

In another project, not only a Korean university, but also a US university was involved. The core technology was provided by the US university and the Korean university was responsible for transferring technology to the Korean partner company. In this project, securing the contract agreement with the US university partner constituted a major challenge.

“It took six months to finally sign the contract. The most difficult part of the settlement was about sales. A technology startup company owned by the US university had shown a very sensitive response to the technology transfer. The company claimed royalties for potential product launches. So the basic technology was transferred, but the final technology related to the product was not. Furthermore, we agreed that the technology cannot be leveraged for sales when concluding the contract.” (UIC-C University)

4.3.4 COLLABORATION OUTCOMES

Three UICs ended with overall satisfying results for the participating companies and universities, which motivated them to conduct further research collaborations with the same partners. The collaboration outcomes included new technologies as well as new sales for the participating companies. Universities secured budgets for employing student researchers, gave students valuable training and placed student researchers in collaborating companies, aside from effective knowledge acquisition, patents, and technology transfer.
“We are satisfied to be able to engage in the development we wanted to do and could learn a lot from this project. We applied for a patent and could also acquire two new staff members through the UIC, so it ended up better than expected.” (UIC-A Company)

“Securing research funding was a major achievement. We were able to train students and develop their skills and abilities.” (UIC-A University)

“We look forward to improving speed, productivity and efficiency as initially expected. Overall, we are 80% satisfied currently. If we can turn the newly developed product into mass production, we will be 100% satisfied.” (UIC-D Company)

“Overall I think the collaboration was finalized well. The project did not have much difficulty. Through the project, we secured research funding and personnel expenses for researchers.” (UIC-D University)

“At the beginning, we did not have much expectation that this UIC project could contribute to our sales. However, we have already achieved sales of about 150 million US$ as a result of this collaboration.” (UIC-E Company)

“We have applied for a patent and the technical part achieved 85% of our target. But as the relevant market went into recession, only 50% of the sales target could be achieved. So overall it is 75% satisfactory. The company was able to get information on new devices they did not expect.” (UIC-E University)

On the other hand, the outcomes of two UICs were regarded as unsatisfactory by the participating companies and universities. The collaboration partners felt that they could not meet the targets they had set themselves for the projects or achieve other tangible outcomes.

“We aimed to develop products we needed and to contribute to the company’s overseas sales. But it was much harder than I thought, and I cannot be satisfied. The product’s performance was lower than expected. This project was highly challenging overall. I think there is a mountain that has to be overcome for effective commercialization.” (UIC-B University)

“We did only have limited interest in this project and there was not much to look forward to, either. So there was not much interaction, and there is not much to be seen as achievement. The company was just the provider of data. If we succeeded commercially, it would be a big achievement, but we still do not have any clear results.” (UIC-B Company)

“As for outcomes, we were able to raise the level of technology and train the researchers. However, there are unsatisfactory aspects of this project. The research budget was cut and we could therefore not engage in research activities as intensively. For example, I could not go to the US with my researchers because I did not have a lot of budget. And I lost money when I transferred money to the foreign university due to currency fluctuations. Personally, I do not want to do any more industry-university collaborations. I think commercialization is a matter for companies, not universities. I think universities can play an important role when they develop technology and register patents. But when the company wants us to create a customized solution that fits their equipment, this creates problems for the partnership.” (UIC-C University)

“The market situation needs to be observed further. The project is overall not so satisfying for us, as our competitors released the same product. Additionally, the organization of UICs can be improved. While there tends to be a good understanding between the company and the professor when they keep working together, the staff in the technology transfer office (TTO) was changed frequently and they created a lot of unnecessary paperwork for us. This makes communication difficult.” (UIC-C Company)
5 DISCUSSION AND RESEARCH PROPOSITIONS

The in-depth content analysis of ten research collaborations in Korea has yielded various findings which help deepen the understanding of the role of informal social ties and of relationship orientation in such collaborations. First, we find pre-existing social ties between collaboration partners in a majority of the collaboration cases. Specifically, we observe that social ties between the collaboration partners existed prior to the beginning of the focal research collaboration in three out of five NPD collaboration cases and four out of five UIC cases.

Notably, however, there is high variation in the type and quality of the pre-existing social ties which have been found. In two out of three NPD collaboration cases with pre-existing ties (A and B), these ties have been qualified as long-term inter-organizational ties between the partnering companies, with weak acquaintance-level ties between individuals which are the result of the inter-organizational ties, not vice versa. In only one case (E), strong pre-existing social ties on the interpersonal level have been reported, as one member of the collaboration team had previously worked for the partner company. Similarly, among the four UIC cases for which pre-existing social ties have been reported, these ties have been relatively weak and spurious in two cases, where the company previously supplied the university with research materials (Case E) or the university professor had previously evaluated products of the company on a non-regular basis (Case C). Only in the remaining two UIC cases (A and B), the pre-existing ties can be classified as strong ones, as the university professor has been a co-founder of the company or has previously worked for the company as head of the research department.

Furthermore, none of the pre-existing social ties identified in the ten research collaborations falls into any category of yongo ties which have been traditionally emphasized in Korea: family ties, school/university ties, or regional ties. This finding is remarkable, as these categories of ties are widely believed to be still highly relevant in contemporary business exchanges in Korea (Lew, Chang & Kim 2013; Horak 2014; Horak & Klein 2016). Our analysis does not support this notion in the context of research collaborations, as we find both strong and weak ties, and even the strong ties which we observe arise from a previous professional, not private, relationship context. Therefore, we propose:

Proposition 1: Pre-existing social ties are prevalent in research collaborations in Korea, but strongly vary in strength and tend to be rooted in previous professional exchanges, not personal relationships such as family, school/university or regional ties.

Regardless of the type of pre-existing social ties, our analysis suggests that such ties are effective for initiating research collaborations in Korea, and that their effectiveness is positively related to their strength. Among the NPD collaborations, pre-existing social ties appear to have played a major role in initiating the collaboration in Case E, and may also have been a supporting factor in Cases A and B, where inter-organizational ties have been strong. Among the UIC cases, the strong ties in Cases A and B have been pivotal for collaboration initiation, and also appear to have played a role for commencing the collaboration Cases C and E in enabling the partners to explore collaboration opportunities.

Notably, however, we also found cases where the partners relied on different mechanisms for initiating research collaborations, such as third party introduction (NPD collaboration and UIC Cases D) or partner reputation (NPD collaboration and UIC Cases C). Pre-existing social ties, third party introduction and partner reputation for collaboration initiation can all be regarded as trust-building mechanisms and can be associ-
ated with prediction-based, transference-based and capability-based trust-building, respectively (Doney, Cannon & Mullen 1998). Our findings overall suggest that whereas pre-existing ties are a frequent mechanism for initiating research collaborations in Korea, they are by no means indispensable for the setup of such collaborations, but can be substituted by other mechanisms. Therefore, we propose:

**Proposition 2:** Pre-existing social ties are a frequent mechanism to initiate research collaborations in Korea, alongside partner reputation and third-party introduction. Their effectiveness for collaboration initiation is positively related to their strength.

While we find pre-existing social ties to be effective for initiating research collaborations in Korea, we do not generally find them to be positively related to interaction quality and collaboration outcomes. To the contrary, some non-successful collaborations have been based on strong pre-existing social ties. Among the NPD collaborations, the case in which strong pre-existing social relationships have been identified (Case E) is the only one which has been perceived as a failure. In a similar vein, UIC Case B, where the university professor has previously been the head of the company’s research department, has resulted in non-satisfactory outcomes from the viewpoint of collaboration partners. The only other UIC with non-positive outcome assessments (Case C) has been initiated based on weak pre-existing ties and a positive reputation of the collaboration partner. Conversely, two NPD collaborations (Cases C and D) and one UIC (Case D) have resulted in positive outcomes in the absence of pre-existing social ties. Furthermore, we observe no general positive link between the existence or strength of pre-existing social ties and relationship quality across the ten research collaborations.

This does not necessarily mean that pre-existing social ties are generally ineffective for achieving a high relationship quality or positive outcomes in research collaborations in Korea. However, social ties appear to be only helpful when they help addressing the task-related requirements of the collaboration. For example, the successful NPD collaborations A and B were supported by strong inter-organizational ties and weak inter-personal ties. In these collaborations, the partners focused on solving task-related problems and did not establish strong inter-personal social ties which were not needed for achieving positive outcomes. Conversely, in NPD collaboration E, strong pre-existing social ties did not result in positive outcomes, as they did not prevent one company to behave in a way that was perceived as opportunistical by the partner. In other words, the previous working experience of one collaboration team member with the partner company, which resulted in strong inter-personal social ties between the collaboration partners, was not effective in preventing non-cooperative behavior, and therefore not effective for addressing important collaboration challenges. Therefore, we propose:

**Proposition 3:** Pre-existing social ties enhance interaction quality and outcomes of research collaborations in Korea only when they are well-aligned with task-related requirements.

Similarly to pre-existing social ties, we observe a frequent relationship orientation in the research collaborations in Korea we have studied. Both in NPD collaborations and UICs, most collaboration partners engage in frequent interaction to establish a close relationship and to create and maintain trust. Clearly, relational governance is regarded as more relevant than contractual agreements in research collaborations in Korea. To illustrate, in NPD collaboration Case E, the collaboration broke down when one partner engaged in a behavior which was perceived as a breach of trust, though this behavior did not constitute a contract violation.

Across both types of research collaborations, relationship orientation does not only express itself through frequent task-related interaction...
between collaboration partners, but also through separate social gatherings such as lunch or dinner meetings, or shared leisure activities such as karaoke singing, sauna visits, or golfing. Both as regards NPD collaborations and UICs, various collaboration participants emphasized the importance of such social events for enhancing relationship quality and running the collaboration smoothly. Therefore, we propose:

Proposition 4: Relationship orientation in research collaborations in Korea is strong and frequently articulates itself in social gatherings separate from task-related exchanges.

However, we do not observe any clear link between the relationship orientation of collaboration partners and the relational challenges which the partners are facing. Instead, relational challenges which have evolved during the collaboration predominantly appear to be determined by the task-related context of each collaboration. Regardless of the strong relationship orientation in all five NPD collaborations, the partners have been facing relational challenges associated with the overall context in which such collaborations are being conducted, such as tensions over contributions and benefits, potential competitive conflicts, or concerns about potential misappropriation of technological knowledge (Dutta & Weiss 1997; Bstieler 2006). In contrast, no particular relational challenges have been reported in three out of five UICs, and in the remaining two cases the perceived challenges have been related to procedural issues or a perceived lack of interest by the partner, not to business-related conflicts. These findings reflect the general context of UICs, where the challenges which company and university partners are facing are typically a result of different mindsets and procedures (Bruneel, D’Este & Salter 2010; Hemmert, Bstieler & Okamuro 2014). Taken together, we find that the specific context in which NPD collaborations and UICs are being conducted result in specific relational challenges for each type of collaboration, regardless of the relationship orientation of collaboration partners. Therefore, we propose:

Proposition 5: Relational challenges in research collaborations in Korea are primarily determined by the task-related context, not by the relationship orientation of the partners.

Finally, we find that the relationship orientation of NPD collaboration and UIC partners in Korea tends to enhance collaboration outcomes. Various collaboration managers expressed their views that relationship orientation and investments into relationship building are important for successful research collaborations. Conversely, we observe that the probability of non-satisfactory outcomes is higher when relationship orientation and investments into relational governance are relatively weak. Specifically, we find that in UIC Cases B and C, where communication and face-to-face meetings between company and university partners have been relatively infrequent, and no common social gatherings took place, outcomes have been assessed as non-satisfactory.

Regardless of the overall positive link between relationship orientation and outcomes, however, we also find that frequent task-related and social interaction during a collaboration is not always sufficient for achieving positive results. To illustrate, frequent task-related communication, face-to-face meetings and social gatherings could not prevent the breakdown of the collaboration in NPD collaboration Case E due to perceived non-cooperative behavior by one partner. Therefore, we propose:

Proposition 6: Relationship orientation in research collaborations in Korea is a positive antecedent, but not a sufficient condition for positive outcomes.
Overall, this study contributes to the understanding of the role of informal social ties and relationship orientation in research collaborations in Korea in various ways. First, we find that whereas informal social ties are prevalent in these research collaborations, they greatly vary in their specific types and their strength. Furthermore, none of the social ties we have found across the ten research collaborations fall into any of the categories of yongo ties which have been studied extensively in the literature in informal social ties in Korea (e.g., Yee 2000, Lew 2013; Horak 2014; Yang & Horak 2018). Instead, they are mostly based on previous professional interaction. This suggests that such “non-traditional” ties should be given more attention in subsequent research.

Second, we find that while informal social ties are frequently leveraged as a mechanism to initiate research collaborations, they often do not enhance relationship quality and collaboration outcomes. Specifically, informal social ties are only helpful for the effectiveness of research collaborations when they are well-aligned with the professional requirements of a given collaboration, while they can be detrimental for outcomes when they are not. These findings suggest that the lack of association between informal social ties and outcomes of research collaborations in Korea which has been observed by Bstieler and Hemmert (2010) and Hemmert (2018) for larger samples of collaborations masks a bi-polar variety of situations: depending on their alignment with task-related requirements, informal social ties may either play a positive or a negative role for relationship quality and outcomes of research collaborations. Therefore, it is crucial for managers to rely only on such social ties which are well-aligned with task-related requirements when initiating and conducting research collaborations in Korea.

Third, we find that relationship orientation is prevalent in research collaborations in Korea, and that it manifests itself both in intensive task-related interaction and in social gatherings which are not directly related to the collaboration task. This suggests that both task-related and non task-related interaction should be considered when analyzing and evaluating relational governance in research collaborations.

Fourth and finally, we find that relationship orientation is overall relevant for the outcomes of research collaboration in Korea. On the one hand, relational challenges in research collaborations evolve out of the task-related context, not the degree of relationship orientation of the collaboration partners. On the other hand, the intensity of both task-related and non task-related interaction between collaboration partners often enhances collaboration outcomes, as the partners feel more at ease with exchanging important information and working together intensively when they perceive to have a close relationship. While a strong relationship between collaboration partners does neither strictly prevent trust transgressions by the partner nor guarantee positive outcomes, it often enhances collaboration outcomes in terms of learning, knowledge acquisition and, eventually, organizational performance. Therefore, collaboration managers in Korea should encourage the creation of strong relationships between collaboration team members of partnering organizations, including social gatherings, which should be regarded as an investment into relationship building rather than as an irrelevant leisure activity or a waste of time.
7 LIMITATIONS AND FURTHER RESEARCH DIRECTIONS

This study has some limitations which may be addressed by future research. First, we study only a small sample of ten research collaborations in a quest to improve the understanding of the role of informal social ties and of relationship orientation in such collaborations, and the specific mechanisms and processes which determine relationship quality and outcomes. However, due to our small sample, the findings cannot be easily generalized. Future studies may convert our propositions into hypotheses which can be tested for larger samples of research collaborations.

Furthermore, our study covers only two specific types of research collaborations (NPD collaborations and UICs) in one country (Korea). Future studies may verify our findings for different types of collaborations and inter-organizational exchanges and in different East Asian countries, such as China or Japan.

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