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Structural capital and relational capital: examining the direct and moderating role of cognitive capital in customer-supplier relationships

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Abstract: There is maturing consensus in supply chain literature that structural capital (SC), cognitive capital (CC), and relational capital (RC) comprise the three main facets of social capital. While the benefits of these three dimensions are well documented within the supply chain context, there is comparatively little research exists on the interplay among SC, CC, and RC. In our research, we postulate a theoretical model that posits that SC and CC are the antecedents of RC. In addition, this model illustrates that CC is a complementary resource that moderates the relationship between SC and RC. The model was tested using data from a sample of 99 US firms. The results suggest that SC and CC are the foundation of RC within the customer-supplier context and CC positively moderates the relationship between SC and RC.

Keywords: structural capital; cognitive capital; relational capital; social capital; complementary resource; moderation.

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1 Introduction

The flow of information among the entities of a supply chain is a paramount factor to extract value by the supply chain partners in terms of efficiency and/or effectiveness. The supply chain literature advocates two main approaches for information flow among

supply chain members. The first approach argues that information technology is a key enabler for sharing information among supply chain participants, which in turn provides benefits to the supply chain entities (Fawcett et al., 2011; Kent and Mentzer, 2003; Subramani, 2004). For example, Wal-Mart, Dell, Ford, and Chrysler have benefited by using information technology with their suppliers (Subramani, 2004). The second approach states that information flow is a function of relationships among firms (Borgatti and Cross, 2003), which can be characterised as a 'soft structure', and inter-firm relationship is a key driver for improved supply chain performance (Cousins et al., 2006).

Social capital, the relational glue, is the key concept to understand the significance of relationships in the supply chain context (McGrath and Sparks, 2005) because social capital considers the networks of relationships as a valuable resource for the firms (Inkpen and Tsang, 2005). Social capital is a multidimensional concept, and SC, CC, and relational capital (RC) are the three main facets of social capital (Nahapiet and Ghoshal, 1998). Structural capital (SC) facet represents the structure of relationships (Lawson et al., 2008) such as the personal ties, and the overall pattern of linkages among parties (Yim and Leem, 2013). Common values and shared vision, among firms in inter-firm relationships, reflect the cognitive capital (CC) dimension of social capital (Tsai and Ghoshal, 1998). RC reflects the quality of the relationships, exhibited by trust and reciprocity between parties (Krause et al., 2007).

Within the supply chain context, most research on social capital has focused on the performance implication of some or all three dimensions of social capital (e.g., Lawson et al., 2008; Villena et al., 2011). However, to date, only a few empirical studies have examined the relationship among SC, CC, and RC and there is a growing call from the scholars to examine the interplay among the three dimensions of social capital (Villena et al., 2011). Therefore, the objective of this study is to explore the relationships among the dimensions of social capital between the customer and its main supplier in a business-to-business (B2B) context, which will guide the supply chain managers who seek to develop trusting and reciprocal relationships with their partners.

In exploring the relationships among the social capital dimensions, we make some noteworthy contributions to supply chain literature. First, we argue that SC and CC are the building blocks of RC between the customer and its key supplier. Our results indicate that formal and informal interactions between parties can lead to a higher level of trust and reciprocity. Moreover, higher congruence of goal and vision, between supply chain partners, also enhances the quality of relationship reflected by RC. Second, the result of this study suggests that shared goals and vision among firms are more important than structural relationships (SC) to build a trusting relationship (RC). Third, this study highlights the complementary role of CC by showing that CC amplifies the impact of social interactions (SC) on RC.

The remainder of this paper is organised as follows. Section 2 explains social capital and its dimensions. Section 3 develops our hypothesis and the research model. Section 4 describes the methodology, while data analysis and results are presented in Section 5. The discussion, implication for theory and practitioners, limitations, future directions, and the conclusion are part of Section 6.

2 Social capital

Inter-firm relationship structure allows firms to access various resources such as knowledge, market, and technology (Inkpen and Tsang, 2005). Social capital is an important theoretical lens to describe and characterise inter-firm relationships (Inkpen and Tsang, 2005). The notion behind social capital is that involvement and participation in social settings can have positive implications for both individuals and firms (Portes, 1998). Although several definitions of social capital have been put forth by scholars (Adler and Kwon, 2002), there is consensus that 'social capital stands for the ability of actors to secure benefits by membership in social networks or other social structure' [Portes, (1998), p.6]. Access to new knowledge, information, and new business opportunities are some of the examples of the benefits for the firms because of social capital (Inkpen and Tsang, 2005).

Social capital is a multidimensional concept and SC, CC, and RC are three facets of social capital (Nahapiet and Ghoshal, 1998). SC is reflected in the pattern of relationships (Nahapiet and Ghoshal, 1998) and has been examined in a variety of ways such as network ties, network configuration, and network stability (Inkpen and Tsang, 2005), information sharing, and supplier development (Krause et al., 2007), network ties (Yli-Renko et al., 2001). Knowing someone and interactions (formal and/or informal) are key characteristics that underlie the SC. CC reflects the resources that provide shared understanding and meaning among members in the relationship (Nahapiet and Ghoshal, 1998) and is possible when members have shared goals and shared culture (Inkpen and Tsang, 2005). CC paves the way for the exchange of information that allows the customer and its supplier to share each other's thinking process that enables them to think in a common way (De Carolis and Saparito, 2006). This will allow the customer and its supplier to direct attention to critical activities, thereby CC can facilitate the coordination between them (Krause et al., 2007). RC dimension of social capital represents the resources 'created and leveraged through relationship' [Nahapiet and Ghoshal, (1998), p.244].

RC characterises the relationships in terms of trust, obligations, and expectations (Nahapiet and Ghoshal, 1998). RC has been identified as a key dimension of social capital because it is the foundation for knowledge creation and transfer in the inter-firm relationship (Inkpen and Tsang, 2005). Most of the studies within the supply chain management context have examined the role of some or all of the dimensions of social capital on the benefits accrued to supply chain members (e.g., Carey et al., 2011; Krause et al., 2007; Lawson et al., 2008). Nevertheless, there is a dearth of research on exploring the relationship among the three dimensions of social capital.

3 Research hypothesis and research model

Our research model investigates the direct impact of SC and CC on RC. Also, our model examines the moderating role of CC on the relationship between SC and RC. The research model is presented in Figure 1.

3.1 The direct effect of SC on RC

Social interactions within the context of customer-supplier relationships, such as in-person meetings and email communications, create an environment for sharing and exchange of information. These activities help build a trusting relationship between customer and supplier (Chowdhury et al., 2017) because sharing of information in an exchange relationship allows partners to trust of each other (Tsai and Ghoshal, 1998). Repeated interactions, formal and informal, provide an opportunity to work together to solve a current issue or identify future business opportunities beneficial to both firms. This strengthens their relationship, increases trust, and boosts reciprocity. The informal and formal interactions between members of the customer and its supplier allow the customer to assess the motive of the supplier to be part of its supply chain (Preston et al., 2017). For example, the customer can find out whether the supplier is more focused on its own interest or the supplier is mindful of the interest of both parties.

Moreover, SC allows both parties to create a recipe for cooperation and teamwork (Preston et al., 2017). This increases behavioural transparency and reduces information asymmetries, thereby furthering the trusting relationship (Chowdhury et al., 2017). RC dimension of social capital is a function of frequent relationship dynamics between the firms (Koka and Prescott, 2002) because frequent interactions allow the partners to know each other and that will engender trust among partners (Gulati, 1995). For example, a supplier representative can suggest a solution to the problem faced by the customer during an informal setting. In turn, the customer will perceive the supplier as a friend and that can be translated into long-lasting relationships, characterised by trust and reciprocity. Based on the above arguments, we posit that:

H1 SC is positively associated with RC in the customer-supplier relationship.

3.2 The direct effect of CC on RC

Shared goals and common values are key aspects of CC (Inkpen and Tsang, 2005). They argued that shared goals allow network members to think alike in terms of knowing and ways to achieve the outcomes of the network. For example, if the customer and its supplier have shared goals both parties will have a common understanding of what they need to do and how to do it so that it benefits both parties (Krause et al., 2007). This common understanding of tasks and outcomes can be expected to reduce conflict between the exchange partners (Inkpen and Tsang, 2005), which may lead to a close relationship, defined by trust and reciprocity, between the customer and its supplier. When supply chain members have shared values, members are more committed to the relationship (Morgan and Hunt, 1994).

Shared values facilitate the assessment of behaviour/motives of parties in the relationship and this assessment can be used to infer the trustworthiness of each other (Sahay, 2003). CC also provides a common conceptual vehicle through which supply chain members can evaluate the potential benefits of exchange and combination of knowledge (Nahapiet and Ghoshal, 1998). This reduces the ambiguity surrounding the quality of knowledge that can foster a close relationship between supply chain members. Moreover, the common vision among supply chain members allows them to trust each other (Preston et al., 2017). Accordingly, we posit:

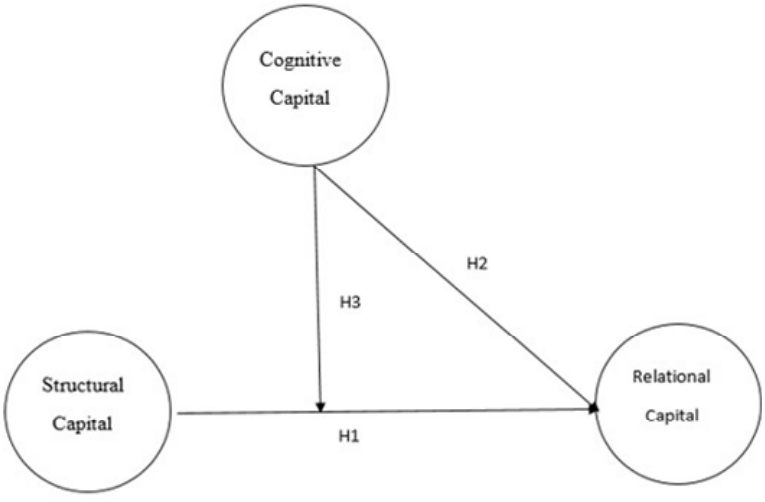
H2 CC is positively related to RC in the customer-supplier relationship.

3.3 The moderating effect of CC

SC in the form of formal and informal interaction between customer and supplier is a mechanism to know each other and share information and is a building block for a stronger relationship (RC). Here we are positing that higher CC between customer and supplier will amplify the relationship between SC and RC. In other words, shared goals and shared vision act as a catalyst that augments the impact of SC on RC. We advance our theoretical argument based on the complementary view of resources. According to Milgrom and Roberts (1995), two resources are complementary when the increase in one resource enhances the returns of doing more of another resource. In other words, two resources complement each other when one resource amplifies the effect of another and thereby multiplying the common effect (Jeffers et al., 2008).

Based on the above theoretical underpinning, CC is a complimentary resource that magnifies the impact of SC on RC because of the following reasons. First, shared goals and values can reduce the divergent interests of the customer and its supplier (Kashyap and Sivadas, 2012), thereby minimise the incidents of conflicts between them. Less conflict between customer and supplier will lead to more productive output during the social interactions that will lead to an increase in quality of relationship reflected in the RC dimension of social capital. Second, CC also dictate norms and rule that govern the behaviour of the relationship that can avoid the bulldozing of doing things on one party as dictated by another party (Inkpen and Tsang, 2005).

Figure 1 Research model



Because of this, parties develop respect for each other and will find a strategic way of achieving the common objective of the relationship during social interaction. Success in fulfilling common objectives will lead to more reciprocity and trust between the supplier and buyer (Ghomi et al., 2021; Shokoohyar, 2018). Third, when the customer and its supplier have shared values, it motivates them not only to be diligent but also willing to go beyond their normal work duties, thus both parties can foster more effective cooperation (Kashyap and Sivadas, 2012) during formal and informal interactions. Accordingly,

H3 The impact of SC on RC is positively moderated by the CC within the customer-supplier context.

4 Methodology

4.1 Sample and data collection

The survey data was used to examine the relationship among SC, CC, and RC. The survey was distributed to the students, who were attending the Executive Master in Business Administration program (EMBA) at a large public University in the southern part of the USA. The participants in the EMBA program have documented significant practical experience in the internal and external buyer/supplier processes in the business world. Hence, there is confidence that the selected participants are competent to answer the questions related to the subject matter under investigation. The respondents were asked to identify one of the key suppliers who supply them the most critical component or material, and with whom they are more knowledgeable and have been working with that supplier for more than one year. If the participant was not involved with the suppliers directly, he/she was asked to identify the person in his/her organisation that deals with the supplier to fill out the survey. Accordingly, we were able to collect 99 responses. Table 1 provides the profile of the sample.

Table 1 Sample characteristics

	Frequency (*%*)
Industry	
Agriculture, forestry, and fishing	2
Mining	2
Construction	6
Manufacturing	23
Transportation, communication, electric, gas	7
Wholesale trade	3
Retail trade	4
Finance, insurance, real estate	5
Services	35
Public administration	5
No value is given	8
Total	100
Length of relationship (in years)	
0–1	4.2
1–5	27.5
5–10	29.6
>10	38.7
Total	100

4.2 Operationalisation of variables

The items used in this study to measure the theoretical constructs were adapted from earlier validated scales. Each item was measured using a seven-point Likert scale, and the list of items is provided in Table 2.

Table 2 Reliability and convergent validity evaluation

	Constructs/items	*Item loading*	*T-value*	*Composite reliability*	*Cronbach's alpha*	*AVE*
	Structural capital			0.885	0.804	0.721
SC1	The supplier's representative spends time getting to know our people	0.892	14.585			
SC2	Our supplier's representative contacts us by phone, e-mails, letters, and/or fax frequently	0.847	12.035			
SC3	Our supplier's representative often talks about common interests besides work	0.806	14.395			
	Cognitive capital			0.903	0.857	0.700
CC1	This supplier shares our goals for this business	0.822	16.509			
CC2	Both firms share the same business values	0.902	33.973			
CC3	Both firms often agree on what is in the best interest of the relationship	0.853	26.603			
CC4	Our company is enthusiastic about pursuing collective goals and missions with this supplier	0.765	7.991			
	Relational capital			0.920	0.885	0.743
RC1	This supplier is flexible in response to request we make	0.862	24.836			
RC2	This supplier makes an effort to help us during emergencies	0.813	12.304			
RC3	This supplier keeps its word	0.876	31.129			
RC4	This supplier is trustworthy	0.895	36.002			

Note: AVE-average variance extracted.

4.2.1 Structural capital

Three items are used to measure the structural dimension of social capital adapted from Lee and Dawes (2005). These items captured both the formal and informal interactions between the customer and its supplier.

4.2.2 Cognitive capital

The cognitive dimension of social capital was measured by four items adapted from Krause et al., (2007) and Tsai and Ghosal (1998). This construct reflects the sharing of goals and values within the customer-supplier relationship.

4.2.3 Relational capital

The RC was measured by a four item-scale adapted from Lawson et al. (2008) and Perrone et al. (2003). The four items represent the reciprocity and trust within the customer-supplier relationship.

4.3 Test for CMV

Harmon's single-factor approach was applied to examine the potential problem of common method variance (CMV). The assumption that underlies this test is that 'if a substantial amount of CMV is present, either:

a a single factor will emerge from the factor analysis

b one 'general' factor will account for the majority of the covariance in the independent and criterion variables' [Podsakoff and Organ, (1986), p.536].

A principal component un-rotated factor analysis with the criterion of Eigenvalue greater than one was performed using SPSS version 25. This analysis yielded three factors with Eigenvalues greater than one. The three-factor results accounted for 72.72% of the variance and the first factor accounted for 47.56% of the variance. The result of Harmon's single-factor method suggests the CMV is not a major concern in this study.

5 Data analysis and results

We used the structural equation modelling (SEM) statistical method to analyse the model. The two common SEM techniques are available for scholars: covariance-based structural equation modelling (CB-SEM) and variance-based partial least squares structural equation modelling (PLS-SEM). PLS-SEM is best suited when the objective of the research is on maximising the explained variance in the dependent variable (Hair et al., 2011). Also, the PLS-SEM method results in high statistical power, especially when the sample size is small (Hair et al., 2017a).

One of the objectives of this research is to use SC and CC as predictors to maximise the explained variance for RC. The sample size in this study is only 99, which is considered a small sample size (Hair et al., 2017b). For these reasons, PLS-SEM was used to analyse the model in two steps with the use of SmartPLS 3.0 software. In the first step, the measurement model was assessed for the reliability of individual items and convergent and discriminant validity of each construct (Hulland, 1999). In the second step, the structural model was assessed by estimating the path coefficient among the latent constructs of the model; bootstrapping to assess the statistical significance of the path coefficients (Hair et al., 2019).

5.1 Measurement model results

All the constructs in this study are reflective. Accordingly, we examined the measurement model to assess the reliability of indicators in the first step. Item loadings greater than .70, exhibit acceptable item reliability (Hair et al., 2019). Table 2 shows the item loadings, which exceed the threshold value of 0.70, and all of the loadings are significant, thereby exhibiting sufficient item reliability. In the second step, composite reliability (CR) and Cronbach's alpha were used to measure the reliability of the constructs, as suggested by Hair et al. (2020). The values of both reliability criteria are shown in Table 2, which are higher than the recommended threshold value of .70 but less than 0.95 (Hair et al., 2020), thereby establishing the reliability of the constructs. The average variance extracted (AVE) metric was computed for all the latent variables to assess the convergent validity. The AVE of all constructs was above the threshold value of 0.50 (Hair et al., 2011) as shown in table 2, thereby supporting the convergent validity.

Two approaches were used to measure the discriminant validity of the constructs. First, Fornell and Larcker's (1981) traditional metric was used to assess the discriminant validity by comparing the square root of AVE of each construct to inter-construct correlation. Table 3 shows the values of the square root of AVE of each construct on diagonal (in bold) and construct correlations below the diagonal. Second, the heterotrait-monotrait (HTMT) approach, as suggested by Henseler et al. (2015) was employed. HTMT values for all constructs ranged from 0.468 to 0.703 (see Table 4), which were lower than the recommended cut-off value of 0.90 (Henseler et al., 2015). The results of both methods give support to the discriminant validity of the constructs.

Table 3 Discriminant validity evaluation

Construct	*Structural capital*	*Cognitive capital*	*Relational capital*
Structural capital	*0.849*		
Cognitive capital	0.388	*0.837*	
Relational capital	0.402	0.625	*0.862*

Table 4 HTMT evaluation

Construct	*Structural capital*	*Cognitive capital*	*Relational capital*
Structural capital			
Cognitive capital	0.468		
Relational capital	0.469	0.703	

5.2 Quality of structural model

The structural model was assessed after the results of the measurement model were found to be satisfactory. We used the coefficient of determination (R^2), and the blindfolding-based value Q^2 of the endogenous construct in the research model as recommended by Hair et al. (2019) to examine the quality of the structural model. The result of R^2 suggests that SC and CC explain 42.0% of the variation in RC, which is considered moderate according to Hair et al. (2019). The value of Q^2 is recommended to assess the predictive accuracy of the model and it should be larger than zero for the endogenous construct to suggest the structural model predictive accuracy (Hair et al., 2019). The value of Q^2 for

RC is 0.305, which is greater than zero, thus supporting the research model's predictive relevance. Consequently, the structural model quality is acceptable to test the hypotheses.

5.3 Structural model analysis

Figure 2 depicts the results of the structural model. The results of the main effect (without interaction term) are reported in Table 5. Bootstrapping, a non-parametric approach with 5,000 samples, was used to test the significance of the path coefficients. First, from table 5, it can be seen that the standardised path coefficient from SC to RC is positive and significant ($\beta = 0.188$; $p < 0.05$ level). Thus, the interaction (formal and informal) between the customer and its supplier leads to the development of the trust of the customer in its supplier. Hence, H1 is supported.

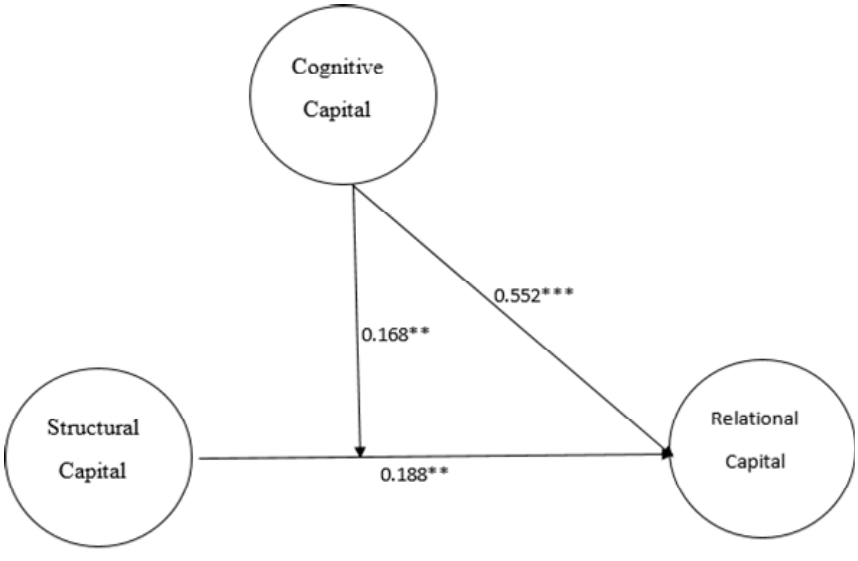
Likewise, the path coefficient from CC to RC is also positive and significant ($\beta = 0.552$; $p < 0.001$ level). This lends support for H2 that CC can significantly contribute towards the development of RC.

Table 5 Main effects results

Hypothesis test	*Main effect (standardised β coefficient)*	*T value*	*P value*	*Result*
SC → RC	0.188	2.121	0.034	H1 is supported
CC → RC	0.552	7.559	0.000	H2 is supported

Note: SC-structural capital, CC-cognitive capital, RC-relational capital.

Figure 2 Results of statistical analysis



Note: ***p value < 0.001; ***p value < 0.05.

5.4 Moderation analysis

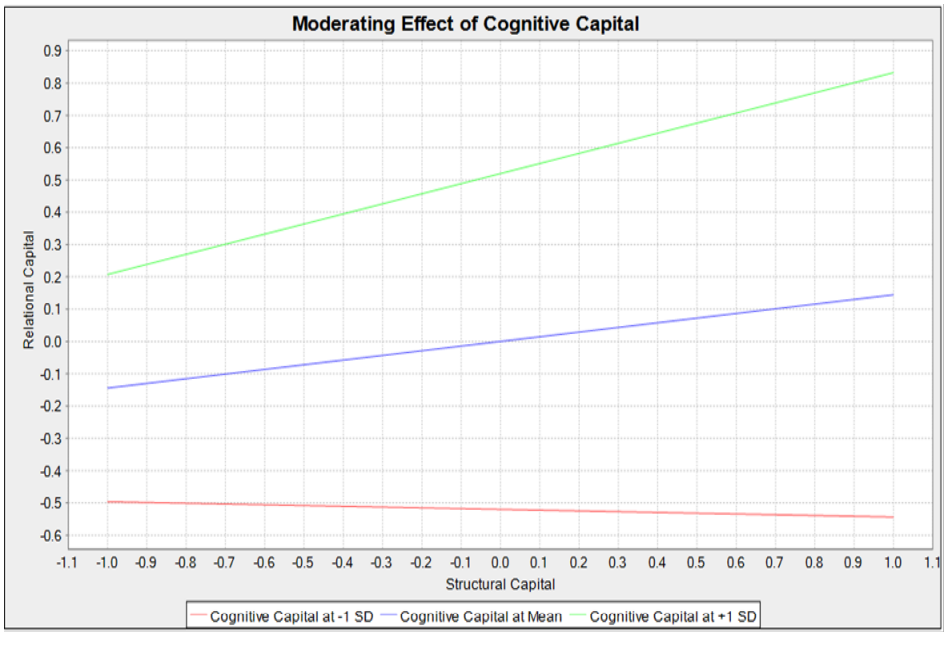
To test the moderating effect of CC on the relationship between SC and RC, a one-step (product indicator) method was employed, as suggested by Chin et al. (2003). The items were standardised before running the analysis to avoid the potential problem of multicollinearity and standardisation of indicators furthers the discernment of moderating effect (Hair et al., 2017b). Bootstrapping (5,000 samples) was done to test the significance of the coefficients. The interaction term between CC and SC has a positive and significant impact on RC ($\beta = 0.168$; $p < 0.05$ level). When the moderation coefficient is significant, the conditional effects plot provides a mean to interpret the interaction effect (Jaccard and Turrisi, 2003). Figure 3 depicts the conditional effects plot for RC as a function of SC conditioned on CC. As Figure 3 illustrates, when the supply chain entities do not share a common goal and vision, social interactions have a slightly negative effect on RC. On the other hand, at the higher level of CC, an increase in social interactions enhances the RC between the customer and its supplier. Therefore, H3 is supported by our data.

Also, the effect size f^2 was analysed to examine how much interaction contributes to explaining the variance in the dependent variable (RC) (Hair et al., 2017b). The f^2 was calculated using the following formula:

$$f^2 = \left(R^2_{\text{inlcuded}} - R^2_{\text{excluded}}\right) \Big/ \left(1 - R^2_{\text{inlcuded}}\right) = (0.455 - 0.420) / (1 - 0.455) = 0.064$$

R^2_{included} has the value of R^2 when CC is included as the moderating variable in the path model, whereas R^2_{excluded} includes the value of R^2 without the CC as moderating variable in the structural model. The effect size of moderation is 0.064, which is considered a medium effect (Cohen, 1988).

Figure 3 Result of moderation (see online version for colours)



6 Discussion

This study analysed the interplay among the three dimensions of social capital. The findings indicate that SC and CC are the foundation to build a trusting relationship between the customer and its supplier. Moreover, comparing the path coefficients of H1 and H2 suggests that CC has a higher impact on RC (β = 0.552) than SC (β = 0.188). We tested for a significant difference in β coefficients of H1 and H2 by employing the procedure suggested by Cohen et al. (2003) and compared the β coefficients, and the standard errors of the two direct relationships. An online tool developed by Soper (n.d.) was used to determine whether the slopes (β) of two direct relationships (SC to RC and CC to RC) are significantly different from each other, given the β coefficient, standard error, and the sample size for each direct relationship (H1, and H2). The results indicated that the effect of CC on RC is significantly higher than the effect of SC (t value = 3.23, df = 194, p value = 0.001). The significant difference in the strength of the relationship suggests that a common vision and goal between the supply chain partners plays a major role in building lasting relationships in comparison to social interactions between them.

To further examine the results of the main effects, we did conduct an additional analysis, known as importance-performance map analysis (IPMA), to find out which of the constructs (SC and/or CC) play a major role in predicting the RC. The results of IPMA are shown in Table 6. As the results in Table 6, SC has a higher performance than that of CC. However, it is the CC that has the highest importance in building the RC with a value of 0.564. Therefore, a one-unit increase in CC from 37.34 to 38.34 would increase the performance of RC by 0.564. That means the customers, who are keen to build trusting and reciprocating relationships with their suppliers, should pay close attention to align the goals, vision with their suppliers.

Table 6 PLS – IPMA results

Constructs	*RC*	
	Importance	*Performance*
SC	0.176	42.126
CC	0.564	37.34

Note: SC-structural capital, CC-cognitive capital, RC-relational capital.

6.1 Research implications

6.1.1 Theoretical Implications

This study adds to the growing body of research on the social view of supply chain relationships through the lens of SCT. Much of prior research on SCT, in a supply-chain context, have largely focused on the impact of a different dimension of the social capital on the performance improvement of firms in the customer-supplier relationship (Krause et al., 2007; Lawson et al., 2008). However, there a growing call from the researchers to do more research on understanding the interrelationships and interactions among the SC, CC, and RC, which are dimensions of the social capital (Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998; Villena et al., 2011). This research answers these calls by examining the relationship among three dimensions of social capital. This study provides empirical evidence that meeting with supply chain partners (in person or through the use

of technology) results in building a trusting relationship, which is consistent with the findings of prior studies on SC and RC (Carey et al., 2011; Cousins et al., 2006).

This study also fills the gap by examining the role of CC, which is largely ignored in extant studies in supply chain management literature, and sheds light on the importance of CC. First, the result of H2 provides support for the CC as an antecedent of RC. Sharing of goals, common business interests are vital elements in fostering the long-term relationship between supply chain members. Second, the findings of H1 and H2 also provide some novel insights when the path coefficients of H1 and H2 are compared. The comparison result suggests the potential benefits of developing congruent goals, which in turn results in a more trusting partnership between supply chain entities. The comparison of magnitudes also indicates that meeting and spending time with supply chain partners is beneficial but may have a limited impact on developing long- lasting relationships reflected by RC. Informal and formal interaction between supply chain members allows the supply chain members to become aware of tasks and outcomes, but shared goals create a common interpretation and procedure to achieve those tasks and outcomes, which will reduce the conflict (Inkpen and Tsang, 2005), thereby having a more salient effect on RC than that of SC.

The findings of this study also indicate the complementary role played by CC in explaining how the effect of social interaction can be amplified on RC. The result of moderation suggests that when customer and its supplier goals, values, and vision are more aligned with each other, more frequent communications between them will result in a more trusting relationship.

6.1.2 Managerial implications

The findings of this study point to some interesting managerial implications. A high level of trust and commitment between parties in a relationship are key ingredients to gain from the relationship (Kwon and Suh, 2004). The results of this study suggest that supply chain managers of the customer should encourage more formal and informal communication with their suppliers. Also, the representative from the customer and its supplier should develop a process for meeting such as monthly dinner, which will allow them to know each other, which in turn will lead to a more trusting relationship. This study also highlights that shared goals, values, and vision between supply chain entities are important to develop a long-lasting relationship. If a customer and its supplier have conflicting objectives and both parties are not cognizant of the impact of their actions on each other, then the relationship will suffer (Cao et al., 2010; Limaye et al., 2021). Therefore, the parties interested in enhancing their competitiveness should work together to align their goals, which in turn will enhance their relationship (Villena et al., 2011).

The finding of H3 indicates that CC amplifies the impact of social interactions among supply chain members on developing trust and reciprocity among them. Supply chain managers need to know that knowing each other either formally or informally is beneficial for a long-lasting relationship (Singh, 2018). Also, they should focus on how to align goals, values among their firms. More interaction among them will result in more accumulation of social capital in terms of trust and reciprocity when there a high degree of alignment in terms of values, and goals.

6.1.3 Limitations and future directions

Each research has limitations, and our research is also subject to limitations, which provide avenues for future research. First, we use the cross-sectional data in this study, which makes it difficult to infer causality. It is possible that trust and reciprocity could lead to an increase in SC and CC over time. Furthermore, social capital dimensions may evolve over time. Future studies should collect longitudinal data to empirically test the causality among SC, CC, and RC. Second, we use the perceptual measures in this study to measure all three dimensions of social capital and perceptual measures might not have assessed all three constructs correctly. In the future, case studies or ethnographic research could be used to accurately assess the SC, CC, and RC. Third, we collect the data in customer-supplier relationships from the customer perspective only and that might not reflect the true nature of social capital. In the future, the dyadic data (information from both customer and supplier) should be collected to have a better understanding of the social capital in an inter-firm relationship. Fourth, although our research has shed light on the interplay among SC, CC, and RC in a developed country (in this case the USA), it is not clear whether these results will be the same in developing countries such as India or China. It will be interesting to compare the relationship among SC, CC, and RC in developed versus developing countries. Fifth, we examined the interplay among the three dimensions of social capital. It will be interesting to examine the impact of each of dimensions of social capital on other performances such as cost, quality, delivery, flexibility (Zare et al., in press), social, and environment sustainability (Reavis et al., 2021). Sixth, the extant studies on social capital in the supply chain context have found a positive effect of social capital on the performance of the firms. Future studies should include moderating variables such as product clock speed so that they can provide the conditions under which the dimensions of social capital (SC, CC, and RC) are beneficial or detrimental to outcomes of firms, who are part of the relationship. Lastly, future studies should examine the dynamic capabilities perspective of social capital (Singh et al., 2018), which can shed light on the relationship between social capital and performance of the firm with in the supply chain context.

6.1.4 Conclusions

This study examined the interrelationship and interaction among three dimensions of social capital: SC, CC, and RC in the customer-supplier relationship in B2B context. This research finds a significant direct relationship between SC and RC. Also, the CC is positively and significantly related to RC. Our findings indicate that SC and CC are the foundation for the accumulation of social capital in terms of trust and reciprocity. The result of this study also informs the practitioners on the outcome of formal and informal interaction among supply chain partners and that is the development of trust, which in turn can be exploited to extract value out of the relationships. We also highlight the role of CC, which not only fosters trust and reciprocity within the relationship but also accentuates the effect of SC on RC. Overall, the findings of this study add to the growing body of SCT literature in the supply chain context and guidance to practitioners on how the three dimensions of social capital are related in the customer-supplier context.

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