Managing conflict to improve the effectiveness of retail networks

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Accepted 1 December 2003

Abstract

Retailers are becoming involved with networks consisting of multiple firms in order to more effectively perform business activities such as supply chain management. This research develops and tests a framework outlining the effects of conflict in networks and how conflict management can mitigate and exacerbate these effects. A study of 81 simulated networks finds that inter-personal and task conflict have a negative effect on network member satisfaction and desire to be a member of the network. The use of a collaborative conflict management style has a positive effect on satisfaction and desire for continuity, but the effects of accommodative and confrontational styles depend on the level of inter-personal and task conflict present in the network.

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Keywords: Conflict, Conflict management, Retail network

Introduction

Retailers increasingly are becoming involved with groups of other firms to improve their effectiveness in performing business activities. This trend toward complex, interorganizational relationships suggests that firm performance may be determined by competition between business networks rather than competition between individual firms (Achrol 1997; Hakansson & Snehota 1995; Möller & Halinen 1999). A business network is defined as multiple independent businesses that have an interdependent relationship without hierarchical control (Anderson, Hakansson, and Johanson 1994). These networks are more than a set of firms involved in exchanges. The firms in a business network have relationships that are characterized by cooperation as well as competition (McLoughlin & Horan 2002).

Perhaps the most widely discussed networks in retailing involve supply chain management. These networks are composed of a focal retailer, the retailer’s vendors, logistics suppliers, software and system providers, and organizations such as Voluntary Interindustry Commerce Standards (VICS) that provide standards to facilitate communications [see the special issue on Supply Chain Management in the Journal of Retailing, Levy & Grewal 2000]. However, retailers are involved in other networks. For example, the effective use of electronic article surveillance (EAS) tags requires the coordinated efforts of the suppliers of tags and detection equipment, the set of vendors affixing the tags to products, and the retailers buying and selling the merchandise (Chain Store Age 1999; McNichols 2001). Other examples of a retail network are retailers that share a common facility such as tenants in a mall and groups of retailers that work together with manufacturers to develop private label merchandise for sales by all of the retailers in the buying group.

The diverse capabilities and resources possessed by the parties in these retail networks provide the potential for improved performance. However, the firms in the network probably will view the same issues through very different lenses. Their different perspectives can create conflict. Thus, conflict is a ubiquitous and important aspect of network dynamics and the management of conflict plays an important role in
The objectives of this research are to: (1) extend the research on conflict in channel relationships by considering effectiveness of conflict management styles in managing different types of conflict and (2) understand how the types of conflict and conflict management affect network outcomes. Building on previous research on conflict resolution (Rahim 1986; Thomas 1976, 1992) and conflict in groups (De Dreu 1999; Jehn 1995, 1999; Pelled, Eisenhardt, & Xin 1999), in the next section, we develop a framework describing different types of conflict and the effects of conflict management approaches on network outcomes. The hypotheses derived from this framework are tested using a simulation of 81 networks. After presenting the results, the paper concludes with a discussion of the limitations and direction for future research.

Proposed model and hypotheses

The conceptual framework on which this research is based is presented in Fig. 1. The level of network conflict and the conflict management approach used have a direct effect on network outcomes. In addition, the conflict management approach used moderates the effect of conflict on network outcomes.

Considerable marketing research has examined the role of conflict in channel relationships (see Greskens, Steenkamp, & Kumar 1998 for a meta-analytic review) as well as intra-organizational contexts such as new product development (e.g., Sethi 2000; Song, Xie, & Dyer 2000). However, this prior research has simply viewed conflict as a unidimensional construct assessed by calculating an index based on the importance, intensity, and frequency of disagreements on a list of issues (Coughlan, Anderson, Stern, & El-Ansary 2001, p. 240). In addition, the extant marketing research has focused on documenting the negative impact of conflict on economic and non-economic satisfaction, largely ignoring the use of conflict management to mitigate these negative effects and potentially produce positive results (see Dant and Schul 1992 for an exception).

In our framework, we consider two dimensions of conflict—inter-personal conflict—confrontation, accommodation, and collaboration. The network outcomes examined in this study are the satisfaction of network members with the process and outcome and the degree to which the members desire to continue the relationship in the future.

Network outcomes

The two network outcomes examined in this research are network satisfaction and network continuity. Network satisfaction is defined as the extent to which network members feel the processes and outcomes of interactions with other network members exceed their expectations. Network continuity is the degree to which network members are willing to work together in the future. These attitudes towards the network indicate the degree to which members will actively support the network and continue to participate in the network in the future.

Types of conflict

Conflict is defined as the behaviors or feelings of inter-dependent parties in response to potential or actual obstructions that impede one or more of the parties achieving their goals (Coughlan et al. 2001; Deutsch 1973; Gaski 1984). While most research in retailing and marketing on conflict focuses on channel relationships, conflict is a ubiquitous phenomenon that pervades virtually all interorganizational activities (Dahrendorf 1959; Lewin 1947; Thomas 1976). Even though most of the empirical research has centered on reducing the negative effects of conflict, conflict can also produce positive outcomes by establishing an opportunity for expressing grievance, critically reviewing past activities, and introducing different perspectives to produce innovative solutions (e.g., Coughlan et al. 2001, p. 241; Pondy 1967).

Conflict is a multi-dimensional construct (Amason, Thompson, Hochwarter, & Harrison 1995; Jehn 1995). In this research, we consider two dimensions, or types, of conflict: (1) inter-personal conflict and (2) task conflict. These two dimensions parallel the classic factors affecting judgments and decision-making—behavior and cognition. Thus, inter-personal conflict is also called emotional or affective conflict, while task conflict is referred to as cognitive conflict.

Inter-personal conflict

Inter-personal conflicts are disagreements within networks based on non-task related incompatibilities. For example, some parties in the network involved with designing and implementing EAS tags might have negative feelings toward some large retailers in the network because the retailers have reputations of taking advantage of suppliers or they might have negative feeling towards an individual representing a firm in the network because the individual is perceived of as unethical. Inter-personal conflicts typically produce suspicion, distrust, and hostility among network members (Brehm 1976; Faulk 1982; Guetzkow & Gyr 1954). Research suggests that this type of conflict reduces the network’s ability to reach high-quality decisions and impedes the acceptability of decisions among network members. Inter-personal conflict limits processing of new information, gives rise to hostile attributions concerning each other’s intentions and behaviors reduces receptiveness to ideas advocated by other network members who are disliked, decreases willingness to tolerate opposition, and disturbs effective communication and cooperation within the network (e.g., Amason 1996; Amason & Schweiger 1994; Baron 1991; Eisenhardt & Bourgeois 1988; Jehn 1995). Thus, we hypothesize that:

H1. Inter-personal conflict in networks negatively affects the (a) network satisfaction and (b) network continuity.
Fig. 1. Conceptual framework.
Task conflict
Task conflict is defined as disagreements over how to accomplish work together (e.g., Amason 1996). It often arises from systemic or structural incompatibilities (Wilkof, Brown, & Selsky 1995). Network members often have different organizational and societal cultures, resources, and capabilities that create differences in perspectives on how to accomplish work. For example, retailers in the EAS tag network may not understand the difficulties vendors face in designing tags that will work with different detection systems. Another example of task conflict is a disagreement within a network in a retail mall setting over the nature of entertainment provided to attract different consumer segments. Addressing this type of conflict is effortful and can distract attention from performing the network’s objectives, thus negatively affecting network performance and satisfaction. Therefore, we hypothesize that:

H2. Task conflict in networks negatively affects (a) network satisfaction and (b) network continuity.

Conflict management and network outcome
As hypothesized previously, conflict left unmanaged leads to negative consequences for the parties involved. However, research suggests that conflict, if managed properly, can have positive as well as negative consequences. For example, conflict prevents stagnation, stimulates interest and curiosity in a task, and provides a medium through which problems can be aired and solutions arrived at (Coser 1956; Deutsch 1973; Jehn 1997; Simmel 1955; Tjosvold 1985). Positive outcomes of conflict also include an expanded understanding of the issues confronting the network, mobilization of network resources and energies toward problem resolution, and clarification of competing solutions and creative searches for alternative solutions to existing problems (Brown 1983). Thus, it is important for networks to manage conflict effectively so that the positive consequences of conflict can be realized (Rahim 1986; Robbins 1978; Tjosvold 1985). For example, Schweiger et al. (1986, 1989) found that the management of conflict, specifically the use of interaction techniques that force network members to disagree and debate the merits of different alternative perspectives, produces superior results. Thus, conflict management practices can mitigate the negative effects of conflict on network performance and can result in exploiting the beneficial aspects of conflict.

Conflict management behaviors
A number of taxonomies of conflict management behaviors have been developed (Blake & Mouton 1964; Hall 1969; Pruitt 1983; Rahim & Bonoma 1979; Stern, Sterntthal, & Craig 1973; Thomas 1976, 1979). In this research, we examine the effects of three conflict management approaches discussed in these frameworks: (1) collaboration, (2) confrontation, and (3) accommodation.

Collaboration
Collaboration conflict management reflects activities in which network members explore integrative solutions. When networks use this style of conflict management, they try to find new and creative solutions to problems by focusing on their needs as well as on the needs of the entire network (Gross & Guerrero 2000). This exploration of win-win solutions tends to maintain continuity in relationships (Hocker & Wilmot 1998). This style of managing conflict has the greatest potential to produce positive outcomes. Its use can lead to integrative solutions that can be mutually beneficial for the entire network. Thus, the following hypothesis:

H3. Collaboration positively affects (a) network satisfaction and (b) network continuity.

While we hypothesize that using collaboration conflict management is effective in all situations, accommodation and confrontation conflict management, discussed in the following sections, have a positive effect in some situations and a negative effect in others.

Accommodation
Accommodative conflict management behavior is defined as the behaviors that network members use to create an environment where each party allows others to have their way and/or accept the other members’ perspectives. The use of accommodation conflict management can be effective because it creates a context in which parties perceive that others are willing to listen, accept their points of view, and make concessions to move forward on issues (Papa & Poold 1988). We propose that the use of accommodation conflict management behaviors is beneficial to the relationship when network members experience inter-personal conflict. Inter-personal conflict, by definition, is not concerned with the work to be accomplished and thus devoting time to resolving inter-personal conflicts distract attention from accomplishing the network’s tasks. Focusing attention on inter-personal conflict affects network members’ desire to communicate or interact with one another and this can stagnate and sometimes destroy the business relationships in the network.

Using accommodative conflict management behaviors signals a willingness to accept the perspectives of others (Hocker & Wilmot 1998). When inter-personal conflict occurs, the process of making concessions, associated with accommodation conflict management, reduces the negative emotion in the network that impedes the attainment of network outcomes (Gross & Guerrero 2000). Thus, network members will be able to concentrate on task-related network issues. By reducing the tension caused by non-task issues, network member satisfaction with outcomes and processes as well as the desire for network continuity improves (Gross & Guerrero 2000).

H4. The use of accommodation conflict management moderates the impact of inter-personal conflict on (a) network...
member satisfaction and (b) desire for continuity. The moderating effect of accommodation conflict management is positive—greater use of accommodation conflict management reduces the negative impact of inter-personal conflict on satisfaction and desire for continuity.

On the other hand, the use of accommodation conflict management behaviors to address task conflicts can be counter-productive and lead to network member dissatisfaction. Accommodative conflict management behavior may inhibit the free exchange of information about the importance of issues to specific network members. The degree to which task conflicts can be managed to obtain integrative solutions is lessened because of this reluctance to identify each party’s perspectives on the critical issues and approaches for performing the task. Without these different insights on how the task should be accomplished, the development of mutually beneficial, integrative outcomes is reduced, thus leading to lower satisfaction and a lower desire for network continuity (Gross & Guerrero 2000). Thus,

**H5.** The use of accommodation conflict management moderates the impact of task conflict on (a) network member satisfaction and (b) desire for continuity. The moderating effect of accommodation conflict management is negative—greater use of accommodation conflict management increases the negative impact of task conflict on satisfaction and desire for continuity.

**Confrontation**

Confrontation conflict management is defined as the behaviors that network members use in order to emphasize the perspective of one or more of the network members. Thus, this style involves “the clashing of ideas” [dictionary definition], not the unremitting advocacy of a perspective. While we propose that task conflict, in general, has a negative effect on network outcomes, confrontation conflict management has been found to be effective in managing task conflicts in some situations (Papa & Canary 1995). Research shows that when parties engage in confrontational behavior and do so in an environment in which the parties are relaxed, friendly, and attentive (i.e., low inter-personal conflict), confrontational behavior can yield positive outcomes (Infante & Gorden 1985). The low level of inter-personal conflict, the parties are more willing to express and discuss difference of opinion on how to accomplish the task without an emotional reaction to disagreements.

The use of confrontation conflict management when task conflict is high and inter-personal conflict is low results in “creative abrasion” (Leonard & Rayport 1997), the clash of ideas that produces creative, synergistic outcomes. In addition, this willingness to reveal perspectives and concerns allows network members to better understand other network members’ agendas. Further, confronting with respect to tasks associated with accomplishing work together creates a climate of openness between network members. Research has found that communication strategies that emphasize confrontational behaviors are key to the development of trust and commitment (Helper & Sako 1995; Ping 1993, 1997). Network relationships that are open to opposing viewpoints and that have members who are willing to communicate directly about the status of the network and their perspectives are the basis for high-quality interaction and the development of sound relationships.

However, if the level of task conflict is low and the level of inter-personal conflict is low, the use of confrontational conflict management will have a negative effect on network outcomes. Confrontation, in this situation, creates controversy when significant controversy does not exist. Therefore, even though network members have low task and inter-personal conflict, by expressing difference of opinion on how to accomplish the task, the level of task conflict is raised needlessly. This leads to less satisfaction with network outcomes and processes and a decreased desire to work together in the future.

Thus we propose that:

**H6.** The use of confrontational conflict management moderates the impact of task conflict on (a) network member satisfaction and (b) desire for continuity, when inter-personal conflict is low and task conflict is high. The moderating effect of confrontational conflict management is positive—greater use of confrontational conflict management in this situation decreases the negative impact of task conflict on satisfaction and desire for continuity.

**H7.** The use of confrontational conflict management moderates the impact of task conflict on (a) network member satisfaction and (b) desire for continuity when inter-personal conflict is low and task conflict is low. The moderating effect of confrontational conflict management is negative—greater use of confrontational conflict management in this situation increases the negative impact of task conflict on satisfaction and desire for continuity.

In the following sections, we describe the method used to test the hypotheses, the results, their limitations, directions for future research and managerial implications.

**Method**

This section describes the research design, sample and data collection procedure, the measure development, the measures used in the research, and the data analysis approach used.

**Research design**

In light of the limited research involving conflict in networks, we used a simulation to test the hypotheses proposed in the previously presented conceptual framework. By using
a simulation, we were able to measure conflict management behaviors used in networks in close time proximity to the network interactions and assess measures of network outcomes. To test the hypotheses, we created 81 four-person networks. The networks, composed of MBA students, engaged in a mixed-motive exercise developed by Beggs, Brett, and Weingart (2000). Each member was assigned a different role within a network, and represented a different organization. Each also has the objective of optimizing the position of their organization within the network while, at the same time, maintaining the benefits of network membership. As in actual networks, the organizations interact through individual representatives who act as boundary-spanners operating at the interorganizational level. The network members were motivated to consider both the network’s goal and their individual firm perspectives by awarding prizes to all the members of the network with the best overall network performance and to the best performance by the network member in each of the four roles. The exercise placed each network member in the role of a different specialty storeowner in a hypothetical retail building (mall). The mall would have an open plan with merchants located in different “departments” around a common area with tables for customers to sit down and sample some of the items sold in the specialty stores. Since there would be several stores in the same location, customers would be likely to purchase from more than one of the merchants. The four member stores stand to gain from the arrangement, not only from increased sales, but also from reduced building maintenance costs.

The four storeowners had to discuss and come to agreement on five issues that differentially affected each of their businesses. The five issues were the extent to which (1) advertising, (2) hiring and training of clerks, and (3) maintenance would be organized separately by each storeowner or jointly for the mall as a whole, (4) the temperature within the mall, and (5) the location of stores within the mall. For each owner, a value or utility was assigned for each outcome; however, the values differed across owners. For example, both the flower shop and coffee shop owners’ utility values were higher for locations near the loading dock since its merchandise (cases of alcoholic beverages) are difficult to move around and the store is a destination with limited impulse visits. On the other hand, the liquor store owner’s utility was higher for locations near traffic would generate more impulse visits. On the other hand, the liquor store owner’s utility was higher for locations near traffic would generate more impulse visits.

The four network members knew their own payoffs for each decision, but not those of the other network members.

The network exercise began with the participants receiving instructions for the simulation, information about their role, and the utilities associated with each level of the decision variables. The participants then met with the other members of their network and reached an agreement concerning the five decision variables. Finally, each participant completed a questionnaire to assess the constructs in the conceptual framework.

This simulated network environment is consistent with the definition of business networks in the literature. The multiple entities are independent but interdependent without hierarchical control and, through cooperation, they can expand the total utility of the group. In addition the simulation mirrored the approach taken by actual networks by designating representing of their organizations to meet together to address issues. Even though networks are composed of organizations, issues are addressed by representatives of the organization, not by organizations.

**Measures**

Measures were developed using a framework outlined in Churchill (1979). First, a pool of items was developed for each construct. Past marketing literature on conflict (e.g., Barclay 1991; Clare & Sanford 1984; Crittenden et al. 1993) proved helpful in developing items to measure conflict itself, and we consulted the marketing, psychology, and management literatures (e.g., Amason 1996a; Rahim 1983; Ruekert & Walker 1987) to develop items measuring conflict behaviors. These items were pre-tested on a convenience sample of business school faculty and graduate students. Exploratory factor analyses and an examination of the item intercorrelations, means, and standard deviations were used to purify the scales. Scale unidimensionality was verified using confirmatory factor analysis (Gerbing & Anderson 1988).

The measure used for each network was the average score on each item across all participants in the network. The scales used to measure the constructs and reliabilities of the scales are reported in the appendix. The means, standard deviations, and correlation matrix for the constructs are shown in Table 1. The items used to measure the constructs are shown in the Appendix.

**Types of conflict**

The five items used to measure inter-personal conflict assessed the degree to which interorganizational friction and tension caused by interorganizational non-task incompatibilities or dislikes occurred during the completion of the network task. The Cronbach alpha for the scale is .94. The four-item scale measuring task conflict assessed the extent to which members of the network had differences of opinions concerning the processes for accomplishing work together. The responses for the items in these scales were collected on seven
Network outcomes

The two dependent measures used in this research were satisfaction and network performance. The degree to which network members were satisfied with the process and outcome was measured using a six-item, seven-point scale anchored by “strongly disagree” and “strongly agree.” The Cronbach alpha for the task conflict scale is .81.

Conflict management behaviors

The three conflict management behaviors were measured on seven-point scales assessing the degree to which the conflict management style was used in the interaction. The scales were anchored by “never” and “very frequently.” The seven items used to measure accommodation conflict management behavior assessed the frequency of behaviors related to conforming to the views of others. The Cronbach alpha for this scale is .85. Confrontational conflict management behavior (Cronbach alpha .83) was measured using a six-item scale to assess the frequency of behaviors in which one or more network members asserted themselves in a conflict situation in order that their point of view might prevail. Finally, collaboration conflict management behavior was measured using five items (Cronbach alpha .90) assessing the frequency with which network members attempted to develop integrative solutions.

Formation of network measures

The responses obtained from multiple individual network members were to be aggregated into a single network-level response; therefore, to ensure that we were working with a construct at the network level, rather than the network member level, it was necessary to verify the relative magnitudes of the between-network and within-network variance. Following the procedure recommended by Georgopolous (1986) and used by Jehn (1995), a one-way ANOVA analysis was performed for each network member measure using the measure as the dependent variable and the network as the single factor. The F-ratio from the ANOVA was compared with Georgopolous’s criterion that F exceeds 1.0. In addition, the eta-squared statistic was calculated for each measure. Eta-squared, or the ratio of the between-network variance to the total variance, should exceed 0.16 if data aggregation is to be appropriate (Georgopolous 1986). All the measures have F ratios that exceed 1.0 and eta-squared greater than .16.

Hypotheses H1 through H5 were tested by estimating the following multiple regression models:

Satisfaction = \( b_{00} + b_{01} \times \text{inter-personal conflict (IPC)} + b_{02} \times \text{task conflict (TC)} + b_{03} \times \text{accommodation (AM)} + b_{04} \times \text{confrontation (CF)} + b_{05} \times \text{collaboration (CL)} + b_{06} \times \text{IPC} \times \text{AM} + b_{07} \times \text{IPC} \times \text{CF} + b_{08} \times \text{IPC} \times \text{CL} + b_{09} \times \text{TC} \times \text{AM} + b_{10} \times \text{TC} \times \text{CF} + b_{11} \times \text{TC} \times \text{CL} \)  

\((1)\)

Network continuity = \( b_{10} + b_{11} \times \text{inter-personal conflict (IPC)} + b_{12} \times \text{task conflict (TC)} + b_{13} \times \text{accommodation (AM)} + b_{14} \times \text{confrontation (CF)} + b_{15} \times \text{collaboration (CL)} + b_{16} \times \text{IPC} \times \text{AM} + b_{17} \times \text{IPC} \times \text{CF} + b_{18} \times \text{IPC} \times \text{CL} + b_{19} \times \text{TC} \times \text{AM} + b_{20} \times \text{TC} \times \text{CF} + b_{21} \times \text{TC} \times \text{CL} \)  

\((2)\)

where \( b_{00}, b_{11} \) represent the unstandardized regression coefficients for the respective independent variables.

The measures of the individual constructs were mean centered to reduce multicollinearity as recommended by Cronbach (1987) and Jaccard, Turrisi, and Wan (1990). Hypotheses H6 and H7 involve third order interactions—interaction between confrontation conflict management,
inter-personal conflict, and task conflict. When the third-order interactions were added to Eqs. (1) and (2), the multicollinearity was so great that none of the estimated coefficients was significant. Thus, to test these hypotheses, we used the medians of the types of conflict to divide the sample into four groups: (1) high task conflict—low relationship conflict, (2) low task conflict—high relationship conflict, (3) low task conflict—high relationship conflict, and (4) low task conflict—low relationship conflict. Then we estimated the correlation between the conflict management and (4) low task conflict—low relationship conflict. Then we used the medians of the types of conflict to divide the sample into four groups: (1) high task conflict—low relationship conflict, (2) low task conflict—high relationship conflict, (3) low task conflict—high relationship conflict, and (4) low task conflict—low relationship conflict. Then we estimated the correlation between the conflict management styles and network outcomes for each group. The results of these analyses are shown in Tables 3 and 4.

**Results**

The standardized coefficients estimated for Eqs. (1) and (2) concerning the factors affecting network outcomes covered in the first five hypotheses are shown in Table 2.

**Main effects of conflict on network outcomes**

H1 and H2, the negative main effects of conflict types on network outcomes, are largely supported. Inter-personal conflict has a significant negative effect on network member satisfaction ($\beta_{11} = -0.383, p < .005$) and has a significant negative effect on desire for network continuity ($\beta_{12} = -0.428, p < .005$). Task conflict is significantly related to network satisfaction ($\beta_{21} = -0.332, p < .005$), but is not significantly related to network continuity ($\beta_{22} = -0.138$).

**Moderating effects of conflict management behaviors on network outcomes**

The results concerning the main effect of collaboration conflict management on network outcomes partially support H3. The use of collaboration conflict management is significantly related to network member satisfaction ($\beta_{31} = 0.304, p < .01$). While the estimated effect of collaboration on network continuity is in the hypothesized direction ($\beta_{32} = 0.244$), it is not statistically significant. While we did not hypothesize a main effect for accommodation and confrontation conflict management on network outcomes, confrontation conflict management had a significant positive effect on network continuity ($\beta_{42} = 0.252, p < .05$).

While we did not hypothesize any moderating effects for collaboration, collaboration did significantly and negatively moderate the relationship between inter-personal conflict and network continuity ($\beta_{41} = -0.374, p < .05$). This result suggests that, while the use of collaboration is generally a useful conflict management approach (H3), its effectiveness is diminished with higher levels of inter-personal conflict.

As mentioned previously, hypotheses H6 and H7 involve third order interactions since they predict that the moderating effects of confrontation conflict management will depend on the levels of inter-personal and task conflict. The results of the correlations for the four different conflict situations shown in Tables 3 and 4 support H6 and H7. In networks with high task conflict and low inter-personal conflict, confrontation conflict management is positively related to network satisfaction ($r = 0.58, p < .05$) and desire for network continuity ($r = -0.71, p < .01$). However, in networks with low task conflict and low inter-personal conflict, confrontation has a negative effect on network satisfaction ($r = -0.47, p < .01$) and network continuity ($r = -0.30, p < .01$). Of the three conflict management behaviors shown in the tables, only confrontation shows this sign reversal.

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**Table 2**

<table>
<thead>
<tr>
<th>Network outcomes</th>
<th>Dependent variable</th>
<th>Satisfaction with process and outcome</th>
<th>Network continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter-personal conflict (IPC)</td>
<td>$-0.383^{***}$</td>
<td>$-0.428^{***}$</td>
<td></td>
</tr>
<tr>
<td>Task conflict (TC)</td>
<td>$-0.332^{**}$</td>
<td>$-0.138$</td>
<td></td>
</tr>
<tr>
<td>Accommodation (AM)</td>
<td>0.06</td>
<td>0.197</td>
<td></td>
</tr>
<tr>
<td>Confrontation (CF)</td>
<td>0.252</td>
<td>0.244</td>
<td></td>
</tr>
<tr>
<td>Collaboration (CL)</td>
<td>0.304</td>
<td>0.244</td>
<td></td>
</tr>
<tr>
<td>IPC x AM</td>
<td>0.261</td>
<td>0.293</td>
<td></td>
</tr>
<tr>
<td>IPC x CF</td>
<td>0.224</td>
<td>0.006</td>
<td></td>
</tr>
<tr>
<td>IPC x CL</td>
<td>0.166</td>
<td>0.374</td>
<td></td>
</tr>
<tr>
<td>TC x AM</td>
<td>0.262</td>
<td>0.266</td>
<td></td>
</tr>
<tr>
<td>TC x CF</td>
<td>0.209</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>TC x CL</td>
<td>0.080</td>
<td>0.268</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.415</td>
<td>0.401</td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.584</td>
<td>0.410</td>
<td></td>
</tr>
</tbody>
</table>

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* $p < .05$.
** $p < .01$.
*** $p < .005$.
Table 3
Correlation between conflict management styles and network satisfaction

<table>
<thead>
<tr>
<th>Interpersonal Conflict</th>
<th>Task Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Confrontation = -0.26</td>
<td>Confrontation = 0.58*</td>
</tr>
<tr>
<td>Accommodation = 0.21</td>
<td>Accommodation = 0.33</td>
</tr>
<tr>
<td>Collaboration = 0.34*</td>
<td>Collaboration = 0.29</td>
</tr>
<tr>
<td>n=28</td>
<td>n=10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interpersonal Conflict</th>
<th>Task Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Confrontation = 0.42</td>
<td>Confrontation = -0.47***</td>
</tr>
<tr>
<td>Accommodation = 0.06</td>
<td>Accommodation = 0.40**</td>
</tr>
<tr>
<td>Collaboration = 0.38</td>
<td>Collaboration = 0.63***</td>
</tr>
<tr>
<td>n=12</td>
<td>n=31</td>
</tr>
</tbody>
</table>

\* Correlation of confrontation conflict management with network satisfaction is 0.26 in groups with high relational and high task conflict

Discussion

The results of the network simulations support the conceptual framework we presented. Inter-personal and task conflict have a negative effect on network outcomes. These negative effects can be reduced by the use of the appropriate conflict management approaches. The use of collaboration conflict management is effective in reducing both types of conflict. However, accommodation conflict management is effective only at reducing inter-personal conflict and confrontation is effective only at reducing task conflict in networks where inter-personal conflict is low and task conflict is high.

The misuse of conflict management approaches can exacerbate the negative effects of network conflict. For example, the network outcomes are diminished when accommodation conflict management is used to address task conflict. Confrontation conflict management has negative effects on network outcomes when used under condition of low inter-personal and low task conflict.

The results also emphasize the need to consider the multi-dimensional nature of conflict. Task and inter-personal conflict, the two dimensions of network conflict considered in this research, need to be approached differently. While both of these types of conflict have a negative ef-
flict management approaches are differentially effective in mitigating or exacerbating these effects.

Limitations

While the results support our conceptual framework, the framework was tested in only one context—a mixed-motive exercise involving a simulation of networks composed of MBA students. One would expect that the specific results would be different when networks have a different composition and are embedded in different contexts. For example, the impact of inter-personal conflict would probably be greater for networks facing considerable competition, resulting in weak member performance. Similarly, the main effects of task conflict on network outcomes might be greater for networks in which there is truly an opportunity to integrate different capabilities to develop innovative strategies.

The single-period nature of the simulation presents limitations for the generalization of findings to ongoing network relationships. In our study, there was no opportunity to understand how the actions in one time period may affect a future time period, which is the essence of any kind of ongoing exchange or network relationship. A multi-period design would allow researchers to better simulate real-world network environments in which networks might benefit from knowledge gained in previous periods (Hunt 1995). In addition, the range

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Table 4
Correlation between conflict management styles and network continuity

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Confrontation = .10</td>
<td>Confrontation = .71**</td>
</tr>
<tr>
<td></td>
<td>Accommodation = .16</td>
<td>Accommodation = .09</td>
</tr>
<tr>
<td></td>
<td>Collaboration = .12</td>
<td>Collaboration = .72***</td>
</tr>
<tr>
<td></td>
<td>n=28</td>
<td>n=10</td>
</tr>
</tbody>
</table>

Confrontation = .44  
Accommodation = .28  
Collaboration = .49 (p<.107)  
n=12

Confrontation = -.30 *  
Accommodation = .53***  
Collaboration = .58***  
n=31

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5 Correlation of confrontation conflict management with network continuity is 0.10 in groups with high relational and high task conflict

*** p<.01  
** p<.05  
* p<.10
of alternatives was restricted. Networks members could not exercise their creativity and develop new and potentially integrative solutions.

Finally, the outcomes examined in the research are subjective assessments of satisfaction and desire for continuity. We did not directly examine the objective performance of the networks. By assessing subjective performance, there is the potential for common method variance biasing the results toward significance. While this might affect the strength of the main effect relationships, it is unlikely to affect the strength of the hypothesized interactions.

Managerial implications

As indicated previously, major packaged good manufacturers (i.e., Proctor & Gamble, Eastman Kodak, and Johnson & Johnson), major retailers (i.e., Wal-Mart, Walgreens) and manufacturers of EAS tag detection systems are involved in a network cost reduction initiative. In order to effectively implement this new technology they must coordinate their efforts so as to maximize the potential gains for the project (Chain Store Age 1999). The following hypothetical scenario concerning representatives of the firms involved implementing EAS tags illustrates the implications of this research.

Assume representatives from the retail firms, the vendors, and the manufacturers of EAS detection systems meet to discuss the issues related to implementing EAS tags. As the meeting progresses, a vendor’s representative claims that one of the retailers is unethical because it engages in excessive charge backs. The vendor raises concerns about whether the retailer will ever be fair in allocating the costs and benefits of putting EAS tags on merchandise. The retailer’s representative is incensed by this accusation and calls the vendor representative a liar. In a previous meeting, the same discussion arose and as each party confronted each other with information supporting their positions, the level of interpersonal conflict escalated to the point that the vendor involved dropped out of the network. However, in this meeting, this behavior resulting in a high level of interpersonal conflict is diffused when another vendor in the meeting uses an accommodating approach to managing the conflict. The other vendor suggests the conflicting parties accept that charge backs are part of all vendor–retailer relationships and says “Vendors don’t like charge backs and retailers feel they need to use charge backs to insure complete shipments. So let’s just agree to disagree and get on with the task at hand.” After accommodating the inter-personal conflict, the network members get down to the task of implementing the EAS tag system.

The vendors indicate they need to put the tags at a particular place on their merchandise to reduce costs. However, the EAS tag manufacturers claim that placing the tags in that spot on the merchandise will result in a higher failure rate to deactivate the tags when the merchandise is bought and a larger number of false positives for shoplifting. These different perspectives on how to implement the system create task conflict.

At first, the vendors reduce the level of task conflict by accommodating and accepting the position of the EAS tag suggested by the EAS detection equipment manufacturers. However, as the meeting progresses the vendors see their costs mounting and the retailers unwilling to pay for the additional costs. They bring up the issue of the placement of the tags again. The level of task conflict increases as the EAS manufacturers and vendors dispute each others claims. Both parties use a confrontational approach to managing the increasing task conflict by providing more support for their positions. The information conveyed as the parties support their positions give rise to the parties collaboratively exploring different locations for the tags and uncovering a location that is both low cost and does not result in deactivation problems. In this situation, accommodation was not effective in managing task conflict. Confrontation was effective in this situation because of the low level of interpersonal conflict. Through confrontation a collaborative solution arose.

This scenario illustrates the following conceptual and empirical results of this paper:

- Parties in networks need to recognize that conflicts, both task and non-task (inter-personal), will arise and that these conflicts are detrimental to network outcomes (satisfaction within the network and desire to continue the effort).
- Active management of the conflict by network members can reduce the level of the conflict and even increase satisfaction and desire for continuity.
- Use collaborative conflict management behaviors when facing both task and non-task conflict.
- Only use accommodative conflict management behaviors in the presence of high inter-personal conflict and only use confrontational conflict management behaviors in the presence of low inter-personal related conflict.
- Avoid using confrontation when task and non-task related conflict is low.

Managing inter-organizational network relationships is a particular challenge, since their very nature includes conflicting objectives in addition to a need for cooperation. Adding to this difficulty, the lack of a hierarchical control structure means that network members are themselves tasked with managing network relationships. Since marketers have considerable expertise in managing inter-organizational relationships, they are well positioned to play a major role in the network management activities of their firms.

Conflict is multi-dimensional construct. The types or dimensions of conflict can differentially affect the quality of the relationship between network members. Thus, knowing the type of conflict that is present in network relationships is important to managers because of its effects their use of conflict management approaches and subsequent network outcomes.
Most firms train their people to work toward collaborative relationships and to collaborate effectively. This research shows that collaboration, though ideal in many situations, is not the only conflict management style that produces positive outcomes. Firms should train their representatives when it is most appropriate to use confrontation and accommodation as well as collaboration.

**Directions for future research**

While the results of this research support the basic premises of the conceptual framework, the framework certainly needs to be tested in an actual network environment. The simulation with MBA students used in this study has the advantages of enabling a straightforward data collection process and the collection of conflict management behaviors shortly after the completion of the task. However, the results from using a simulation may be biased because a simulation does not capture the same level of involvement that is present in actual network activities. On the other hand, the results are promising and suggest that additional research in the area of network conflict management is merited.

Three other issues that merit further investigation are: (1) factors causing task and inter-personal conflict, (2) other network outcomes such as the creativity of the task solution, and (3) the impact of the nature of the tasks undertaken by the network.

**Antecedents of network conflict**

Network members contribute different skills and perspectives to the performance of business activities. Thus, network members differ from one another in important respects. Some of these differences may impact network conflict. Research on the effects of team composition on team conflict can be used to develop hypotheses about the link between network composition and network conflict.

Recent research on teams comprised of diverse members has recognized the importance of “unobservable diversity” (Milliken & Martins 1996) and “deep level diversity” (Harrison, Price, & Bell 1998) amongst team members. This literature uses the term “creative abrasion” (Leonard & Rayport 1997) to describe the conflicts arising from collisions of disparate team-member perspectives.

In addition to differences in perspectives amongst network members, differences in power and commitment are other potential sources of task conflict in the network. For example, networks with high power differences may also experience more inter-personal friction than networks composed of equal status members (Dutton & Walton 1966; McCann & Galbraith 1981; Smith, Carroll, & Ashford 1995). Another example elucidating antecedents leading to different perspectives is that the more committed members may propose more complex approaches to the task, or more ambitious goals, leading to task conflict. An often overlooked antecedent to conflict is that as relationship between team members get better the potential for conflict increases (Braiker & Kelley 1979; Coner 1956; Jehn & Shah 1996). These concepts may also apply to network conflict and may have implications on network performance.

**Creativity as a network outcome**

The creativity with which a business activity is undertaken is an important, subjective measure of network performance. Creativity is defined as the creation of novel and useful outcomes (Amabile 1983). In fact, one could argue that the primary reason for bringing together the different abilities and resources represented in a business network is to facilitate the development of creative solutions.

The optimum conditions for creativity include the presence of a non-judgmental atmosphere (Amabile 1996, 1998; Delbecq & Mills 1985), which encourages people to present their unedited thoughts without fear of ridicule. In situations where disagreements about network goals exist, it is likely that people will be less willing to expose themselves to criticism, and therefore we propose that networks with high levels of task conflict will tend to exhibit low creativity.

**Nature of the task undertaken**

The framework could be extended to consider moderating effects of the nature of the activities in which the network is involved. Hambrick, Davidson, Snell, and Snow (1998) divide group tasks into coordinative, computational, and creative tasks. The activity considered in this research is a computational task with limited opportunities for truly innovative solutions. The level and nature of conflict might change and the effective management of the conflict might differ as the opportunity for innovative solutions increases. The moderating effects of these different task types, and solution possibilities, on the nature of conflict and conflict management in networks need to be investigated.

The present model does not take into account the trend toward globalization, which means that the members of many inter-organizational networks are located remotely from one another, and may have different cultural norms for relationships and conflict management. The lack of opportunity for face-to-face communication, combined with different expectations, may increase the challenge of managing conflict in these networks. This is an important area requiring future research.

Effective conflict management in networks is a complex phenomenon meriting additional research attention. This research presents a framework for advancing the understanding of conflict management strategies and some preliminary results supporting the framework. Further empirical investigations and conceptual extensions of the framework can potentially improve the theoretical understanding of the role and management of conflict in networks, thereby enhancing their productivity.
### Appendix A. Measurement scales

<table>
<thead>
<tr>
<th>Scale items</th>
<th>Cronbach α</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inter-personal conflict</strong></td>
<td>.94</td>
</tr>
<tr>
<td>Our personalities occasionally clashed.</td>
<td></td>
</tr>
<tr>
<td>There was a lot of tension between us at times.</td>
<td></td>
</tr>
<tr>
<td>At times, there were bad feelings between us.</td>
<td></td>
</tr>
<tr>
<td>Sometimes we became irritated with one another.</td>
<td></td>
</tr>
<tr>
<td>There was personal friction among network members.</td>
<td></td>
</tr>
<tr>
<td><strong>Task conflict</strong></td>
<td>.81</td>
</tr>
<tr>
<td>We disagreed over ideas.</td>
<td></td>
</tr>
<tr>
<td>Group members disagreed over how to complete the project.</td>
<td></td>
</tr>
<tr>
<td>Group members had differences of opinion over how to complete the project.</td>
<td></td>
</tr>
<tr>
<td>We experienced differences of opinion.</td>
<td></td>
</tr>
<tr>
<td><strong>Accommodative conflict management behavior</strong></td>
<td>.85</td>
</tr>
<tr>
<td>Giving in to others.</td>
<td></td>
</tr>
<tr>
<td>Accepting others’ positions.</td>
<td></td>
</tr>
<tr>
<td>Letting the other person win.</td>
<td></td>
</tr>
<tr>
<td>Agreeing to go along with the others’ ideas.</td>
<td></td>
</tr>
<tr>
<td>Conforming to others’ wishes.</td>
<td></td>
</tr>
<tr>
<td>Complying with others’ ideas.</td>
<td></td>
</tr>
<tr>
<td>Accommodating the wishes of the rest of the group.</td>
<td></td>
</tr>
<tr>
<td><strong>Confrontational conflict management behavior</strong></td>
<td>.83</td>
</tr>
<tr>
<td>Trying to get one’s own way.</td>
<td></td>
</tr>
<tr>
<td>Arguing a point without considering the views of others.</td>
<td></td>
</tr>
<tr>
<td>Pushing one’s own interests regardless of the effect on other group members.</td>
<td></td>
</tr>
<tr>
<td>Pitting one’s own viewpoint against those of other group members.</td>
<td></td>
</tr>
<tr>
<td>Trying to win arguments.</td>
<td></td>
</tr>
<tr>
<td>Confronting other group members with dissenting views.</td>
<td></td>
</tr>
<tr>
<td><strong>Collaborative conflict management behavior</strong></td>
<td>.90</td>
</tr>
<tr>
<td>Collaborating.</td>
<td></td>
</tr>
<tr>
<td>Reaching agreement by pooling our ideas together.</td>
<td></td>
</tr>
<tr>
<td>Integrating our ideas to come up with a jointly acceptable decision.</td>
<td></td>
</tr>
<tr>
<td>Coming up with a creative solution that we all can agree on.</td>
<td></td>
</tr>
<tr>
<td>Actively seeking a mutually beneficial solution.</td>
<td></td>
</tr>
<tr>
<td><strong>Satisfaction with outcome and process</strong></td>
<td>.89</td>
</tr>
<tr>
<td>I was disappointed with the way the project turned out (reverse-scored).</td>
<td></td>
</tr>
<tr>
<td>I was very satisfied with the outcome of this project.</td>
<td></td>
</tr>
<tr>
<td>We could have done better on this project (reverse-scored).</td>
<td></td>
</tr>
<tr>
<td>I was very satisfied with the process used to complete the project.</td>
<td></td>
</tr>
<tr>
<td>We could have used a more effective method to accomplish our task (reverse-scored).</td>
<td></td>
</tr>
<tr>
<td>I would have preferred the project to have been done differently (reverse-scored).</td>
<td></td>
</tr>
<tr>
<td><strong>Network continuity</strong></td>
<td>.84</td>
</tr>
<tr>
<td>I would be willing to work with this group on future projects.</td>
<td></td>
</tr>
<tr>
<td>It would be good to get the same group together to work on future projects.</td>
<td></td>
</tr>
<tr>
<td>I do not want to work with this group again.</td>
<td></td>
</tr>
</tbody>
</table>
References


