Developing Interpersonal Influence in Retail Purchasing Networks:  
An Exploratory Analysis of Tie Quantity, Tie Strength, and Tie Type

Bryan Johnson1 & Matthew T. Seevers1

1 Heider College of Business, Creighton University, Omaha, NE, USA

Correspondence: Bryan Johnson, Heider College of Business, Creighton University, Omaha, NE, USA. Tel: 1-402-280-3387. E-mail: Bryan@Creighton.edu

Received: December 19, 2014    Accepted: January 6, 2015    Online Published: January 26, 2015
doi:10.5539/ijms.v7n1p39      URL: http://dx.doi.org/10.5539/ijms.v7n1p39

Abstract
This study examines the impact of relationship characteristics existing between buyers and other members of a retail purchasing network. The number of ties and the strength of the ties buyers maintain with others in the network are examined to identify how they impact buyers’ interpersonal influence over others. Buyers’ tie quantity and tie strength are examined for different constituencies within the purchasing network to assess the differential impact of these relational factors on buyers’ interpersonal influence. The study finds that buyers’ tie quantity is a significant predictor of influence in both buyer and seller sub-networks, whereas buyers’ tie strength is only a significant factor in the seller sub-network. Further, independently examining the sub-networks that form organically around buyer and seller roles in the overall purchasing network leads to differential outcomes when compared to evaluating the entire network in which buyer and seller sub-networks are not differentiated. Collectively, the findings from this study reveal important conceptual, methodological, and substantive implications for marketing researchers and practitioners interested in purchasing network contexts.

Keywords: purchasing relationships, interpersonal influence, tie quantity, tie strength, social capital, social networks

1. Introduction
Many business activities important to retail firms involve employees interacting with others in interpersonal networks. For retailers, purchasing agents frequently interact with suppliers to acquire product information and to order merchandise. In addition, retail buyers also interact with other buyers, such as those who hold similar positions at other firms, to obtain information. These interactions with suppliers and other buyers provide access to important knowledge, which helps to enhance a buyer’s interpersonal influence (Dawes, Lee, & Dowling, 1998; Gilly et al., 1998; Seevers, Skinner, & Dahlstrom, 2010).

Developing and maintaining interpersonal influence is an important factor for individuals in organizational settings, particularly because interpersonal influence has been documented to impact performance across a variety of contexts (Cialdini, 2000; Sparrowe, Liden, Wayne, & Kraimer, 2001; Westphal & Stern, 2006). Further, interpersonal influence has been documented to impact performance in retail purchasing settings specifically (Crosby, Evans, & Cowles, 1990; Macintosh & Lockshin, 1997; Seevers et al., 2010).

Given the impact of interpersonal influence on outcomes important to firms and their employees, buyers frequently wish to develop and enhance their influence with others in order to improve their performance. Enhancing interpersonal influence inherently requires buyers to invest in relationships with others. These strategic investments into relationships typically take place as buyers strive to increase the number of unique contacts they develop with others (i.e., relational investments in tie quantity) or as buyers strive to strengthen the relationships they currently maintain with others (i.e., relational investments in tie strength). As might be expected, the time needed to build new relationships and to enhance existing relationships is limited in purchasing contexts, requiring buyers to make difficult trade-offs regarding how they invest their time and efforts.

In addition to the decision regarding how to invest resources into relationships, buyers must also consider with whom those resources should be invested. Retail buyers wishing to invest in such relationships must decide how much time to allocate toward developing relationships with different individuals fulfilling various roles in the
Formally, we address the following research questions:

(1) What is the impact of tie quantity and tie strength on buyers’ interpersonal influence in a retail purchasing network?

(2) Do tie strength and tie quantity impact buyers’ interpersonal influence in a retail purchasing network differently when their relationships to buyers and sellers are examined independently?

(3) Methodologically, how can retail purchasing networks be segmented into sub-networks to independently assess the impact of buyers’ ties to actors fulfilling different roles in a retail network?

As a result, the important questions of how to invest in retail relationships and with whom to invest have not been thoroughly examined in the marketing literature. When considered together, these questions highlight an interesting avenue of inquiry regarding how retail buyers might invest in relationships in their purchasing networks. When considering the roles played by buyers and sellers in the purchasing network, retail buyers can allocate resources toward one or more of the following relational investment options: (1) investments to increase the number of ties with other buyers, (2) investments to increase the strength of ties with other buyers, (3) investments to increase the number of ties with sellers, and (4) investments to increase the strength of ties with sellers.

As a starting point for examining where and how buyers might invest their time, we investigate the tie quantity and tie strength dimensions of retail buyers’ direct relationships in a retail purchasing network, according to tie type (buyers vs. sellers) to assess how these key characteristics of relationships impact buyer’s interpersonal influence. Given that tie quantity and tie strength are characteristics of direct relationships with others, and because individual actors have ample control over investments in both of these relationship dimensions, in this study we focus specifically on buyers’ direct ties with other members of the purchasing network.

Formally, we address the following research questions:

(1) What is the impact of tie quantity and tie strength on buyers’ interpersonal influence in a retail purchasing network?

(2) Do tie strength and tie quantity impact buyers’ interpersonal influence in a retail purchasing network differently when their relationships to buyers and sellers are examined independently?

(3) Methodologically, how can retail purchasing networks be segmented into sub-networks to independently assess the impact of buyers’ ties to actors fulfilling different roles in a retail network?

To address these questions, we draw upon social capital theory (Adler & Kwon, 2001; Lin, 2001; Nahapiet & Ghoshal, 1998; Portes, 1998) and social network analysis (Degenne & Forse, 1999; Kilduff & Tsai, 2003) to examine how a retail buyer’s relationships with different members of the purchasing network impact interpersonal influence.

Our research makes several important contributions. First, we provide a nuanced approach for conceptualizing interpersonal influence in purchasing networks by differentiating between retail buyers’ relationships with other buyers and retail buyers’ relationships with sellers. Second, we demonstrate the impact of distinguishing retail buyers’ relationships with other buyers from their relationships with sellers. Doing so highlights the differential effects of tie quantity and tie strength on buyers’ interpersonal influence, according to tie type. Finally, we outline a methodological approach using social network analysis that can be used to parse purchasing networks into corresponding sub-networks of buyers and sellers. This allows buyers’ relationship characteristics (tie quantity and tie strength) to be calculated and evaluated independently for distinct sub-networks of buyers and sellers (tie type) in the larger purchasing network. Collectively, these contributions help to further marketers’ understanding of the different relational factors impacting actors’ influence in purchasing networks.

2. Literature Review & Hypotheses

2.1 Social Capital Theory & Social Networks

Social capital theory provides a useful framework for studying the interaction between social relationships and the behavior of individuals. Social capital is defined as the potential resources that are embedded in networks of social relationships (Adler & Kwon, 2002; Lin, 2001; Portes, 1998). This theoretical framework focuses on social resources and how they can be converted into returns for users. However, unlike other forms of capital, social capital is not the exclusive property of any single actor; instead it is embodied in a network of relationships between actors. As a result, social networks and social interactions are inherently connected to the use of social capital.

Social capital may be gained as ties develop with others and it may also be lost as ties with others are discontinued (Bourdieu, 1986; Coleman, 1988). Such ties can be direct or indirect and can be weak or strong.
Common forms of social resources embedded in such relationships include advice, information, ideas, leads, opportunities, and support. Fundamentally, social capital consists of the structural properties and the resources mobilized through an individual’s relationships with others (Nahapiet & Ghoshal, 1998). Therefore, the principal premise of social capital theory is that individuals can obtain benefits as a result of their social relationships with others. Accordingly, any advantage or benefit acquired as a result of using one’s relationships with others can be considered a return on social capital.

2.2 Buyer-Seller Relationships

2.2.1 Factors Influencing Buyer-Seller Relationships

Given the influence of social relationships on behavior, it is little surprise to find that various aspects of the social capital framework have been examined in the context of buyer-seller relationships. In this vein, scholars have highlighted the importance of commitment and trust for relationships taking place in marketing settings (Morgan & Hunt, 1994). Motivations to engage in marketing relationships have been examined, including important social elements such as group influences, the desire to be connected, and the need to develop relationships (Sheth & Parvatiyar, 1995). Factors influencing the formation of relationships in commercial settings, such as structural opportunities for interaction (Price & Arnould, 1999), service quality (Fullerton, 2005; Yuen & Chan, 2010), and relationship marketing efforts (Odekerken-Schroder, DeWulf, & Schumacher, 2003), have also been examined.

In addition, scholars have examined how relational factors, such as relationship strength (Brown & Reingen, 1987; Reingen & Kernan, 1987) and homophily (Brown & Reingen, 1987), impact buyers’ likelihood of entering markets and making purchases (Frenzen & Davis, 1990). Marketers have also explored how relationships are enhanced as a result of social interactions between buyers and sellers (Beaty et al., 1996). Additionally, scholars have examined other important relational elements influencing buyer-seller interactions, including gratitude (Morales, 2005), reciprocity (Bagozzi, 1995; Dahl, Honea, & Mancanda, 2005), personality (Odekerken-Schroder et al., 2003) and relationship quality (Rindfleisch & Moorman, 2001; Vesel & Zabkar, 2010a, 2010b). In sum, these factors, among others, have been documented by scholars to influence the initiation, development, and use of relationships between buyers and sellers.

2.2.2 Contextual Differences Impacting Buyer-Seller Relationships

While the aforementioned factors have been tied to marketing relationships and their outcomes, scholars have also noted interesting differences regarding the development and function of these relationships across certain marketing contexts (Blocker, Houston, & Flint, 2012; DeWulf, Odekerken-Schroder, & Iacobucci, 2001). For example, differences have been identified across numerous industries, such as banking and finance (Keating, Quazi, & Kriz, 2009; Uzzi, 1999), transportation (Martins & Xavier, 2011), clothing and apparel (Dunlop & Weil, 1986; Uzzi, 1996, 1997), agriculture and food (Bakucs, Falkowski, & Ferto, 2014), and tourism (Arnould & Price, 1993). Additionally, differences associated with the development and maintenance of relationships between buyers and sellers have also been documented to exist across countries (DeWulf et al., 2001), and within countries according to different geographies and population densities (Blair, Traynor, & Duan, 2004). Ultimately, while there are fundamental factors that lead to the initiation and development of marketing relationships in general, such relationships can also be influenced and governed by the specific context in which they form, develop, and operate.

2.3 The Importance of Interpersonal Influence in Network Settings

An important outcome resulting from social relationships with others is interpersonal influence. In a retail context, interpersonal influence depicts a retail buyer’s ability and efficacy to modify trading partners’ behaviors by gaining compliance toward a particular course of action (Frazier & Summers, 1984; Payan & McFarland, 2005). When social networks are involved, perceptions and attributions about such behaviors are enhanced if the individual gaining compliance is believed to be tied to other prominent individuals in the network (Kilduff & Krackhardt, 1994). As a result, an individual’s relationships with others in a social network can serve as a signal to others of their importance and influence in the network (Dahlstrom & Ingram, 2003; Tedeschi & Melburg, 1984).

Additionally, interpersonal influence is an important factor for individuals in organizations because it has been tied to various forms of individual and group performance outcomes (Sparrowe et al., 2001; Westphal & Stern 2006), particularly in retail purchasing settings (Crosby et al., 1990; Macintosh & Lockshin 1997; Seevers et al., 2010). Interpersonal influence leads to improved performance in retail network contexts largely because relationships with prominent individuals provide access to social power (French, 1956). Social power provides
numerous advantages to buyers who exercise it, such as the ability to bargain more powerfully, to command more favorable bids, and to maintain control in negotiations (Dwyer & Walker, 1981).

2.4 Characteristics of Network Relationships

2.4.1 Tie Quantity

Interpersonal influence is derived primarily from relationships with other actors in a social network (Marsden & Friedkin, 1993, 1994; Friedkin 1993). In a network context, there are various means by which interpersonal influence can be achieved. Interpersonal influence can be achieved by developing ties with many different individuals. We refer to the number of ties actors maintain with others in the network as *tie quantity*. In retail settings, buyers’ ties to other buyers and to sales reps provide access to different sources of information required to carry out their duties and responsibilities. These contacts lead to a wide variety of knowledge and experience, which can help to improve decision making (Kline & Wagner, 1994; Hirschman & Mazursky, 1982, Harrison & Klein, 2007). These ties may also allow buyers to reach more prominent individuals in the network, which can provide access to prestige and authority (Lin 1999, 2001, Lin, Vaughn, & Ensel, 1981). Ultimately, as the quantity of ties retail buyers develop with other buyers and sellers grows, so does their potential for interpersonal influence in the network.

2.4.2 Tie Strength

In addition to establishing ties with many different individuals, interpersonal influence can also be achieved in a network setting by strengthening existing relationships with others. We refer to the strength of the relationships actors maintain with others in the network as *tie strength*. Strong ties, when compared to weak ties, exhibit higher levels of emotional closeness, more frequent interaction, and stronger expectations for reciprocity (Rindfleisch & Moorman, 2001). Given the reciprocity and coordination required to develop and maintain interpersonal influence, strong ties are expected to have more impact than weak ties among retail buyers (Krackhardt 1992; Nelson, 1989). Accordingly, as the strength of ties retail buyers maintain with other buyers and sellers grows, so should their potential for interpersonal influence in the network.

2.5 Hypotheses

Similar to other recent exploratory studies (Mejri, Debabi, & Nasraoui, 2012; Holmquist & Cudmore, 2013; Megri & Bencherif, 2014), given the exploratory nature of our research, we do not articulate formal hypotheses regarding the impact of *tie quantity* and *tie strength*, on interpersonal influence, according to *tie type*. The marketing literature is underdeveloped in the area, and hence is not well-equipped to provide a compelling theoretical rationale for or against such differences. Previous research on purchasing networks has simply not differentiated between the outcomes of buyers’ relational investments with buyers and sellers independently.

Given the different roles that buyers and sellers play in purchasing networks, we might expect *tie quantity* and *tie strength* to have differential effects (at least marginally) on buyer influence, based on whether the relationships are with other buyers, or with other sellers. Alternatively, it is also conceivable that the nature of purchasing networks could be sufficiently homogenous that *tie quantity* and *tie strength* could have very similar (or perhaps even identical) effects on buyers’ interpersonal influence, irrespective of whom buyers’ relationships involve. In the end, the marketing literature currently provides very little direction regarding whether or not such differences should be expected, nor the expected nature of such differences if they were to exist. For these reasons, we conduct exploratory analyses to shed further light and understanding on this topic.

3. Method

3.1 Sample

To examine the impact of relationship characteristics on interpersonal influence in a purchasing network, we selected an industry in which the purchasing network could be clearly defined, and for which all of the relationships among members of the network could be accurately identified and documented. It is important to note that the focus and scope of our study is on general purchasing network relationships. However, to address the research questions outlined in our study, we collected data in a specific industry providing access to the requisite variables of interest.

The data used to explore the impact of *tie quantity*, *tie strength*, and *tie type* on retail buyers’ interpersonal influence in a purchasing network were collected in the U.S. golf industry. The retail buyers in this study are Professional Golfers’ Association (PGA) professionals who manage and act as buyers for retail merchandising operations at independent golf courses across an entire state in the U.S. As a point of reference, golf constitutes a
$69 billion industry annually, and sales of golf equipment to consumers accounts for approximately $4 billion dollars annually (Bishop, 2014; Black, 2012; Statista, 2015).

We collected data on social ties between all PGA professionals in the state and on all ties between PGA professionals and the industry sales representatives in the sales territory covering the state. A major advantage of the data used in the study is that it utilizes complete network data, drawn from both parties in the purchasing network (purchasing agents and sales representatives), for an entire geographic sales territory. Data collection involved mailing surveys to each of the PGA professionals and industry salespeople in the state.

At the time of data collection, there were 33 industry sales representatives covering the sales territory, of which 24 responded to the survey (73% response rate). There were also 125 PGA professionals in the state responsible for purchasing activities at their respective golf courses, of which 84 responded to the survey (67% response rate). Each responding PGA professional was independently verified to confirm that they were the principal buyer for their organization and that they had purchasing authority for the organization. Given that data were collected via survey, non-response and late response biases were evaluated by comparing response groups (Armstrong & Overton, 1977). An assessment of response rates did not reveal any significant differences between responders and non-responder, or between early responders and late responders.

3.2 Measures

Network relationships were measured using sociometric survey questions. Study participants were provided with an alphabetical roster listing the names of all PGA professionals in the state. Participants were asked a variety of questions regarding fellow PGA professionals in the state with whom they had discussed golf shop purchasing issues within the past 12 months. Examples of “golf shop purchasing issues” cover topics such as brands purchased, top selling golf products, vendor discount programs, new technologies in golf equipment, purchasing trends, etc. The same roster approach was also utilized to identify interactions between the PGA professionals and industry sales representatives servicing the state. These questions allowed participants to identify and document interactions with other buyers and sellers, as well as the strength of the relationships involved. Figure 1 maps the sociometric data provided by participants to visually represent the interactions between all buyers and sellers in the purchasing network.

To enhance the accuracy and reliability of the measures used to collect the sociometric data (Wasserman & Faust, 1994), participants were provided with a complete list of individuals in the network to facilitate recall accuracy (Knoke & Kuklinski, 1982). Participants were also provided with cues (i.e., “individuals with whom you have discussed golf shop purchasing issues within the past 12 months”) to help them define the context of the relationships under investigation (McCallister & Fischer, 1978). Additionally, following Freeman, Romney, and Freeman (1987), questions focused on established patterns of interaction, rather than acute events, to promote accurate measurement. Finally, all ties reported by participants were cross-validated with those reported by peers, using UCINET (Borgatti, Everett, & Freeman, 2002).

Regarding the sociometric measures, it is important to note that participants were asked to report on “only” those individuals with whom they had discussed “golf shop purchasing issues.” As a result, under certain conditions, it is possible for participants to have few or no interactions (directly related to purchasing issues) with other buyers or sellers. For example, participants who interacted with other buyers but did not discuss “purchasing issues within the past 12 months,” would report no purchasing related interactions with other buyers. Alternatively, participants who had inconsequential contact with their sales representative without discussing purchasing issues, or participants who dealt with someone at the seller’s organization other than their local sales representative, would also report no purchasing related interactions with their sales representative. Finally, participants from small golf facilities, who may not have made any purchases or interacted with their sales representative during the past 12 months, would also not report any purchasing related interactions. Any of the aforementioned scenarios could result in a situation in which participants reported no purchasing related interactions with buyers or sellers.
3.2.1 Tie Quantity Measurement

Tie quantity was measured by summing the number of unique direct ties each buyer reported with other members of the purchasing network. Because the aim of this study is to explore potential differences resulting from direct ties to particular groups within the purchasing network, for comparison purposes we measure each of the 84 buyers’ tie quantity in: (1) the whole network, (2) the buyer sub-network, and (3) the seller sub-network. Doing so yields three corresponding adjacency matrices: (1) an 84×108 buyer to whole network matrix, (2) an 84×84 buyer to buyer sub-network matrix, and (3) an 84×24 buyer to seller sub-network matrix.

While measuring buyers’ direct ties to the whole network does not differentiate between direct ties to peer buyers and direct ties to sellers, it does provide a baseline for comparing buyer and seller sub-networks (see Figure 2, Panel A). Alternatively, measuring buyers’ direct ties to buyers, and buyers’ direct ties to sellers separately, allows us to compare the impact of these ties to each group on buyers’ interpersonal influence (see Figure 2, Panels B and C). To facilitate this approach, we used the affiliation matrices to map each of the social networks and to calculate tie quantity using UCINET 6 (Borgatti, Everett, & Freeman, 2002).

This sociogram illustrates the purchasing network for all buyers and sellers in the study. Blue boxes represent buyers (PGA professionals) and red diamonds represent sellers (sales representatives). Black lines represent direct relationships between actors. Numeric values represent participant IDs.

As a general rule, participants with fewer ties to other buyers and sellers are situated along the outside perimeter of the sociogram, whereas participants with more ties to other buyers and sellers are located closer to the center of the sociogram. In this respect, spatial placement in the sociogram is generally representative of connectedness.

Figure 1. Sociogram of full purchasing network
3.2.2 Tie Strength Measurement

Tie strength was measured by asking participants to rate the emotional closeness of their ties with other members of the purchasing network. As done in previous research (Burt, 1992; Seibert, Kraimer, & Liden, 2001), participants rated the strength of their ties using a 3 point scale for emotional closeness (1=“distant” to 3=“especially close”). For this measure, participants were asked to restrict their answers to individuals with whom they had discussed purchasing related activities in the past year. Thus, those with whom they had not interacted are coded as zero.

We created three adjacency matrices, including measures of tie strength between actors, for the whole network, the buyer network, and the seller network. In each of these networks, tie strength was estimated by averaging buyers’ ratings of emotional closeness across individuals with whom they reported engaging in purchasing interactions (see Figure 2). We used each of the adjacency matrices to calculate average tie strength.

3.2.3 Interpersonal Influence Measurement

Influence was measured by asking participants tied to buyers to rate the buyer’s influence in his or her purchasing relationships (Brass, 1984). Those connected to buyers were asked how influential the buyer was in his or her role as a buyer, using a 7 point scale (1=“very little influence” to 7=“very great influence”). Again, we
created three matrices, this time including measures of influence (as rated by buyers’ contacts), for the whole network, the buyer network, and the seller network. We used these matrices to obtain a single measure of influence by calculating the average influence ratings provided by the buyers’ contacts (Brass & Burkhardt, 1993). As a result, we separately obtained measures of buyers’ influence in the whole network, in the buyer network, and in the sales network.

3.2.4 Control Variable Measurement

Several additional measures were included to account for factors that might influence a buyer’s interpersonal influence, namely the buyer’s industry experience and the organizational prestige of the firm employing the buyer. The buyer’s industry experience was measured by asking each buyer to report the number of years they had worked as a golf professional. Organizational prestige was measured using a 3-item perceived organizational prestige scale (Bhattacharya et al., 1995; Mael & Ashforth, 1992), modified for the golf industry. This scale included items such as “People in my community think highly of this golf facility” and “Our members, guests, and other customers consider this golf facility to be prestigious.” Descriptive statistics and correlations among all measures used in the study are provided in Table 1.

Table 1. Means, standard deviations, and correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D</th>
<th>Min</th>
<th>Max</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence</td>
<td>4.33</td>
<td>0.75</td>
<td>1.7</td>
<td>6.2</td>
<td>.547**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tie Quantity</td>
<td>13.25</td>
<td>7.76</td>
<td>0</td>
<td>56</td>
<td>.010</td>
<td>.202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tie Strength</td>
<td>2.08</td>
<td>0.35</td>
<td>0</td>
<td>2.8</td>
<td>.118</td>
<td>.131</td>
<td>.03</td>
<td>.122</td>
</tr>
<tr>
<td>Industry Experience</td>
<td>15.54</td>
<td>7.59</td>
<td>1</td>
<td>37</td>
<td>.217*</td>
<td>.288**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Prestige</td>
<td>11.71</td>
<td>2.14</td>
<td>7</td>
<td>15</td>
<td>.112</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. ** Correlation is significant at the p ≤ 0.01 level (2-tailed), * Correlation is significant at the p ≤ 0.05 level (2-tailed), N = 84.

3.3 Analyses

3.3.1 Social Network Analyses

We used UCINET 6 (Borgatti, Everett, & Freeman, 2002) to map the social networks and to analyze the sociometric data used in our study (Degenne & Forse, 1999; Kilduff & Tsai, 2003). As noted previously, in addition to creating the full network using a traditional networks approach – one in which all individuals are aggregated into a singular network – we also segmented the network into separate sub-networks of buyers and sellers, so that we could assess the impact of each buyers’ tie quantity and tie strength on their influence over other buyers and sellers, independently. Ultimately, this required the analysis of three separate ego networks for each of the 84 participants (see Figure 2 for an illustration). This approach allows us to examine the various subgroups which organically form according to distinct roles within a larger purchasing network.

3.3.2 Regression Analyses

We used regression analysis to estimate the effects of the relationship characteristics of interest on buyers’ interpersonal influence. Regression analysis appropriately highlights the unique impact of each independent variable on the dependent variable of interest, while statistically controlling for the effects of all other variables in the model. We included buyers’ influence as the dependent variable in our regression models. We included buyers’ tie quantity and tie strength as independent variables in the models. Additionally, we also included buyers’ industry experience and the organizational prestige of the firm employing the buyers as control variables (see Table 2).
Table 2. The Impact of Buyers’ Relationship Characteristics on Interpersonal Influence for Different Purchasing Network Segments

<table>
<thead>
<tr>
<th>Model 1: Complete Network</th>
<th>Model 2: Buyer Network</th>
<th>Model 3: Seller Network</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td><strong>Independent Variables</strong></td>
<td><strong>Independent Variables</strong></td>
</tr>
<tr>
<td><strong>Tie Quantity</strong></td>
<td><strong>Tie Quantity</strong></td>
<td><strong>Tie Quantity</strong></td>
</tr>
<tr>
<td>0.529** (0.001)</td>
<td>0.271* (0.023)</td>
<td>0.479** (0.018)</td>
</tr>
<tr>
<td><strong>Tie Strength</strong></td>
<td><strong>Tie Strength</strong></td>
<td><strong>Tie Strength</strong></td>
</tr>
<tr>
<td>-0.034 (0.204)</td>
<td>0.157 (0.134)</td>
<td>0.376** (0.177)</td>
</tr>
<tr>
<td><strong>Control Variables</strong></td>
<td><strong>Control Variables</strong></td>
<td><strong>Control Variables</strong></td>
</tr>
<tr>
<td><strong>Industry Experience</strong></td>
<td><strong>Industry Experience</strong></td>
<td><strong>Industry Experience</strong></td>
</tr>
<tr>
<td>0.130 (0.013)</td>
<td>0.123 (0.014)</td>
<td>-0.048 (0.009)</td>
</tr>
<tr>
<td><strong>Organizational Prestige</strong></td>
<td><strong>Organizational Prestige</strong></td>
<td><strong>Organizational Prestige</strong></td>
</tr>
<tr>
<td>0.083 (0.034)</td>
<td>0.094 (0.051)</td>
<td>0.122 (0.032)</td>
</tr>
</tbody>
</table>

Model Statistics

<table>
<thead>
<tr>
<th>R²</th>
<th>N</th>
<th>N</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.319</td>
<td>84</td>
<td>84</td>
<td>84</td>
</tr>
</tbody>
</table>

Notes. Significance is based on 2-tailed tests: * p ≤ 0.05; ** p ≤ 0.01.
Regression coefficients are standardized.
Standard errors are displayed in parentheses below coefficients.

Because the aim of the study is to explore differences between buyers’ influence among other buyers and sellers (together and separately), we estimate three separate regression models. Model 1 estimates the impact of tie quantity and tie strength on influence in a traditionally conceptualized full network, which does not differentiate buyer and seller sub-networks. Alternatively, Model 2 and Model 3 estimate the effects of tie quantity and tie strength on influence in independent sub-networks of buyers and sellers, respectively.

4. Results & Discussion

4.1 Complete Network of Buyers and Sellers

To explore our first research question, we estimated a regression model with influence as the dependent variable and tie quantity, tie strength, industry experience, and organizational prestige as independent variables (see Table 2, Model 1). When all buyers and sellers are examined together, our analysis reveals that buyer’s tie quantity (β=0.529; p<0.001) is a statistically significant predictor of buyers’ interpersonal influence in the complete network. However, buyers’ tie strength (β=−0.034; p=0.720) was not found to be a significant predictor of influence, nor were the control variables industry experience (β=0.130; p=0.174) or organizational prestige (β=0.083; p=0.399).

The results of Model 1 indicate that the number of ties buyers maintain with others in the network is associated with their interpersonal influence on others in the network. While this result is interesting, it may be misleading. This particular method of conceptualizing and analyzing purchasing networks ignores the different roles that individuals play in the network, and thus may lack the nuance and explanatory power to fully reveal the impact of relational characteristics in this setting. Accounting for the different tie types buyers have with others in the network (based on observable buyer and seller roles), provides a more refined approach for understanding the impact of relational characteristics on interpersonal influence in purchasing networks. We utilize this approach next to investigate our second research question.

4.2 Independent Sub-networks of Buyers and Sellers

To investigate our second research question, we estimated two additional regression models – one model for buyers’ ties to the buyer network and a separate model for buyers’ ties to the seller network – with influence as the dependent variable and tie quantity, tie strength, industry experience, and organizational prestige as independent variables (see Table 2, Models 2 and 3). The variables influence, tie quantity and tie strength used in
each of the models were calculated independently using only the buyer’s ties in each of the corresponding buyer
and seller sub-networks.

When buyers’ ties to other buyers are examined, we find that tie quantity (\(\beta=0.271; \ p=.015\)) is a statistically
significant predictor of buyers’ interpersonal influence in the buyer sub-network, but tie strength (\(\beta=-0.157; \ p=.143\)) is not (see Table 2, Model 2). The control variables industry experience (\(\beta=0.123; \ p=.245\)) and organizational prestige (\(\beta=0.094; \ p=.382\)) are not significant predictors in the buyer sub-network. However, when buyers’ ties to sellers are examined, we find a different pattern of results (see Table 2, Model 3). For ties to the seller sub-network, our analysis reveals that buyers’ tie quantity (\(\beta=0.479; \ p<.001\)) and buyers’ tie strength (\(\beta=0.376; \ p<.001\)) are both statistically significant predictors of buyers’ interpersonal influence in the seller sub-network. The control variables industry experience (\(\beta=0.048; \ p=.556\)) and organizational prestige (\(\beta=0.122; \ p=.149\)) are not significant predictors in the buyer sub-network.

Regarding the differential impact of relational characteristics on influence across sub-networks, Models 2 and 3 indicate that tie strength and tie quantity impact influence differently in the sub-networks of the larger purchasing network examined in our study. Interestingly, we find that buyers’ quantity of ties drives influence when interacting with other buyers, but both quantity of ties and strength of ties impact influence when buyers interact with sellers. Further, as noted, buyers’ tie quantity is a significant predictor of influence in both buyer and seller sub-networks. However, an examination of the standardized regression coefficients associated with buyers’ tie quantity across models reveals that this variable has a much larger effect in the seller network (\(\beta=0.479\)) than it does in the buyer network (\(\beta=0.271\)). It is important to note that the effects for tie quantity and tie strength in both regression models emerge after statistically controlling for the effects of all other variables in the models.

Finally, because the standardized regression coefficients for buyers’ tie quantity (\(\beta=0.479\)) and tie strength (\(\beta=0.376\)) in the seller network were both statistically significant, and because both variables were included in the same regression model (Model 3), we are able to statistically test the coefficients for differences (Long & Freese, 2006). Doing so, we find that the regression coefficients for buyers’ tie quantity and tie strength are significantly different from one another \(F(1, 79)=15.32, \ p<.001\), with tie quantity having significantly more impact than tie strength on buyers’ interpersonal influence in the seller network. Therefore, while both are important predictors of influence, in our sample, the number of ties carries more weight than the strength of ties in the seller network.

Collectively, these results highlight important differences for buyers’ relationship characteristics in different segments of the purchasing network. Further, when compared to the results from the complete network (Model 1), these results also expose the masking effect that can occur when networks are conceptualized and analyzed homogenously, without accounting for the various sub-networks in which individuals interact with others. In this regard, had the network in our study only been evaluated as a singular network, the effects of tie strength for certain network constituents would likely have been obscured and inadvertently discounted.

5. Implications for Research and Practice

In this study, we address a frequent and practical problem faced by purchasing agents in retail networks – how
and with whom should buyers invest in relationships with other buyers and sellers, given limited amounts of time?
We also address new ways in which purchasing networks might be conceptualized and studied, to account for
the different roles actors play in such networks. Our exploratory study provides an enhanced framework for
researchers and practitioners to conceptualize and study purchasing networks and the relationships operating
within them.

5.1 Implications for Research

One of the main implications of our study is that researchers studying networks should consider observable
factors around which sub-networks naturally form. In our study, sub-networks formed organically around
individuals’ roles as buyers and sellers. Our study demonstrates that evaluating constructs of interest using
different network conceptualizations can lead to differential results. We highlighted this by demonstrating the
differences between tie quantity and tie strength on influence across buyers’ relationships with other buyers and
sellers. Notably, when compared to a network where role distinctions were not made, our results demonstrated
the masking effect that can occur when sub-networks are ignored, as we documented with tie strength for buyer
and seller networks. The approach used in our study, which utilizes social network analysis to identify, create,
and analyze independent sub-networks, may help researchers to reveal important effects that might otherwise be
concealed. Illuminating and documenting these potential conceptual and methodological issues is an important contribution of this study.

5.2 Implications for Practice

Another contribution of our study is that we provide a nuanced approach that can be used by practitioners to conceptualize their purchasing networks, by differentiating between investing in relationships with buyers and investing in relationships with sellers. Doing so may help to manage the differential effects of tie quantity and tie strength on interpersonal influence in purchasing networks, depending on the type of relationship engaged in. As noted previously, failing to conceptualize networks according to their constituent sub-networks may mask the effects of these important factors for buyers in purchasing contexts.

Additionally, our study found that tie quantity and tie strength led to different outcomes, based on the type of relationship the buyer maintained with others in the network. Both relationship characteristics were associated with buyers’ influence with sellers, but only tie quantity significantly led to influence with other buyers. As a result, when involving relationships with other buyers, our data indicate that buyers’ investments in tie quantity may lead to a greater return than their investments in tie strength, when it comes to developing interpersonal influence. Our data provide little evidence to suggest that buyers’ tie strength is associated with interpersonal influence with other buyers. However, when buyers’ relationships involve ties to sellers, both aspects of the relationship may be worthy of buyers’ time and attention. Our analysis indicated that buyers’ tie quantity and tie strength were both important factors associated with interpersonal influence among sellers. Interestingly, while these factors are both linked to influence, our analysis further revealed that tie quantity had a larger effect on influence than tie strength. As a result, our data suggest that buyers investing into relationships with sellers may wish to prioritize how they allocate resources between developing new relationships and strengthening the relationships they already maintain.

6. Limitations and Future Research

6.1 Limitations

Given that this is one of the first studies to explore the effects of different network conceptualizations on relationship characteristics in a purchasing network, our findings and implications come with caveats.

We acknowledge that caution must be used when interpreting the results of this study, given that the data come from a specific purchasing industry involving golf merchandise. Although the focus of our study was on purchasing relationships, as noted previously, the initiation, development, and function of relationships can differ in nature across marketing contexts (Blocker et al., 2012; DeWulf et al., 2001). Because scholars have previously noted differences in the development and application of marketing relationships across industries (Arnould & Price, 1993; Blocker et al., 2012; DeWulf et al., 2001; Dunlop & Weil, 1996; Price & Arnould, 1999; Uzzi, 1996, 1997), caution may be warranted when interpreting the results of our study. Additionally, because our research context involves sports products, which constitute one of the main domains of sports marketing (Fullerton & Merz, 2008), there may be relationship dynamics that are specific to this industry (Burnett, Menon, & Smart 1993; Milne & McDonald, 1999; Murray & Howat, 2002; Schwarz, Hunter, & LaFleur, 2013).

Despite these caveats, our study demonstrates the importance of conceptualizing networks in different ways, using observable characteristics of those within the network. Our study also demonstrates the consequences of analyzing networks using various network configurations, highlighting the differential outcomes associated with different ways of conceptualizing and constructing networks. Given the utility of the framework used in this study and the potential for application across a variety of research contexts, the conceptual and methodological contributions of this study mitigate many of its limitations. Therefore, while each purchasing setting may be different, our study demonstrates the importance of adopting a framework which allows for the independent examination of observable sub-networks operating inside larger networks of interest to researchers and practitioners.

6.2 Future Research

Our study revealed several interesting findings. However, because this is one of the first studies to specifically explore relationship characteristics and purchasing networks in this way, the results of our study raise several additional questions. For example, researchers may wish to examine the underlying reasons why tie quantity and tie strength may lead to differential effects for buyer and seller networks. Scholars may also wish to investigate the impact of relationship factors between buyers and sellers in purchasing networks on other outcomes of interest, such as diffusion of innovation and new product adoption by buyers, advancement and promotion among buyers and sellers, or even job satisfaction among members of the purchasing network. Additionally,
researchers in other areas may wish to apply the conceptual or methodological approaches used in this study to dissect networks into their constituent sub-networks, in order to determine whether constructs of interest operate differently across alternate network conceptualizations. Finally, scholars have also recently begun to explore the shifting of purchasing relationships from interactions that take place “in person” to interactions that take place in digital environments (Keating et al., 2009; Keeling et al., 2013; Ortinau et al., 2013). Researchers may also wish to explore the extent to which interpersonal influence that develops from relationships in situ compares to influence that develops as a result of interactions taking place via digital platforms. Along these lines, scholars may also wish to explore how conceptual models explaining the relationship factors and processes leading to interpersonal influence differ across live and digital contexts. Doing so would help to identify how current models of social interaction in purchasing networks compare to emerging trends in digital environments.

7. Conclusion

Interpersonal interactions between buyers and sellers are a defining feature of retail purchasing networks. These interactions contribute to buyers’ interpersonal influence among their peers, as a result of the social capital they create. Consequently, buyers are faced with difficult decisions regarding how and with whom such relationships should be developed. We examined the two most fundamental and accessible relationship factors for developing social capital – tie quantity and tie strength – and we demonstrated their impact on buyers’ influence. Additionally, we examined the effects of these factors using different modes of conceptualizing the networks in which the purchasing interactions took place. Doing so revealed the differential effects that such relational characteristics have on buyers’ relationships.

Using purchasing network data from PGA professionals, we found that tie quantity was a significant predictor of buyers’ influence in a complete network consisting of both buyers and sellers, whereas tie strength had little impact. However, when independent sub-networks of buyers and sellers were examined separately, we found that tie quantity was a significant predictor of buyer influence across both buyer and seller sub-networks, but tie strength was only associated with buyer influence in the seller sub-network. Additionally, within the seller sub-network, we found that while both tie quantity and tie strength contribute to buyer influence, tie quantity had a significantly stronger effect than tie strength.

The findings of our study highlight the importance of examining and managing relationship characteristics in retail purchasing networks. Our study also highlights the impact of conceptualizing and analyzing social networks in different ways. Specifically, in addition to examining social networks using traditional approaches, our study emphasizes the importance of investigating social networks according to their constituent sub-networks which form organically around observable roles or characteristics of the actors involved. Collectively, these findings contribute to marketers’ understanding of the different relationship factors influencing purchasing networks, while also contributing to network researchers’ understanding of social networks more broadly.

References


**Copyrights**

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creativecommons.org/licenses/by/3.0/).