

OPINION LEADERSHIP: NON-WORK-RELATED ADVICE IN A WORK SETTING

Viju Raghupathi

Department of Statistics and Computer Information Systems
Zicklin School of Business, City University of New York
55 Lexington Ave., Box B11-220
New York, NY 10010

Viju.Raghupathi@baruch.cuny.edu

Ofer Arazy

University of Alberta, School of Business
Edmonton, Alberta, T6G 2R6 Canada

ofer.arazy@ualberta.ca

Nanda Kumar

Department of Statistics and Computer Information Systems
Zicklin School of Business, City University of New York
55 Lexington Ave., Box B11-220
New York, NY 10010

Nanda.Kumar@baruch.cuny.edu

Bracha Shapira

Department of Information Systems Engineering
Deutsche Telekom Laboratories at Ben-Gurion University
Beer-Sheva, Israel 84105

bshapira@bgu.ac.il

ABSTRACT

Opinion leaders influence the decisions of others and play a significant role in disseminating information, specifically in the domain of e-commerce. Prior studies exploring the factors that affect a person's ability to influence others have been conducted in either a work setting [i.e. advice networks] or leisure setting (e.g. movie recommendation). However, it is common for these networks to interweave, for instance when a person asks for advice from work colleagues on a personal issue, like the purchase of a car. This suggests that there is a need to differentiate between the antecedents of opinion leadership that stem from one's position in the professional network and the antecedents that stem from personal characteristics associated with the specific non-work related advice [e.g. expertise in cars]. To explore how opinion leadership is determined in such multifaceted settings, we develop a theoretical framework of opinion leadership. The results from an empirical study of a movie advice task that was conducted in a professional setting, demonstrate that both movie-related trustworthiness and work-related centrality exert distinct effects on one's ability to influence others opinions regarding movies. Implications for theory and practice of e-commerce are discussed.

Keywords: opinion leader, social network, competence, benevolence, network centrality

1. Introduction

In the information economy, information is of utmost importance, and opinion leaders play a significant role in disseminating information and knowledge. With the advancement of network technology and the internet in specific, marketers have started using communication from opinion leaders, in the form of opinions, recommendations, suggestions and experiences on products, services, or sellers, in order to influence consumer decision making. This kind of informal communication about the ownership, usage, or characteristics of particular products and services or their sellers, is referred to as word of mouth [Westbrook 1987]. Extended to the e-commerce context, this has been called electronic word of mouth [Hennig-Thurau & Walsh 2003; Hennig-Thurau et al. 2004; Cheung et al. 2009] or word-of-mouth [De Valck et al. 2009; Hsu & Wang 2008]. With the explosion of e-commerce, word-of-mouth has started to gain importance in research and practice [Bickard et al. 2001; Brown et al. 2007; Dwyer, 2007]. At the

same time, compared to a traditional environment, enticing customers and retaining them in an online e-commerce context is challenging [Zhou et al. 2004]. Because of the ubiquity of online information, the credibility of the messages depends on the credibility of the source (opinion leader). It has been suggested that in recent times, electronic commerce has been characterized by much faster diffusion of products and services because of the word of mouth influence of opinion leaders [Cheung et al. 2009; Forlani & Parthasarathy 2003]. News sites (e.g. Slashdot.org), recommender systems (e.g. Amazon.com), and commercial applications (e.g. epi8nions.com) try to automatically identify opinion leaders, often by assigning members a 'reputation' score. These applications often calculate the reputation score in an ad-hoc manner, without considering the various factors that determines one's ability to influence others.

Early work on word of mouth recommendations, following that of Katz and Lazarsfeld [1955] were mostly survey-based, measuring the impact of word of mouth using self-reports from consumers about their reliance on others' opinions for decisions. With the staggering growth of e-commerce over the last decade, there is an increasing focus on the influence of opinion leaders using word of mouth in an online context [Nail 2005]. Word of mouth referrals are said to have a strong impact on new customer acquisitions [Trusov et al. 2009]. Opinion leaders earn the trust of the web-users which leads to the users performing a "purchase-click" when they get online (Hsu & Wang 2008). According to the Keller Fay Group, there are 3.5 billion word of mouth conversations occurring daily in the United States. Of these 92% occur offline (75% face-to-face and 17% by phone) [Hedges & Chung 2009]. Interestingly, consumers often go online to get more information after they get to hear something on TV or from another person [Hedges & Chung 2009]. Research on opinion leadership and on word-of-mouth is imperative to e-commerce in an online or offline environment.

In the corporate context, opinion leaders play an important role in advice networks and communities of practice [Cross et al. 2006]. In e-commerce settings, opinion leaders are crucial in determining trends [Herring et al. 2005] and in influencing shopping behavior [Chan & Misra 1990]. Opinion leaders are defined as "individuals who exert an unequal amount of influence on the decision of others" [Rogers & Cartano 1962, p. 435]. Two parties are relevant in the opinion leadership process: the information seeker (i.e. the recipient who seeks advice or opinion) and the information source (i.e. the opinion leader who provides the advice) [Flynn et al. 1996]. Due to their central position in the social network, opinion leaders gain an advantage that can be used in future exchanges for valued resources [Cook & Emerson 1978], and often perform better at their job [Sparrowe et al. 2001]. Prior studies exploring the factors that affect a person's ability to influence others have been conducted in either a work setting [i.e. advice networks; Gibbons 2004] or non-work setting [Oygard 2003]. Conversely, in real-life settings it is common for the professional and leisure-related social networks to interweave, for instance when a person asks for advice from work colleagues on a personal issue, such as the purchase of a car or a movie recommendation. This suggests that there is a need to differentiate between the antecedents of opinion leadership that stem from one's position in the professional network and the antecedents that stem from personal characteristics associated with the specific non-work related advice (e.g. expertise in cars). Few recent works have recognized the importance of informal relationships in a work setting [Westphal 1999] and benefits derived from a central position in both work-related and friendship networks [Gibbons 2004; Klein et al. 2004]. However, the extent to which one's position in both these networks affects his ability to influence colleagues on a non-work-related advice has not been investigated in previous studies.

The objective of this study is, thus, to test the impact of the professional network centrality and the factors associated with the leisure advice context (personal characteristics; namely, trustworthiness) on opinion leadership. The context of our empirical study is movie-related advice that occurs in a professional setting. It is possible that there is a relationship between the positions in both social networks, such that a person's trustworthiness in the leisure-related advice context is impacted by his centrality in the professional network. In order to explore this, we test whether centrality in the professional network and movie-related trustworthiness exert distinct impact on movie-related opinion leadership, or whether the effect of professional network centrality is mediated through movie-related trustworthiness. Our findings demonstrate that in this unique context, centrality in the professional network is independent of movie-related trustworthiness, such that both factors exert significant influence on movie-related opinion leadership. We contribute to the understanding of the factors determining opinion leadership in such a multifaceted setting. In addition to the theoretical implications, this question regarding the relationships between trustworthiness, professional network centrality, and opinion leadership has direct implications for practice. Marketers try to identify opinion leaders to help promote their products. Since much of advice communication – even for non-work-related products or services – occurs at the work place, while identifying opinion leaders, marketers would need to consider both the professional centrality of a person and his advice-related trustworthiness, as illustrated in our study.

The paper is organized as follows: Section 2 reviews related literature in the area of opinion leadership; Section 3 outlines the hypotheses and introduces the proposed research model; Section 4 describes the proposed research method; Section 5 presents the results of the empirical evaluation of the model; Section 6 discusses the results and their implication for theory and practice; and Section 7 concludes by discussing some of the study's limitations and offers possible future research directions.

2. Related Research

The theory of opinion leadership emerged out of the early work on mass communication proposed by Katz & Lazarsfeld [1955]. Their two-step model discusses how media messages first get consumed by people who act as opinion leaders in their area of expertise, and then are diffused through these leaders to the opinion seeking members in a group. In the process of diffusion, the message gets altered by certain intervening variables [Infante et al. 1997] such as the innate beliefs or attitudes towards the opinion leaders. Social network researchers have validated this theory not only for opinion but for information as well, showing that innovations, rumors, and beliefs tend to move from those marginal in a network, to the central figures, and back to the rest of the population [Rogers 1995; Valente 1995; Weimann 1982]. Opinion leaders are defined as those who exert influence on the opinions of others [Hellevik & Bjorklund 1991]. They could be found at every level of society and are not very different from the people they influence [Katz 1957]. Opinion leaders often possess intelligence and independence to form personal opinions on public issues and to diffuse that information to the general public, thereby influencing people's decisions [Chan & Misra 1990]. In the following section we discuss related research on opinion leadership, by reviewing work on the sources, measurements, and indicators of opinion leadership.

Opinion leadership has been investigated extensively in the context of innovation adoption since opinion leaders - by view of their social standing - perceive themselves as early adopters of innovations [Bilgram et al. 2008; Rogers 1995; Summers 1970]. In recent years, opinion leadership has been investigated in the fields of marketing and consumer research, due to the role of opinion leaders in influencing consumers' consumption decisions. Marketing studies have investigated opinion leadership through its sources [Assael 1987; Black 1982; Richins & Root-Shafer 1988; Solomon 1999], viewing it as an individual characteristic with relational implications, focusing on the personal, cultural, and technical characteristics that opinion leaders exhibit [Shah & Scheufele 2006]. This research has identified factors such as education [Keller & Berry 2003], efficacy [Weimann 1994], media habits [Koppler 1984], likeability [Brady & Sniderman 1985], elite status [Zaller 1992], political trust [Weimann 1994], personal trust [Shah & Scheufele, 2006], forecasting knowledge of stocks in a virtual stock setting [Spann et al. 2009], and known issue biases [Calvert 1985] as distinct attributes of opinion leaders. Additionally, research on the concept of the lead user, who is defined as one who faces the need for a new product or service long before the actual customer does [von Hippel 1986; 1988], focuses on identification of characteristics of such lead users who can effectively influence consumer buying behavior, and act as opinion leaders and increase the rate of acceptance of new products and services [Morrison et al. 2000]. Marketers create effective communication channels to opinion leaders to encourage and facilitate creation of positive word of mouth [Lyons & Henderson 2005]. Lyons and Henderson [2005] studied opinion leadership in a computer-mediated context and analyzed the differences between online opinion leaders and non-leaders in terms of personal characteristics such as enduring involvement, innovativeness, exploratory behavior and self-perceived knowledge. They found that the opinion leaders in online markets share many characteristics with their traditional counterparts.

In order to exert influence, opinion leaders must be trusted [Nahapiet & Ghoshal 1998], and there is an extensive body of literature that demonstrates that a recipient's advice-taking decision depends on the source's trustworthiness (for a review please refer to Dirks & Ferrin 2001; Mayer et al. 1995). When trust exists, people are more willing to listen to and absorb others' knowledge [Carley 1991; Mayer et al. 1995]. By reducing conflicts and the need to verify information, *trust* also makes knowledge transfer less costly [Currall & Judge 1995; Zaheer et al. 1998]. As a result, *trust* affects a recipient's willingness to accept a source's advice, in both organizational [Levin & Cross 2004] and online settings [McKnight et al. 2002; Smith et al. 2005]. Competence and benevolence have been researched as dimensions of trust [Bart et al. 2004; Ganesan 1994; Levin & Cross 2004]. Trust based on benevolence is more likely to occur between close friends [Currall & Judge 1995; Glaeser et al. 2000; Ma 1985] presumably due to greater emotional bonds [Levin & Cross, 2004]. The impact of benevolence on advice taking was investigated in the context of e-commerce [McKnight et al. 2002]. Both trust dimensions – competence and benevolence can increase the potential for the opinion leader to exert influence on others' decisions [Levin & Cross 2004]. Competence, or expertise, is one of the key traits impacting one's ability to influence others and to function as an opinion leader [Childers 1986; Gibbons 2004]. Numerous researchers have made the distinct association between an endorser's level of expertise and perceived trustworthiness as well as with the perceived influence of the

endorser [Gilly et al. 1998; McCracken 1989; McGinnies & Ward, 1980]. In the context of our specific study, the ‘personal characteristics’ approach could be useful in identifying the opinion leader’s movie-related trustworthiness.

An alternative perception of opinion leadership views it as the product of informational differences between the opinion leaders and the opinion seekers [Lazarsfeld et al. 1944], giving rise to the concept of social embeddedness [Weimann 1994], and suggesting that opinion leaders could be identified based on their structural position in the social network. Based on this approach, opinion leadership could be estimated by calculating ties between group members [Granovetter 1973]. We can distinguish between the role of opinion leaders in influencing members of their core group, and their role as information brokers [Burt 1999] that bridge “structural holes” and influence others outside of their immediate group [Katz 1957]. The influence on opinion leaders in their core group stems from their expertise and trustworthiness. The external influence of opinion leaders, on the other hand, is due to the informational advantages that opinion leaders possess over the others, by virtue of the contacts they have outside of their immediate environment [Burt 1999] and the fact that opinions tend to be homogeneous within groups and heterogeneous between groups [Burt 2004]. The centrality measure of social network analysis [Freeman 2006; Wellman 1997; Wellman & Berkowitz 1988] is used to estimate the relative position of members in a network. Centrality has been shown to impact a person’s willingness to share information [Nov & Wittal 2009; Wasko & Faraj 2005] and is positively related to opinion leadership [Lee & Cote 2009] and knowledge contribution [Levin & Cross 2004]. The centrality of actors in a network could be described by three different measures: *degree*, *betweenness*, and *closeness* centralities [Freeman 1979; Koschutzki et al. 2005; Nooteboom 2007; Sabidussi 1966]. *Degree centrality* is calculated by the total number of ties an actor has, and could be separated into degree for incoming or for outgoing links. Incoming degree centrality could be interpreted as a measure of popularity, while outgoing degree centrality captures a node’s sociability and his ability to influence members of their immediate group. *Betweenness centrality* estimates the probability that an individual lies on a path between any two nodes in the network. It captures a node’s ability to connect two otherwise disconnected sub-networks and influence members outside the immediate group. *Closeness centrality* is defined as the mean geodesic distance (i.e. the shortest path) between the node and all other nodes reachable from it; more central nodes tend to have a high level of *closeness centrality* and thus this measure is often correlated with *degree centrality*. In the context of our study, network centrality could be used to estimate the opinion leader’s position in the professional network.

Prior studies exploring the factors that affect opinion leadership have focused on either professional (i.e. the relationship between one’s position in the professional network and his role in the organizational advice network) [Sparrowe et al. 2001] or leisure-related settings (i.e. the factors determining opinion leadership in a non-work related-setting) [Herring et al. 2005]. Yet, in real-life settings, it is common for the professional and leisure-related social networks to interweave, for instance when a person asks for advice from work colleagues on a personal issue, e.g. finding a daycare for his child. Thus, it is important to distinguish between the antecedents of opinion leadership that stem from one’s position in the professional network and the antecedents that stem from personal characteristics associated with the specific non-work related advice (e.g. experience with local daycares). The factors impacting opinion leadership in such a multifaceted setting have been under-investigated. However, few recent studies provide some important insights. Gibbons [2004] explores friendship and advice networks in the workplace and shows that one’s ability to influence others is affected by both his personal characteristics (i.e. expertise) and his formal organizational role. Klein et al. [2004] also investigate both friendship and work-related advice networks, and discuss how demographics and personality affect one’s centrality in these two networks. Roch [2005] analyzed the characteristics of people with high socio-economic status in addition to the characteristics of the social milieu in which they were located. The results indicate that, while opinion leaders possess attributes that distinguish them from non-leaders, their influence increased mainly due to their informational advantages in relation to the others in the environment, rather than from their personality. Notwithstanding these earlier works that recognize the multifaceted nature of opinion leadership, to date little is known about how these various factors impact one’s ability to influence colleagues on a non-work-related advice. In the following section we try to address this gap in the literature and develop a conceptual model of opinion leadership that considers both the centrality in the professional network and trustworthiness in the context of the non-work-related advice.

3. Proposed Model

Below we propose an integrative theoretical model of opinion leadership that accounts for both the personal attributes and the professional network position of opinion leaders. Our framework is inspired by the works of Nahapiet & Ghoshal [1998] and Wasko & Faraj [2005] on social capital, and Nov & Wittal [2009] on privacy concerns and information sharing. Nahapiet & Ghoshal [1998] developed an integrative framework for creation of new intellectual capital in an organizational context. The relevant social capital dimensions included in their model are: structural (described in terms of social network properties) and relational (which includes elements of trust and

obligations)¹. Wasko & Faraj [2005] studied social capital in electronic networks of practice, and their model includes the dimensions of: structural capital, cognitive capital [i.e. expertise], and relational capital [reciprocity and commitment]. Social capital is a construct closely related to opinion leadership [Burt 1999], and thus we build on these frameworks in developing the proposed model of opinion leadership. Nov and Wittal [2009] developed a model of the antecedents of online privacy concerns, and the impact of privacy concerns on information sharing. They study the antecedents using interpersonal trust and social norms and suggest that both are negatively related to privacy concerns online. We adapt the structural dimension of network centrality from Nahapiet & Ghoshal [1998], and Wasko & Faraj [2005]. We adapt the dimension of trust from Nov & Wittal [2009] and incorporate it as a multi-dimensional construct by incorporating expertise as the relational component from Nahapiet and Ghoshal and the cognitive element from Wasko and Faraj [2005]. Our model differs from Nov and Wittal [2009] in that while they study the impact of trust on information sharing being mediated by community-specific privacy concerns, we study the direct impact of trust on opinion leadership. Our motivation in using benevolence as a dimension of trust, in addition to competence, comes from trust literature that has highlighted its significance in the context of e-commerce [Wang & Benbasat 2007], in the domain of repair of trust caused by negative publicity [Xie & Peng 2007], and based on a meta-analysis of literature on salesperson trust highlighting both competence and benevolence as integral components [Swan et al. 1999]. Following we present the model's hypotheses.

3.1. The Effect of Trustworthiness on Opinion Leadership

Borrowing from the above formulations, our proposed framework includes structural and relational dimensions of opinion leadership. Our conceptualization of the relational dimension of opinion leadership focuses on the perceived trustworthiness of the leader (i.e. a quality of the leader which makes the information recipient willing to be vulnerable) [Mayer et al. 1995]. *Trust* is a multi-dimensional concept [Rousseau et al. 1998; McKnight et al. 2002; Gibbons 2004], and we seek to explore trust's underlying dimensions. We employ the well-accepted trust framework from Mayer et al. [1995], which includes the dimensions of competence, benevolence, and integrity. We restrict our investigation for the dimensions of *competence* (ability of the trustee to do whatever the truster needs), *benevolence* (trustee caring and motivation to act in truster's interests), and *integrity* (trustee honesty and promise keeping). We have decided to concentrate on the dimensions of *benevolence* and *competence*, given the relevance of these dimensions to the social capital opinion leadership context [Levin & Cross 2004; Wasko & Faraj 2005]. *Integrity*, the third trust dimension, is less likely to impact the recipient's likelihood of accepting a source's recommendation, especially for interpersonal interactions, since "it is not clear that the usefulness of knowledge received from another person is contingent on that person following a particular set of principles consistently" [Levin & Cross 2004, p. 1478]. Furthermore, the frameworks serving as a foundation for our proposed model – i.e. Wasko & Faraj [2005] and Nahapiet & Ghoshal [1998] – do not include integrity as a relevant dimension of social capital².

Competence, or expertise, is one of the key traits impacting one's ability to influence others and to function as an opinion leader [Childers 1986; Gibbons 2004]. Competence is described as the source's (perceived) capability of providing correct information [Bristor 1990]. Competence is expected to induce persuasion, because receivers have little motivation to check the veracity of the source's assertions by retrieving and rehearsing their own thoughts [Bristor 1990], especially in cases when the recipient's own domain expertise is low [Bansal & Voyer 2000]. Thus, when a source's domain knowledge is high, the information seeker will be more inclined to receive advice from the source [Gilly et al. 1998; Levin & Cross 2004; Smith et al. 2005]. Jacoby & Hoyer [1981] demonstrated that opinion leaders were indeed more knowledgeable in their area of leadership than other members. Thus, we propose:

H1: Individuals who possess expertise will be perceived as opinion leaders in the domain of their expertise.

A second trust dimension that affects a person's ability to influence others is benevolence. When advice seekers ask for information, they become vulnerable to the benevolence of the knowledge source [Lee 1997], e.g., in terms of their reputation [Burt & Knez 1996]. If the seeker perceives the intentions of the source to be harmful, they would avoid getting advice or opinions from such a source [Levin & Cross 2004]. Trusting a knowledge source to be benevolent will increase the potential for the recipient to learn from the experience [Levin & Cross 2004]. In sum, placing faith in sources' good intentions increases willingness to consider their suggestions [Gibbons 2004], and thus increases the source's ability to exert influence. Thus, we propose:

¹ The third dimension in Nahapiet and Ghoshal's (1998) model of an organization's social capital relates to shared organizational behavior codes, and is irrelevant for our context.

² Despite the evidence from prior studies suggesting that *integrity* may not be relevant here, we did measure *integrity* in our survey. However, we found that in the context of the current study *integrity* is highly correlated with *benevolence*, such that they could not be treated as two distinct constructs and we were not able to include both simultaneously in our model.

H2: Benevolent individuals will be perceived as opinion leaders.

3.2. The Effect of Network Centrality on Opinion Leadership

Theories of collective action and social capital propose that structural links created between individuals through social interactions in a network are important indicators of collective action [Burt 1992; Putnam 1995]. Within a collective, structural capital is also relevant for examining individual actions such as knowledge contribution, in that the more the number of direct ties, the more the propensity for contributing knowledge [Wasko & Faraj 2005]. Katz [1957] argued that the extent of personal influence one can weave over others depends on the people one knows. The structural positions of opinion leaders allow them to exert influence through two mechanisms: (a) influence on their own group members through direct ties, and (b) influence on external group members through their role in bridging otherwise disconnected groups. Following we describe these two mechanisms.

Individuals who maintain contact with many others within the network (direct ties) will be in a better position to influence those others - thus the more ties a person has within a group the more influence he or she can weave in decision making or in opinion leadership, as demonstrated by research on Bloggers [Herring et al. 2005; Marlow 2004]. Moreover, the more central a member's position in the network, the more willing the member would be to contribute knowledge [Levin & Cross 2004]. In addition to their direct influence on own group members, opinion leaders can exert influence on external others. For example, Menzel & Katz [1955] found that the most influential doctors attended more out-of-town meetings and established contacts with distant others [Weimann 1982]. It has been proposed that opinion leaders can become brokers of information, bridging "structural holes" in the network [Burt 1999] and diffusing information and ideas across groups [Nisbet 2005]. Opinion leaders have contacts that other member lack, and therefore have an informational advantage over their peers [Burt 1999]. According to this view, the influence of opinion leaders is due to this information asymmetry. As a result of the two mechanisms described above, the structural position of an individual in the network contributes to his ability to act as an opinion leader. We propose that the advantages that stem from the structural position in the professional network would spill-over to non-work-related advice, such that a central person in the professional network could impact others' opinions on leisure-related matters. Thus, we advance the following hypothesis:

H3: Position in the professional network has an impact on one's perceived opinion leadership in leisure-related advice.

In summary, our proposed model includes direct paths leading to non-work-related opinion leadership originating from: non-work-related competence (H1) and benevolence (H2), as well as centrality in the professional network (H3). We do not expect that centrality in the professional network will be associated with movie-related trustworthiness. However, in order to rule out the alternative hypothesis that non-work-related trustworthiness is affected by professional network centrality (i.e. trustworthiness mediates the relationship between centrality and opinion leadership), we've created two additional paths from network centrality to competence and benevolence. Figure 1 illustrates the proposed model.

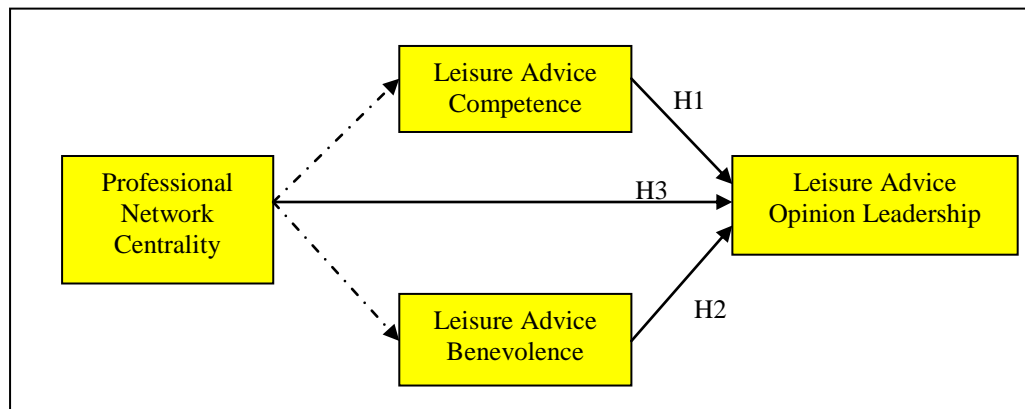


Figure 1: The Proposed Model

Solid lines represent paths hypothesized in our model; dotted lines represent paths created to control for an alternative explanation

4. Research Method

We used the sociometric approach used by Weimann [1994], employing a survey methodology, where people indicate who they would turn to for advice. This approach is suitable for studying opinion leadership, since opinion

leadership is primarily concerned with the leader's influence on others. The survey was conducted in 2006 [Appendix 1]. We recruited 116 participants from among undergraduate students of a large public university in the Middle East. The average age of the participants was 24.5. The youngest participant was 20 years old and the oldest was 28 years old. The students were pursuing an engineering degree and were enrolled in the third year of the program. After jointly taking courses for 2-3 years, social relationships develop, and students are able to assess the characteristics of selected others. The participants were assured that their ratings would be kept private, and that the researchers would strip common identifiers, such as name and email addresses, before beginning data analysis.

The statistical method for testing our hypothesis was Partial Least Squares (PLS) path modeling algorithm. The PLS algorithm estimates path models using composite (or latent) variables from a number of indicator items. We can distinguish between two types of composite variables: reflective and formative. For a reflective variable, the observed indicators are viewed as being caused by some underlying common dimension [Bagozzi 1982; Bagozzi & Fornell 1982; Fornell & Bookstein 1982]. Formative variables, on the other hand, are used when a construct is viewed as an explanatory combination of its indicators. In this case, the construct is defined as a total weighted score across all the items, where each item represents an independent dimension in its own right [Fornell & Bookstein 1982]. A good formative variable, thus, is one that exhausts the entire domain of the construct completely. Compared to covariance-based SEM (such as LISREL), the PLS path modeling algorithm can be used with smaller samples, requires fewer assumptions about data distributions, is robust in case these assumptions are violated [Cassel et al. 1999], and can be used with more complex models containing a larger number of composite variables. In contrast to covariance-based models, such as LISREL, PLS can include in a one model both reflective and formative variables, which make it well-suited for our study.

The structural position of students in the social network was based on interactions rooted in the school context, and was estimated using social network analysis. A social network was created based on subjects' perceived interaction frequency, which is a measure of the relationship strength [Levin & Cross 2004]. The tie strength was measured on a 7-point Likert scale, and then transformed to a [-1, 1] scale. The structural advantage of actors in the network was estimated through the centrality measures [Freeman 2006; Wellman 1997; Wellman & Berkowitz 1988]. As explained in Section 2, an actor's advantage stems from both (a) his direct influence in the local group and (b) the indirect influence resulting from the ability to bridge otherwise disconnected sub-networks. We use the three centrality measures – degree, betweenness, and closeness – which correspond to these different sources of advantage [Freeman 1979; Koschutzki et al. 2005; Nooteboom 2007; Sabidussi 1966]. Degree centrality is based on the total number of ties an actor has, and reflects his direct influence. Betweenness centrality is measured as the probability that an individual lies on a path between any two nodes in the network, and captures the actor's indirect influence. Closeness centrality is measured as the extent to which an actor is close to all other actors, and captures both direct and indirect influence. Since these centrality measures provide a complementary description of an actor's structural advantage, we modeled the structural dimension of opinion leadership as a formative construct that is operationalized using the three centrality measures. We calculated centrality with Freeman's algorithms, based on an outgoing link from a source to a recipient, using the UCINET software [Borgatti et al. 1999].

The specific context for opinion leader's influence was movie advice. The participants were asked to imagine a scenario where they are planning to go out for a movie and would like to seek the prior advice of others. We adopted the methodology used by [Marsden & Campbell 1984], and required participants to choose three sources within their cohort from whom they would likely seek advice on choosing movies. The participants then rated these sources on the trustworthiness and opinion leadership perceptual measures.

The personal characteristics (competence and benevolence) were treated as reflective variables, and measured based on recipient's perceptions, adopting instruments that were used in previous studies [McKnight et al. 2002]. Competence was estimated based on three survey items ("I feel very confident about this person's competence in movies", "Overall, this person is well informed about movies", and "In general, this person is very knowledgeable about movies") using 7-point Likert scales, with 1 indicating 'strongly disagree' and 7 indicating 'strongly agree'. Benevolence was measured similarly using three items ("I believe that this person would act in my best interest", "If I required help, this person would do his/her best to help me", and "This person is interested in my well-being, not just his/her own"). Opinion leaders' movie-related competence and benevolence scores were calculated as an average of the recipients' perceptions.

The dependent variable, movie-related opinion leadership, was treated as reflective variable, and measured based on recipient's perceptions, adopting instruments from Goldsmith & Desborde [1991] and Flynn et al. [1996]. We used two survey items to assess the perceived influence of advice sources in both local and global span ("People in this class are influenced by this person's opinion on movies" and "People are influenced by this person's opinions on movies"), and estimated a source's opinion leadership based on recipients' average ratings.

The survey items administered were translated from English to the local language according to the guidelines proposed by Brislin et al. [1973], as is common in cross-cultural information systems research [Karahanna et al. 2002]. Translation from English to the local language was performed independently by two of the researchers (who are fluent in both languages), and the measures were finalized after the researchers discussed the items to resolve any differences that may have arisen. The items were then translated back from the local language to English by a third party [who is fluent in both languages], thus ensuring correctness of the translation.

5. Results

The psychometric properties of the instrument were analyzed first, before examining the data for hypotheses testing. Table 1 presents the composite reliability, average variance extracted [AVE], and correlations between the composite constructs. The estimates for composite reliability exceeded the recommended threshold of 0.8 [Nunnally 1978] for each of the reflective constructs, thus demonstrating good internal consistency. The convergent validity of the reflective measures were assessed by examining the individual item loadings between an item and its corresponding underlying factor, as well as the average variance extracted [AVE]. All item loadings were greater than the suggested minimum level of 0.7, and the AVE for each construct was substantially greater than the suggested minimum of 0.5 [Fornell & Bookstein 1982]. For the formative variable, network centrality, convergent validity was estimated based on the communality (which was 0.70; above the 0.5 threshold) [Fornell 1992] and item loadings (which were greater than the suggested minimum level of 0.7). These results support the convergent validity of the measures.

Table 1: Psychometric Properties of Constructs

Constructs	Composite Reliability	AVE	Network Centrality	Competence	Benevolence	Opinion Leadership
Professional Network Centrality	NA	NA	NA			
Leisure Advice Competence	0.91	0.76	0.04	0.87		
Leisure Advice Benevolence	0.93	0.82	0.18	0.21	0.91	
Leisure Advice Opinion Leadership	0.88	0.78	0.25	0.50	0.36	0.88

Composite constructs reliability, Average Variance Extracted [AVE], square-root of AVE [on diagonal, in bold], and correlation between the latent constructs.

Discriminant validity was assessed by comparing the square root of the AVE [RAVE] of a particular construct (presented in Table 1 on the diagonal, in bold) and the correlation between that construct and other latent constructs [Fornell & Bookstein 1982] (presented on the off-diagonal position of the table). We found that constructs' RAVE ranges from 0.87 to 0.91, while correlations between constructs do not exceed 0.50. Moreover, RAVE for every construct is substantially higher than the correlation between that construct and all other constructs, thus signifying good discriminant validity.

The research model was then tested using SmartPLS [Ringle et al. 2005]. We specified paths in the PLS structural model corresponding to the relationships hypothesized in our research model. The significance of structural path estimates was computed using the bootstrapping re-sampling method [Tenenhaus et al. 2005]. The structural model was evaluated on the basis of R^2 for each composite latent variable and statistical significance of structural paths. Figure 2 shows the results of the PLS analysis. We found that both non-work-related trustworthiness dimensions – competence (H1) and benevolence (H2) – and professional network centrality (H3) exert a significant positive impact on non-work-related opinion leadership ($P < 0.01$). These three independent variables explain together 36% of the variance of Opinion Leadership. We found that centrality in the professional

network does *not* have a significant impact on non-work-related competence and benevolence, thus the effect of professional network centrality is *not* mediated by the trustworthiness constructs. To test that the model is not affected by exogenous factors, we re-ran the model while controlling for the effects of several variables. We controlled for demographic variables (Age and Gender), subjects' propensities (trust and movie advice-taking), and movie watching behavior (the number of movies watched over the past year). The instruments used for measuring these variables are described in Appendix A. We found that although few of the control variables (i.e. Age and Gender) did exert significant positive impact on opinion leadership, the results for the proposed model still hold in the presence of the controls (i.e. the paths for hypotheses H1, H2, and H3 are still statistically significant), thus increasing our confidence in the proposed model.

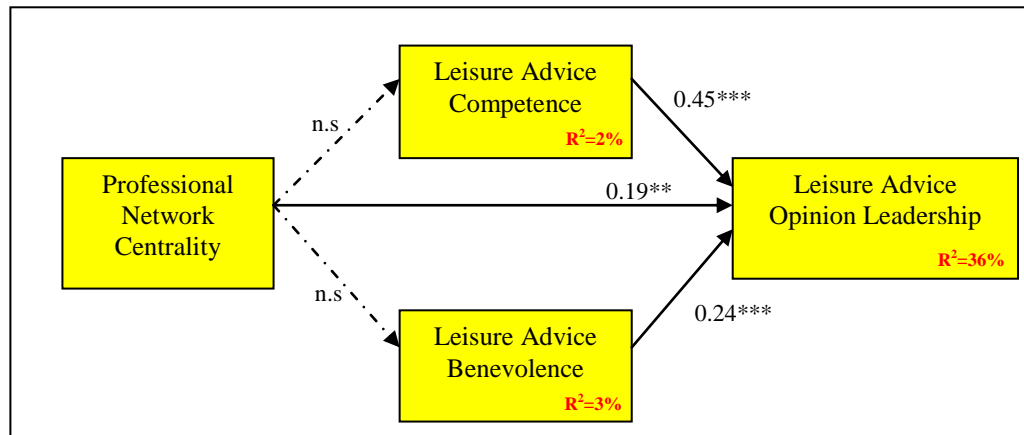


Figure 2: Results of PLS Analysis

' represents significance at $P < 0.05$ and '' represents significance at $P < 0.01$; 'n.s.' indicates a non-significant path.

6. Discussion

In this paper we proposed a model of trustworthiness, network centrality, and opinion leadership in a context where the context for the network centrality (i.e. professional) does not match the specific domain where the opinion leader is looking to exert his influence (i.e. movie advice). Our results indicate that the movie-related influence of an actor stems from both his movie-related trustworthiness and his position in the professional network. The combined effect of these factors is able to explain a large amount of the variance (36%) in the dependent variable. To the best of our knowledge, this is the first study on opinion leadership that demonstrates the concurrent affect of both these dimensions in such a multifaceted setting. Our findings suggest that in these settings the effect of professional network centrality on opinion leadership is direct, and is *not* mediated by movie-related trustworthiness (i.e. the relationships between network centrality and the trustworthiness constructs – competence and benevolence – proved insignificant).

Consistent with extant theory, we found that trustworthiness impacts one's opinion leadership. We found that an actor's competence in the domain of advice is a determinant of his ability to influence others, in line with results from previous studies [Childers 1986; Gibbons 2004; Gilly et al. 1998; Levin & Cross 2004; Smith et al. 2005]. An actor's benevolence in the advice context, too, had a significant impact on opinion leadership. While prior studies have demonstrated the impact of a source's benevolence on the recipient's willingness to accept advice [Gibbons 2004; Levin & Cross, 2004], this is – to the best of our knowledge – the first study to establish a direct link between an actor's benevolence and his ability to influence others.

Interestingly, the structural position of an actor in the professional network, too, was shown to affect his role as a movie-related opinion leader. A significant contribution of our research is that, to our knowledge, it is the first study that demonstrates how opinion leadership is impacted by centrality in a social network that is disconnected with the specific context of influence. Another contribution of this study is in the comprehensive measurement of network centrality. While previous studies on opinion leadership [Herring et al. 2005] have used degree centrality as the sole measure of the structural position, we have modeled network centrality as a formative construct that includes degree, betweenness, and closeness centrality. In this respect, we provided a more complete measure of the advantage gained from one's position in the professional network. From the three centrality measures, degree centrality had the largest impact on the composite construct, betweenness centrality had a secondary effect, and the

contribution of closeness centrality was negligible. Consistent with theory of opinion leadership which argues that an actor's advantage stems from both his direct and indirect effects, we observe the effects of degree centrality (which captures the direct effect) and betweenness centrality (reflecting the indirect effect of the structural position).

The study used university students as participants and the results as such generalize to this target population. Care must be taken in attempting to generalize the results of the study to the general population at large. When the intention is to test the theory and the relationship among constructs (generalizability of theory), a student population is as good an alternative to random sampling from the population of interest [Calder et al. 1982]. However, when one also desires generalizability at the effects level - that is covariances among the constructs of interest - it is desirable to use a sample that is as representative as possible to the population of interest [Calder et al. 1982]. One of the main objectives of this study is to test a particular theory about the impact of network centrality, competence and benevolence on Opinion Leadership and to that extent use of convenient sampling of students is adequate. Generalizability at the effects level is not possible to the larger population of interest and must be confined to the student population.

Our findings suggest that the impact of professional network centrality is independent of the effect of movie-related trustworthiness. Thus, students' centrality in the network that reflects school-related experiences is not linked to their movie-related trustworthiness, and both exert distinct impact on movie-related opinion leadership. This result may be typical of many settings where multiple types of social networks exist. For instance, a person may ask advice on purchasing a car from his working peers. In such a case, both the professional network centrality (that stems from his formal and informal power at the workplace) and trustworthiness associated with the car-advice context are likely to impact one's ability to influence his colleagues on car purchases. The main contribution of our study, thus, to the theory of opinion leadership, is in demonstrating that in cases in which the context where the network position was acquired differs from the specific advice-seeking context, professional network centrality and non-work-related trustworthiness may exert distinct effects on non-work-related opinion leadership.

In addition to the theoretical implications, our findings have direct implications for practice. Marketers often try to identify opinion leaders to help promote their products, and these leaders could be identified through either social network analysis (SNA; see details below) or by accumulating trust ratings (e.g. ePinion web-of-trust, eBay). Our findings highlight the need to distinguish between general network centrality, and trustworthiness in the specific domain of influence, and have implications for information systems that automate the process of influence. To illustrate this, consider a member of Slashdot³, a participatory technology-related news site where members post news stories and are rated on the quality on their stories. One's reputation in Slashdot is based on the ratings of all his/her previous postings. Assume now that a marketer wants to employ this member's opinion leadership to promote a product, e.g. a firewall software application. Our findings suggest that this marketer may need to distinguish between the member's overall reputation score, and reputation accumulated in the context of IT security, and the person's opinion leadership score for the promotion of the firewall software should be calculated as a function of the two distinct reputation scores.

Our results contribute to opinion leadership in different domains. The implications can be extended to opinion leadership in online markets since it has been suggested that opinion leaders in traditional and online marketplaces share similar characteristics [Lyons & Henderson 2005]. In the domain of new product development and marketing, it offers managers insight into the selection of opinion leaders who are effective in influencing consumers' preferences based on their centrality in a network, independent of the context of influence. A significant issue in electronic commerce is that of privacy in online information sharing and disclosure. Research has shown that online privacy concerns are associated with a lower willingness to share information [Nov 2007; Nov & Wittal 2009]. Since e-commerce is based on the efficiency of contributions, it is important to select opinion leaders or lead users who will be motivated to share information, and are confident enough to do so. Centrality has been shown to impact the willingness to share information [Wasko & Faraj 2005]. We add to this body of research by highlighting centrality and personality characteristics as impacting the willingness to share information.

7. Conclusion

Prior research has identified two key indicators of opinion leadership - personal characteristics and structural position in the network - yet this research has been conducted in context of a one-dimensional social network. In this preliminary study, we explored the sources of opinion leadership in a multifaceted setting, revealing the relative roles of centrality in the professional network and trustworthiness (i.e. competence and benevolence) in the context of influence. This study provides a first step in investigating the sources of opinion leadership that are rooted in different social contexts; still, more research in this area is warranted.

³ <http://slashdot.org/>

Additionally, our research highlights the relevance of identifying the sources of opinion leadership, which holds great potential for electronic commerce. It contributes to the body of research on the relevance of word of mouth in influencing decision making. Specifically, in the area of new product innovation and diffusion, opinion leaders influence the decision process through positive word of mouth [Goldsmith & Witt 2003]. It is therefore worthwhile for marketers to identify such opinion leaders and offer means to effectively diffuse the information [Forlani & Parthasarathy 2003].

In the future we would like to validate this study's findings by conducting a more comprehensive evaluation of the proposed model. Specifically, we would like to generalize the findings to other user populations and tasks, mixing between professional networks and leisure-related influence. The study used university students as participants, and the results as such generalize to this type of professional network. While the school context is a valid representation of a professional network, care should be exercised in interpreting our results across other professional settings. In addition, our study was conducted in the movie domain; however, the factors affecting opinion leadership may differ across various leisure domains. For example, it is possible that for utilitarian tasks domain expertise will play a larger role in determining opinion leaders, while in hedonic tasks benevolence will play a more central role. Thus, in order to generalize our results, the proposed model needs to be tested in other domains. We conclude with a call to practitioners to leverage on findings from theories of opinion leadership. We believe that a better understanding of the factors determining one's ability to influence has implications for a variety of practices, such as marketing, management, and politics.

Acknowledgement

The authors thank the Social Sciences and Humanities Research Council (SSHRC) of Canada and the PSC-CUNY program for their support of this project.

REFERENCES

- Assael, H., *Consumer Behavior and Marketing Action*, 3rd ed., Boston: Kent. Athens Laboratory of Business Administration, Athens, Greece, 5-6, 1987.
- Bagozzi, R.P., "The Role of Measurement in Theory Construction and Hypothesis Testing: Toward a Holistic Model," in: C. Fornell (ed.), 1, *A Second Generation of Multivariate Analysis*, New York: Praeger, 5-23, 1982.
- Bagozzi, R.P. and C. Fornell, "Theoretical Concepts, Measurements, and Meaning," in: C. Fornell (ed.), 1, *A Second Generation of Multivariate Analysis*, New York: Praeger, 24-38, 1982.
- Bansal, H.S. and P.A. Voyer, "Word-of-Mouth Processes Within a Services Purchase Decision Context," *Journal of Service Research* Vol. 3, No. 2:166-177, November 2000.
- Bickart, B. and R.M. Schindler, "Internet Forums as Influential Sources of Consumer Information," *Journal of Interactive Marketing*, Vol. 15:31-52, Summer 2001.
- Bilgram, V., A. Brem, and K. Voigt, "User-Centric Innovations In New Product Development - Systematic Identification Of Lead Users Harnessing Interactive and Collaborative Online-Tools," *International Journal of Innovation Management*, Vol. 12, No. 3:419-458, Sept 2008.
- Black, J.S., "Opinion Leaders: Is Anyone Following?" *Public Opinion Quarterly*, Vol. 46:169-176, 1982.
- Borgatti, S.P., M.G. Everett, and L.C. Freeman, "UCINET 5 For Windows: Software for Social Network Analysis," *Analytic Technologies*, Harvard, MA, 1999.
- Brady, H., and P. Sniderman, "Attitude Attribution: A Group Basis for Political Reasoning," *American Political Science Review*, Vol. 79, No. 4:1061-78, 1985.
- Brislin, R.W., W.J. Lonner, and R.M. Thorndike, *Cross-cultural Research Methods*, John Wiley and Sons, New York, NY, 1973.
- Bristor, J.M. "Enhanced Explanations of Word of Mouth Communications: The Power of Relationships," *Research in Consumer Behavior*, Vol. 4:51-83, 1990.
- Brown, J., A.J. Broderick, and N. Lee, "Word of Mouth Communication within Online Communities: Conceptualizing the Online Social Network," *Journal of Interactive Marketing* Vol. 21, No. 3:2-20, 2007.
- Burt, R.S., *Structural Holes: The social Structure of Competition*, Cambridge, MA: Harvard University Press, 1992.
- Burt, R.S., "The Social Capital of Opinion Leaders," *The ANNALS of the American Academy of Political and Social Science*, Vol. 566:37-54, Nov. 1999.
- Burt, R.S., "Structural Holes and Good Ideas," *American Journal of Sociology*, Vol. 110, No. 2:349-399, September 2004.
- Burt, R., and M. Knez, "Trust and Third-Party Gossip," in R.M. Kramer and T.R. Tyler (eds.), *Trust in Organizations: Frontiers of Theory and Research*, Sage Publications, Thousand Oaks, CA, 68-89, 1996.

- Calder, B.J., L.W. Phillips, and A.M. Tybout, "The Concept of External Validity," *Journal of Consumer Research*, Vol. 9:240-244, 1982.
- Calvert, R.C., "The Value of Biased Information: A Rational Choice Model of Political Advice," *Journal of Politics*, Vol. 47, No. 2:530-555, 1985.
- Carley, K., "A Theory of Group Stability," *American Sociological Review*, Vol. 56:331-354, 1991.
- Cassel, C., P. Hackl, and A.H. Westlund, "Robustness of Partial Least-Squares Method for Estimating Latent Variable Quality Structures," *Journal of Applied Statistics*, Vol. 26: 435-446, 1999.
- Chan, K.K., and S. Misra, "Characteristics of Opinion Leaders: A new dimension," *Journal of Advertising*, Vol. 19:53-60, 1990.
- Childers, T. L., "Assessment of the Psychometric Properties of an Opinion Leadership Scale," *Journal of Marketing Research*, Vol. XXIII:184-188, May 1986
- Cheung, M.Y., C. Luo, C.L. Sia, and H. Chen, "Credibility of Electronic Word-of-Mouth: Informational and Normative Determinants of On-line Consumer Recommendations," *International Journal of Electronic Commerce*, Vol. 13, No. 4:9-38, Summer 2009.
- Cook, K.S., and R.M. Emerson, "Power, Equity and Commitment in Exchange Networks," *American Sociological Review*, Vol. 43:721-739, 1978.
- Cross, R., T. Laseter, A. Parker, and G. Velasquez, "Using Social Network Analysis to Improve Communities of Practice," *California Management Review*, Vol. 49, No. 1:32-60, 2006.
- Currall, S., and T. Judge, "Measuring Trust Between Organizational Boundary Role Persons," *Organizational Behavior and Human Decision Processes*, Vol. 64:151-170, 1995.
- De Valck, K., G.H. Van Bruggen, and B. Wierenga, "Virtual Communities: A Marketing Perspective," *Decision Support Systems*, Vol. 47, No. 3:185-203, June 2009.
- Dirks, K.T., and D.L. Ferrin, "The Role of Trust in Organizational Settings," *Organization Science*, Vol. 12, No. 4:450-467, July-August 2001
- Dwyer, P., "Measuring the Value of Electronic Word of Mouth and its Impact in Consumer Communities," *Journal of Interactive Marketing*, Vol. 21, No. 2:63-79, 2007.
- Flynn, L.R., R.E. Goldsmith, and J.K. Eastman, "Opinion Leaders and Opinion Seekers: Two New Measurement Scales," *Journal of the Academy of Marketing Science*, Vol. 24, No. 2:137-147, 1996
- Forlani, D., and M. Parthasarathy, "Dynamic Market Definition: An International Marketing Perspective," *International Marketing Review*, Vol. 20, No. 2:142-160, 2003.
- Fornell, C., "A National Satisfaction Barometer: The Swedish Experience," *Journal of Marketing*, Vol. 56:6-21, 1992.
- Fornell, C., and F.L. Bookstein, "A Comparative Analysis of Two Structural Equation Models: LISREL and PLS Applied to Market Data," in C. Fornell (ed.), *A Second Generation of Multivariate Analysis*, Vol. 1:289-324, New York: Praeger, 1982.
- Freeman, L.C., "Centrality in Social Networks: Conceptual clarification," *Social Networks*, Vol. 1, No. 3:215-239, 1979
- Freeman, L.C., *The Development of Social Network Analysis*, Vancouver: Empirical Press, 2006.
- Ganesan, S., "Determinants of Long-term Orientation in Buyer-Seller Relationships," *Journal of Marketing*, Vol. 58, No. 2:1-19, 1994.
- Gibbons, D.E., "Friendships and Advice Networks in the Context of Changing Professional Values," *Administrative Science Quarterly*, Vol. 49, No. 2:238-262, June 2004
- Gilly, M.C., J.L. Graham, M.F. Wolfinger, and L.J. Yale, "A Dyadic Study of Interpersonal Information Search," *Journal of the Academy of Marketing Science*, Vol. 26, No. 2:83-100, 1998
- Glaeser, E.L., D.I. Laibson, J.A. Scheinkman, and C.L. Soutter, "Measuring Trust," *Quarterly Journal of Economics*, Vol. 115:811-846,
- Goldsmith, R.E., and R. Desborde, "A Validity Study of a Measure of Opinion Leadership," *Journal of Business Research*, Vol. 22, No.
- Granovetter, M.S., "Economic Action and Social Structure: The Problem of Embeddedness," *American Journal of Sociology*, Vol. 91, No. 3:481-510, 1985
- Hedges, T., and S. Chung, "Word-of-Mouth Marketing Will Change Your Business," *Global Cosmetic Industry Magazine*, 48-50, Sept 2009.
- Hellevik, O., and T. Bjørklund, "Opinion leadership and Political Extremism," *International Journal of Public Opinion Research*, Vol. 3:181, 1991

- Hennig-Thurau, T., and G. Walsh, "Electronic Word-of-Mouth: Motives for and Consequences of Reading Customer Articulations on the Internet," *International Journal of Electronic Commerce*, Vol. 8, No. 2:51-74, Winter 2003.
- Hennig-Thurau, T., K. Gwinner, G. Walsh, and D. Gremler, "Electronic Word-of-mouth via Consumer-opinion Platforms: What Motivates Consumers to Articulate Themselves on the Internet?," *Journal of Interactive Marketing*, Vol. 18, No. 1:38-52, 2004.
- Herring, S.C., I. Kouper, J.C. Paolillo, M. Tyworth, E. Wright, and Y. Ning, "Conversations in the Blogosphere: An Analysis from the Bottom Up," *Proceedings of the 38th Annual Conference on System Sciences*, HICSS '05, Hawaii, 2005
- Hus, L., and C. Wang, "A Study of e-Trust in Online Auctions," *Journal of Electronic Commerce Research*, Vol. 9, No. 4:310-321, 2008
- Infante, D.A., A.S. Rancer, and D.F. Womack, *Building Communication Theory*, 3rd ed., Prospect Heights, IL: Waveland Press, Inc., 361-363, 1997
- Jacoby, J., and W.D. Hoyer, "What if Opinion Leaders Didn't Know More? A Question of Nomological Validity," *Advances in Consumer Research*, Vol. 8, No. 1:299-303, 1981.
- Karahanna, E., R. Evaristo, and M. Srite, "Methodological Issues in MIS Cross-Cultural Research," *Journal of Global Information Management*, Vol. 10, No. 1:48-55, 2002.
- Katz, E., "The Two-Step Flow of Communication: An Up-To-Date Report on an Hypothesis," *Public Opinion Quarterly*, Vol. 21:61-78, 1957.
- Katz, E., and P.F. Lazarsfeld, *Personal Influence: The Part Played by People in the Flow of Mass Communications*, Glencoe, IL: Free Press, 1955.
- Keller, E.B., and J.L. Berry, *The Influentials: One American in Ten Tells the Other Nine How To Vote, Where To Eat, and What To Buy*, New York: Simon & Schuster, 2003.
- Klein, K.J., Lim, B., Saltz, J.L. and Mayer, D.M., "How Do They Get There? An Examination of the Antecedents of Centrality in Team Networks," *Academy of Management Journal*, Vol 47, No. 6:952-963, 2004
- Kopller, K. *Opinion Leaders*, Hamburg, Heinrich Bauer Verlag, 1984
- Koschützki, D., K.A. Lehmann, L. Peeters, S. Richter, D. Tenfelde-Podehl and O. Zlotowski, Centrality Indices, in U. Brandes and T. Erlebach (eds.), *Network Analysis: Methodological Foundations*, 16-61, LNCS 3418, Springer-Verlag, 2005
- Lazarsfeld, P.F., B. Berelson and H. Gaudet, *The People's Choice: How the Voter Makes Up His Mind In a Presidential Campaign*, New York: Columbia University Press, 1944.
- Lee, F., "When the Going Gets Tough, Do the Tough Ask for Help? Help Seeking and Power Motivation in Organizations," *Organizational Behavior and Human Decision Processes*, Vol. 72, No. 3:336-363, December 1997.
- Lee, S.H., and J. Cotte, Moderating Role of Member Identification on the Relationship Between Network Centrality and Opinion Leadership/Satisfaction, *Advances in Consumer Research*, Vol. 36:983-984, 2009.
- Levin, D.Z., and R. Cross, "The Strength of Weak Ties You can Trust: The Mediating Role of Trust in Effective Knowledge Transfer," *Management Science*, Vol. 50, No. 11:1477-1490, 2004.
- Lyons, B., and K. Henderson, "Opinion Leadership in a Computer-mediated Environment," *Journal of Consumer Behavior*, Vol. 4, No. 5:319-329, 2005.
- Ma, H.K., "Cross-cultural Study of the Hierarchical Structure of Human Relationships," *Psychological Reports*, Vol. 57:1079-1083, 1985.
- Marlow, C., "Audience, Structure and Authority In the Weblog Community," Paper presented at the *International Communication Association Conference*, May 27-June 1, New Orleans, LA, 2004.
- Marsden, P., and K. Campbell, "Measuring Tie Strength," *Sociological Forces*, Vol. 63:482-501, 1984.
- Mayer, R.C., J.H. Davis, and F.D. Schoorman, "An Integrative Model of Organizational Trust," *Academy of Management Review*, Vol. 20, No. 3:709-734, 1995.
- McCracken, G., "Who is the Celebrity Endorser? Cultural Foundations of the Endorsement Process," *Journal of Consumer Research*, Vol. 16: 310-321, Dec 1989
- McGinnies, E., and C. Ward, "Better Liked than Right: Trustworthiness and Expertise in Credibility," *Personality and Social Psychology Bulletin*, Vol. 6:467-472, Sept 1980.
- McKnight, H.D., V. Choudhury, and C. Kacmar, "Developing and Validating Trust Measures for E-Commerce: An Integrative Typology," *Information Systems Research*, Vol. 13:334-359, Sept 2002.
- Menzel, H. and E. Katz, "Social Relations And Innovation In the Medical Profession: The Epidemiology of a New Drug," *Public Opinion Quarterly*, Vol. 19, No. 4:337-52, 1955.

- Morrison, P.D., J.H. Roberts, and E. von Hippel, "Determinants of User Innovation and Innovation Sharing in a Local Market," *Management Science*, Vol. 46, No. 12:1513-1527, 2000.
- Nahapiet, J., and S. Ghoshal, "Social Capital, Intellectual Capital, and the Organizational Advantage," *Academy of Management Review*, Vol. 23, No. 2:242-266, 1998.
- Nisbet, E.C., "The Engagement Model of Opinion Leadership: Testing Validity within a European Context," *International Journal of Public Opinion Research*, Vol. 18, No. 1:3-30, 2005.
- Nooteboom, B., "Social Capital, Institutions, and Trust," *Review of Social Economy*, Vol. LXV, No. 1:29-53, March 2007.
- Nov, O., "What Motivates Wikipedians," *Communications of the ACM*, Vol. 50, No. 11:60-64, 2007.
- Nov, O., and S. Wittal, "Social Computing Privacy Concerns: Antecedents and Effects," *Proceedings of the 27th International Conference on Human Factors in Computing Systems*, 333-336, 2009.
- Nunnally, J.C., *Psychometric Theory*, 2nd ed., New York: McGraw-Hill, 1978.
- Oygaard, L. "Divorce Support Groups: What Factors are of Importance regarding Friendship Development in the Groups?" *Social Work with Groups*, Vol. 26, No. 4, 2003.
- Putnam, R., "Tuning in, Tuning Out: The Strange Disappearance of Social Capital in America," *Political Science and Politics*, 664-683, December 1995.
- Richins, M.L., and T. Root-Shafer, "The Role of Involvement and Opinion Leadership in Consumer Word-of-Mouth: An Implicit Model Made Explicit," *Advances in Consumer Research*, Vol. 15:32-36, 1988.
- Ringle, C.M., S. Wende, and S. Will, SmartPLS 2.0, Hamburg <http://www.smartpls.de>, 2005.
- Roch, C., "The Dual Roots of Opinion Leadership," *The Journal of Politics*, Vol. 67, No. 1:110-131, February 2005.
- Rogers, E.M., *Diffusion of innovations*, Fourth Edition, New York: The Free Press, 1995.
- Rogers, E.M., and D.G. Cartano, "Methods of Measuring Opinion Leadership," *Public Opinion Quarterly*, 435-441, Fall 1962.
- Rousseau, D.M., S.B. Sitkin, R.S. Burt, and C. Camerer, "Not So Different After All: A Cross-Discipline View of Trust," *Academy of Management Review*, Vol. 23, No. 3:393-404, 1998
- Sparrowe, R.T., S.J. Wayne, and M.L. Kraimer, "Social Networks and the Performance of Individuals and Groups," *Academy of Management Journal*, Vol. 44, No. 2:316-325, 2001.
- Sabidussi, G. "The centrality Index of a Graph," *Psychometrika*, Vol. 31:581-603, 1966
- Shah, D., and D.A. Scheufele, "Explicating Opinion Leadership: Non Political Dispositions, Information Consumption, and Civic Participation," *Political Communication*, Vol. 23:1-22, 2006
- Smith, D., S. Menon and K. Sivakumar, "Online, Peer and Editorial Recommendations, Trust and Choice in Virtual Markets," *Journal of Interactive Marketing*, Vol. 19, No. 3:15-37, Summer 2005.
- Solomon, M.R., *Consumer Behavior: Buying, Having, and Being*, Upper Saddle River, NJ: Prentice Hall, 1999.
- Spann, M., H. Ernst, B. Skiera, and J.H. Soll, "Identification of Lead Users for Consumer Products via Virtual Stock Markets," *Journal of Product Innovation Management*, Vol. 26, No. 3:322-335, 2009.
- Summers, J.O. "The Identity of Women's Clothing Fashion Opinion Leaders," *Journal of Marketing Research*, Vol. 7:178-185, 1970.
- Swan, J.E., M.R. Bowers, and L.D. Richardson, "Customer Trust in the Salesperson: An Integrative Review and Meta-analysis of the Empirical Literature," *Journal of Business Research*, Vol. 44, No. 2:93-107, 1999.
- Tenenhaus, M., V.E. Vinzi, Y.M. Chatelin, and C. Lauro, "PLS Path Modeling," *Computational Statistics and Data Analysis*, Vol. 48: 159-205, 2005.
- Valente, T., *Network Models of the Diffusion of Innovations*, Cresskill, NJ: Hampton Press, 1995.
- von Hippel, E., "Lead Users: A Source of Novel Product Concepts," *Management Science*, Vol. 32, No. 7:791-805, 1986.
- von Hippel, E., *The Sources of Innovation*, New York: Oxford University Press, 1988
- Wasko, M.M., and S. Faraj, "Why should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice," *MIS Quarterly*, Vol. 29, No. 1:35 - 57, March 2005.
- Wang, W., and I. Benbasat, "Recommendation Agents for Electronic Commerce: Effects of Explanation Facilities on Trusting Beliefs," *Journal of Management Information Systems*, Vol. 23, No. 4:217-246, Spring 2007.
- Weimann, G. "On the Importance of Marginality: One More Step into the Two-Step Flow of Communication," *American Sociological Review*, Vol. 47, No. 6:764-73, 1982.
- Weimann, G., *The Influentials*, Albany, NY: State University of New York Press, 1994.
- Wellman, B., An Electronic Group is Virtually a Social Network, in S. Kiesler (ed.), *Culture of the Internet*, Lawrence Erlbaum, 179-205, 1997
- Wellman, B., and S.D. Berkowitz (eds). *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, 1988

Westbrook, R.A., “Product/consumption-based Affective Responses and Postpurchase Processes,” *Journal of Marketing Research*, Vol. 24, No. 3:258–270, August 1987.

Westphal, J. D., “Collaboration in the Boardroom: The Consequences of Social Ties in the CEO/board Relationship,” *Academy of Management Journal*, Vol. 42:7-24, 1999

Xie, Y., and S. Peng, “How to Repair Customer Trust After Negative Publicity: The Roles of Competence, Integrity, Benevolence, and Forgiveness,” *Psychology and Marketing*, Vol. 26, No. 7:572–589, July 2009.

Zaheer, A., B. McEvily and V. Perrone, “Exploring the Effects of Interorganizational and Interpersonal Trust on Performance,” *Organization Science*, Vol. 9:141-159, 1998

Zaller, J., *The Nature and Origins of Mass Opinion*, Cambridge: Cambridge University Press, 1992.

Zhou, L., W.K. Chiang, and D. Zhang, “Discovering Rules for Predicting Customers’ Attitude toward Internet Retailers,” *Journal of Electronic Commerce Research*, Vol. 5, No. 4:228-238, 2004

APPENDIX

Survey

	Construct	Survey Item
Model	Centrality in the Social Network	[to form the network] How often did you communicate with this person
		Degree Centrality
		Closeness Centrality
		Betweenness Centrality
	Competence	I feel very confident about this person's competence in movies.
		Overall, this person is proficient in movies
		In general, this person is very knowledgeable about movies
	Benevolence	I believe that this person would act in my best interest.
		If I required help, this person would do his/her best to help me
		This person is interested in my well-being, not just his/her own
	Opinion Leadership	People in this class are influenced by this person’s opinion on movies
		People in Israel are influenced by this person’s opinions on movies
	Controls	Gender
Age		[hard data]
Movie Recommendation Propensity		I believe what others tell me regarding movies
		I rely on others when making decisions about what movies to choose
Trust Propensity		I usually trust people unless they give me a reason not to trust them
		My typical approach is to trust new acquaintances unless they prove I should not trust them
Movie Watching Behavior	How many movies have you watched in the past 12 months?	