

# The Antecedents of Opinion Leadership Indicators in Social Networks

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## Abstract

*Opinion leaders can be defined as those who exert an unequal amount of influence on the decision of others. Two approaches for identifying opinion leadership have been i) to explicitly ask people to identify the personal sources from which they would accept advice and analyze the reasons behind such behavior, and ii) to identify the social relations between users in the social network in which the opinion leaders are embedded, and analyze the opinion leadership qualities based on the structural characteristics. However, there is very little research that really integrates the two approaches. This paper develops a theoretical framework of opinion leadership by integrating the structural and the personal indicators. We propose that, in addition to the personal characteristics of opinion leaders such as expertise and benevolence, there are structural characteristics of the social network to which they belong, which further impacts opinion leadership. These structural characteristics may stem from direct ties between users that emanates from the position of the opinion leader within the network (degree centrality), or indirect ties resulting from contacts established outside of the immediate network. Such indirect ties relate to the relationships between networks (betweenness centrality). We conducted a survey to test the research model and plan to use structural equation model to analyze the data. The results will have implications for theory and practice in the arena of opinion leadership.*

**Keywords:** social network, opinion leader, social network analysis, centrality

## 1. Introduction

With the advent of the internet era, information has become abundant and ubiquitous to such an extent that it has created an information overload on the cognitive capabilities of society. It is therefore natural that people look for ways to selectively filter the relevant from the redundant to assist in decision making. Reputation systems are among those that play an integral role in reducing the burden of information overload by offering users with coherent and relevant information set, as seen in online stores such as Amazon, ePinion, and NetFlix. The design of these systems is, for the major part, based on social approaches (Resnick and Varian, 1997; Herlocker et al., 2004) that rely on gathering information by identifying those whose advice is

considered relevant in influencing decisions (the opinion leaders), recording their behavior patterns, and then making predictions on the preferences of the users.

A crucial question in this context then becomes “Who exactly are these relevant others – the opinion leaders - who represent potential information sources?” Opinion leaders are defined as “individuals who exert an unequal amount of influence on the decision of others” (Rogers and Cartano, 1962, p. 435). In studies on opinion leadership, there are two relevant parties – the opinion seeker or the recipient who seeks advice/information and the opinion source or the leader who gives the advice/information (Flynn et al., 1996). The underlying premise in this area of study is that the other people seek and then follow the advice of the opinion leaders (Flynn et al., 1996).

In identifying opinion leadership as a crucial factor in influencing decision making, research has used two alternative approaches. One approach is to ask the users to explicitly identify the personal sources from which they would accept advice and analyze the reasons behind such behavior in terms of personal characteristics such as charisma, competence, or benevolence. This approach is applicable when there is direct interaction between every recipient and source. In other cases such as multi-agent systems where direct interaction is not always possible, the other approach is to use the Social Network Analysis (SNA) to identify opinion leaders by studying the social relations among the users in a social network. A social network is a conglomeration of social actors at different levels (e.g. people, organizations, communities, nations) and a set of social relationships (e.g. trust, friendship, communication, social support etc.) among them. SNA is the mapping and measuring of relationships and flows between these social actors. In social networks, there is a wealth of personal relationships and ties that develop, between the members, over time, and form the basis for trust, cooperation and collective action in such communities. The collective value from such networks is referred to as social capital (Putnam, 1995). Based on structural characteristics from such a network, opinion leadership qualities are then diagnosed.

There is very little research that really integrates the two approaches, namely the social network approach or the structural approach and the personal-characteristic analysis approach. The goal of this paper is to develop a theoretical framework using a combination of personal characteristics of the opinion leaders and structural characteristics of the network in identifying such leaders (using the SNA), and thus contribute to the gamut of opinion leadership research.

The paper is organized as follows. Section 2 reviews some 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 concludes with the status of this research as well as offers future research directions.

## **2. Related Research**

The theory of opinion leadership basically came out of the two-step model of mass communication proposed by Katz (1957). The two step model discusses how media messages first get consumed by people who act as opinion leaders in their area of expertise, and then get 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 such as the innate beliefs or attitudes of the opinion leaders. Therefore, in the areas of consumer marketing and advertising,

opinion leaders form a very influential target in communication of product information to the community.

### ***2.1 Sources of Opinion Leadership***

Initial work on opinion leadership has viewed it as an individual characteristic with relational implications (Shah and Scheufele, 2006). The focus was on the social interactions stemming from one's status or role in a group setting. Some of the definitions of an opinion leader include one who exerts influence on the opinions of others (Hellevick and Bjorklund, 1991); and, one who is found at every level of society and are much like the people they influence (Katz, 1957). Opinion leadership is also viewed as a product of the informational differences between the opinion leaders and the opinion seekers (Lazarsfeld et al., 1944). Opinion leaders possess information advantages (Burt, 1999) compared to other citizens, because of the contacts they have outside of their immediate environment. Also, Burt (2004) proposes that behavior and opinions tend to be homogenous within groups and heterogeneous between groups, and therefore people who are connected across groups, like opinion leaders, have more access to a variety of ideas and information. Such opinion leaders will serve as bridges between the structural holes. Opinion leaders may thus be perceived as opinion brokers who "carry information across the social boundaries between groups" (Burt, 1999, p.1).

### ***2.2 Two Approaches to Measuring Opinion Leadership***

One approach to measure opinion leadership has been to explicitly ask people to identify the personal sources from which they would accept advice and analyze the reasons behind such behavior, in terms of similarities in personal characteristics. Another has been to identify the relations between users in the social network in which the opinion leaders are embedded, and analyze the opinion leadership qualities based on the structural characteristics of the network (social network analysis).

The interest on the social embeddedness (Weimann, 1991) of opinion leadership arose from the research on social networks that became popular with the growth of the internet. Opinion leadership in this context is measured by the number of ties to different social networks or groups, or the density of their social relations (Weimann, 1991) within the network. Outside of their immediate social network, opinion leaders have been said to play a brokerage role (Burt, 1999) in connecting otherwise disconnected networks. We incorporate this brokerage concept in our research by focusing not only on the direct ties within the social network but also on indirect ties outside of the immediate network and between networks. The direct ties are a component of how centrally located the opinion leaders are within the network while the indirect ties indicate the weave of influence that opinion leaders are able to weave externally through contacts in other networks (Katz, 1957).

However, in keeping with the dichotomous approach of the research, we also incorporate the idea that the development of ties and relationships depends on personal attributes of the leaders. Research has used personal attributes such as socioeconomic status, media habits (Koppler, 1984), level of political involvement and political knowledge, likeability, elite status and known issue biases. In the current research, we focus on the personal indicators of expertise in the domain of movie watching and benevolence which indicates the perception of the leader's behavior being in the best interest of the advice seeker.

### **3. Research Model**

Several frameworks have been proposed for social capital and opinion leadership in the context of knowledge contribution, organizational performance and politics. Nahapiet and Ghoshal (1998) developed an integrative framework for knowledge contribution in the context of organizational social capital. They looked at the dimensions of structural, cognitive and relational social capital. While structural dimension covered the properties of the network itself such as configuration, the cognitive dimension looked at shared codes, narratives, and languages and the relational dimension included the elements of trust, norms and obligations.

While Nahapiet and Ghoshal's (1998) framework refers to the creation of intellectual social capital within an organizational context, Wasko and Faraj (2005) propose that social capital is also relevant for explaining individual level knowledge contribution in electronic networks of practice through the web of relationships that get created between the members. The components of the Wasko and Faraj (2005) model include individual motivation in the form of reputation and tendency to enjoy helping, structural capital in the form of relationships created through the links in the network, cognitive capital in the form of self-rated expertise and tenure in the field, and relational capital in the form of reciprocity and commitment.

In the current research, inspired by Wasko and Faraj (2005), we adapt Nahapiet and Ghoshal's (1998) structural capital at the organizational level to the individual level, based on the premise that an individual's position in the network has an impact on the evolution of direct and indirect ties which in turn impacts opinion leadership. In addition to the structural components, since social networks are basically composed of the human elements, we further base our research on the fact that certain personal characteristics of the members, in particular, expertise and benevolence, impact the creation and dissemination of opinion leadership. In a nutshell, the research looks at both the personal and the structural dimensions and their propensity to impact opinion leadership.

#### ***3.1 Structural Dimension - Direct Ties***

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, 1999; Putnam, 1995). In structural social capital, direct ties measure the direct contacts that members have with each other in the network while the indirect ties measure the contact that members have outside of the immediate environment. In the context of the current research, a social link or a *tie* is created when one person volunteers the name of another within the network as someone whom he or she would seek advice from.

There is disagreement regarding the role of *tie strength* on advice quality. Tie strength is a concept that symbolizes the closeness and interaction frequency between the opinion seeker and the opinion source in a network (Granovetter, 1973; Hansen, 1999). While some studies demonstrate that strong ties are important conduits of useful knowledge (Hansen 1999), others argue that weak ties are essential for exposing a recipient for new knowledge (Granovetter 1973). We believe that this conflict could be resolved by decomposing tie strength into its various dimensions, and investigating the distinct impact of each dimension on opinion

leadership. The different dimensions of tie strength we examine in this research include closeness, intensity, duration and frequency.

Research has suggested that the more central a member's position in the network the more the member will be willing to contribute knowledge (Levin and Cross, 2004). Individuals who maintain contact with many others within the network will be in a better position to influence those others. The more ties a person has within a group the more influence he or she can weave in decision making or opinion leadership. Lazarsfeld and Merton (1954), in a seminal work on *homophily*, argue that most human communication will occur between a source and a seeker who are similar. Opinion and information are said to be homogeneous within a group and people tend to seek advice from others who are homophilous to them, we hypothesize that:

*H1: Individuals who have more direct ties and maintain relationships with many others will be able to influence others (i.e., become opinion leaders).*

### **3.2 Structural Dimension - Indirect Ties**

In the subject of personal influence, as mentioned earlier, influence is related to who one is, what one knows and whom one knows (Katz, 1957). The third criteria of whom one knows indicates a dual dimension as to accessibility within the group and accessibility outside of the group. While opinion leaders are highly accessible within the group and are in a central position in the network, studies have suggested that influence arises also from contacts that are established outside the group. Menzel and Katz (1955) found that influential doctors were likely to attend more out-of-town meetings and maintain contacts with diverse places (Weimann, 1991).

Burt (1999) proposed three dimensions of opinion leadership, namely, information-giving, information-seeking, and social relations in his definition of opinion leaders as information brokers. In this context, opinion leaders become exchangers of information through their information giving and seeking behaviors across rather than within a social context. They diffuse information and ideas (Nisbet, 2005) and bridge social ties in general (Granovetter, 1973) across groups.

In the same context, opinion leaders not only have multiple contacts outside of the group but have such contacts that other member lack and are therefore at an informational advantage due to this (Burt, 1999). Therefore a person who has extensive contacts and is an opinion leader in one group may not be so in a second group that has other members with equal access to valuable information (Roch, 2005). Therefore we hypothesize that:

*H2: Individuals in a group that maintain relationships with disconnected groups will be able to influence others and become opinion leaders in that group.*

### **3.3 Personal Dimension - Expertise**

Several studies have been done on the role that expertise plays in opinion leadership. Expertise is the extent to which the source is perceived as being capable of providing correct information, and expertise 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. Expertise is therefore the perceived knowledge that a person possesses in a specific domain, which in turn impacts the influence that he or she weaves on the decision of another. If the source's knowledge

in a domain is expected to be high, then the seeker of the information or opinion will be more inclined to receive advice from the source (Gilly et al., 1998).

However, the expertise that a person possesses is not a universally applicable characteristic. It varies across domains, contexts and situations. Jacoby and Hoyer (1981) found that opinion leadership in regard to stereo equipment is positively related to knowledge about the product category. They also proved that opinion leaders were more knowledgeable in the area of leadership than other members, thus making it possible for them to be perceived experts in the particular domain of interest. If a member's expertise is valued by others in a group, they assume a central influencing role in the advice network.

Personal expertise in a product domain is suggested to be positively correlated with opinion leadership since it leads to acquisition of complex knowledge structures in the domain which in turn helps in the person contributing to the decision process (i.e., becoming an opinion leader) (Childers, 1986). Shah and Scheufele (2006) propose that opinion leadership is deeply engrained in the intellectual, cultural and technical expertise that members hold within the social network since such expertise tends to reinforce perceptions of opinion leadership.

Bansal and Voyer (2000) distinguish between the expertise of the source and that of the receiver. The greater the source's expertise, the greater will be the influence of the source's word of mouth on the receiver's decision. At the same time, the greater the receiver's expertise, the less will be the level of influence that the source weaves on the receiver's decision. However, in this paper, we only focus on the source's level of expertise and the influence that it weaves on the receiver's decision – that is, on the opinion leadership of the source in terms of how proficient the leader is perceived to be in movies and how much confidence the seeker has in the leader's expertise in movies. Expertise has also been shown to affect the receiver's advice taking process in a variety of settings (Gilly et al., 1998; McKnight et al., 2002; Smith et al., 2005). Based on these we hypothesize that:

*H3: Individuals that possess expertise will be able to influence others (i.e., become opinion leaders) in the domain of their expertise.*

### **3.4 Personal Dimension – Benevolence**

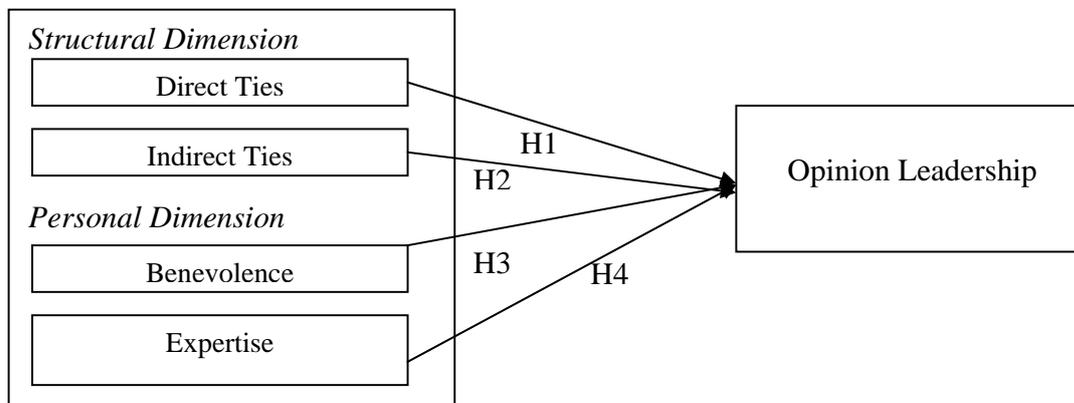
Benevolence has been an important indicator in studies of advice seeking or information seeking. Levin and Cross (2004, p. 1479) have suggested that trusting a knowledge source to be "benevolent and competent should increase the chances that the knowledge receiver will learn from the interaction". When advice seekers or opinion seekers ask for advice or information, they become vulnerable to the benevolence of the knowledge source (Lee, 1997). Also, in most cases, it is not a straightforward act of approaching people for help as and when information or advice is needed. Oftentimes, people do not seek help or information since such an act is implicative of incompetence and dependence and thereby associated with powerlessness (Lee, 1997). Simonin (1999) proposed that a seeker needs to trust the source in sharing information or advice that is sought. If the seeker feels that the intentions of the source are such that they perceive harm in getting help, they would refrain from acquiring advice or information from such a source (Levin and Cross, 2004). On the other hand, if the seeker believes that the intentions of the source are benevolent then there is more motivation to approach for help. In such matters, placing faith in the source's good intentions increases the willingness to acquire advice and consider the suggestions.

Specifically, the effect of benevolence on advice taking was observed in the context of e-commerce (McKnight et al., 2002). Benevolence was described here as the extent of caring that the opinion source has towards the seeker and his or her motivation to act in the interests of the advice seeker. We hypothesize in the context of opinion leadership that

*H4: Benevolent individuals will be able to influence others (i.e., become opinion leaders).*

In summary we propose a model of opinion leadership that includes relations between a set of structural (direct ties and indirect ties) and personal characteristics (expertise and benevolence) indicators and opinion leadership. Figure 1 shows the proposed model. The hypotheses are indicated along the links.

**Figure 1. Proposed Research Model**



#### 4. Research Method

Since opinion leadership is primarily about influencing others, we used the sociometric method that involves asking people about who they would turn to for advice. Several studies have used sociometric method in the context of opinion leadership (Vernette, 2004). The current research employs a survey methodology to test the hypotheses proposed in the previous section.

We recruited 116 participants (28 women and 68 men) from among undergraduate students of a large public university in Israel. 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 asked to imagine a scenario where they are planning to go out for a movie and that they would like seek the prior advice of others. We adopted the methodology used by Marsden and 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 relevant perceptual measures tested in the research model. The participants were assured that their ratings would be kept private, and that to the researchers would strip common identifiers, such as name and email addresses, before beginning data analysis.

## 5. Conclusion

Once the data is cleaned, the hypotheses will be tested using the *Partial Least Squares* (PLS) path modeling algorithm. The PLS algorithm estimates path models using composite variables, sometimes called latent variables, from a number of indicator items, sometimes called manifest variables. We expect to complete the data analysis by end of November and if given an opportunity to present our research in the workshop, we will present the results of our analysis at the workshop.

The current study is important from several perspectives. Firstly, it offers an integrative view of opinion leadership using the two dimensions of personal characteristics of opinion leaders and structural characteristics of the social network in which they are embedded. Secondly, such an understanding would have long standing implications for grounding system design in theory as suggested by Hevner et al. (2004).

## References

1. Burt, R.S. "The Social Capital of Opinion Leaders," *The ANNALS of the American Academy of Political and Social Science*, 566, Nov. 1999, pp. 37-54.
2. Burt, R.S. "Structural Holes and Good Ideas," *American Journal of Sociology*, 110(2), September 2004, pp. 349-399.
3. Childers, T.L. "Assessment of the psychometric properties of an Opinion Leadership Scale," *Journal of Marketing Research*, Vol. XXIII, May 1986, pp. 184-188.
4. Flynn, L. R., Goldsmith, R.E., and Eastman, J.K. "Opinion Leaders and Opinion Seekers: Two New Measurement Scales," *Journal of the Academy of Marketing Science*, 24 (2), 1996, pp. 137-147.
5. Gilly, M.C., Graham, J.L., Wolfinger, M.F., and Yale, L.J.. "A Dyadic Study of Interpersonal Information Search," *Journal of the Academy of Marketing Science*, 26(2), 1998, pp. 83-100.
6. Granovetter, M.S. "The Strength of Weak Ties," *American Journal of Sociology*, 73, 1973, pp. 1360-1380.
7. Hansen, M. T. "The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits," *Administrative Science Quarterly*, 44, 1999, pp. 82-111.
8. Hellevik, O., and Bjørklund, T. "Opinion leadership and political extremism," *International Journal of Public Opinion Research*, 3, 1991, pp. 157-181.
9. Herlocker, J.L., Konstan, J.A., Terveen, L.G., and Riedl, J. R.T. "Evaluating Collaborative Filtering Recommender Systems", *ACM Transactions on Information Systems* 22(1), Jan 2004, pp. 5-53.
10. Hevner, A., March, S., Park, J. and Ram, S. "Design Science in Information Systems Research," *MIS Quarterly* 28(1), 2004, pp. 75-105.
11. Jacoby, J., and Hoyer, W.D. "What if Opinion Leaders Didn't Know More? A Question of Nomological Validity," *Advances in Consumer Research*, 8(1), 1981, pp. 299 - 303.
12. Katz, E. "The two-step flow of communication: An up-to-date report on an hypothesis," *Public Opinion Quarterly*, 21, 1957, pp. 61-78.

13. Koppler, K. *Opinion Leaders*, Hamburg, Heinrich Bauer Verlag, 1984.
14. Lazarsfeld, P. F., Berelson, B., and Gaudet, H. *The people's choice: How the voter makes up his mind in a presidential campaign*. New York: Columbia University Press, 1944.
15. Lazarsfeld, P.F., and Merton, R.K. "Friendship as A Social Process: A Substantive and Methodological Analysis," In *Freedom and Control in Modern Society*, M Berger (eds.), Van Nostrand, New York, 1954, pp. 18–66.
16. 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* (72:3), Dec 1997, pp. 336–363.
17. Levin, D. Z., and Cross, R. "The Strength of Weak Ties You can Trust: The Mediating Role of Trust in Effective Knowledge Transfer," *Management Science*, 50(11), 2004, pp. 1477-1490.
18. Marsden, P., and Campbell, K. "Measuring Tie Strength," *Sociological Forces* (63), 1984, pp. 482-501.
19. McKnight, D.H. Choudhury, V., and Kacmad, C. "Developing and Validating Trust Measures for E-commerce," *Information Systems Research*, (13:3), Sept 2002, pp. 334-359.
20. Menzel, H., and Katz, E. "Social Relations and Innovation in the Medical Profession: The Epidemiology of a New Drug." *Public Opinion Quarterly* 19(4), 1955, pp. 337–52.
21. Nahapiet, J. and Ghoshal, S. "Social Capital, Intellectual Capital, and the Organizational Advantage," *Academy of Management Review*, 23(2), 1998, pp. 242-266.
22. Nisbet, E.C. "The Engagement Model of Opinion Leadership: Testing Validity within a European Context," *International Journal of Public Opinion Research*, 18(1), 2005, pp. 3-30.
23. Putnam, R. D. "Bowling alone: America's declining social capital," *Journal of Democracy*, 6, 1995, pp. 65-78.
24. Resnick, P. and Varian, H. "Recommender Systems (Introduction to Special Section)," *Communications of the ACM*, 40(3), 1997, pp. 56-58.
25. Roch, C. "The Dual Roots of Opinion Leadership," *The Journal of Politics*, 67(1), Feb 2005, pp. 110-131.
26. Rogers, E.M. and Cartano, D.G. "Methods of Measuring Opinion Leadership," *Public Opinion Quarterly*, Fall 1962, pp. 435-441.
27. Shah, D. and Scheufele, D.A. "Explicating Opinion Leadership: Non Political Dispositions, Information Consumption, and Civic Participation," *Political Communication*, (23), 2006, pp. 1–22.
28. Simonin, B. "Ambiguity and the process of knowledge transfer in strategic alliances," *Strategic Management Journal*, (20), 1999, pp. 595–623.
29. Smith, D., Menon, S., and Sivakumar, K. "Online Peer and Editorial Recommendations, Trust, and Choice in Virtual Markets," *Journal of Interactive Marketing*, (19:3), Summer 2005, pp. 15-37.
30. Vernet, E. "Targeting Women's Clothing Fashion Opinion Leaders in Media Planning: An Application for Magazines," *Journal of Advertising Research*, 44(1), March 2004, .pp. 90-107.
31. Wasko, M.M. and Faraj, S. "Why should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice," *Management Information Systems Quarterly* 29(1), March 2005, pp. 35 - 57.
32. Weimann, G. "The influentials: Back to the Concept of Opinion Leaders," *Public Opinion Quarterly*, (55), 1991, pp. 267-279.