



A multi-stage model of word-of-mouth influence through viral marketing[☆]

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ABSTRACT

With the growth and evolution of the Internet, electronic peer-to-peer referrals have become an important phenomenon, and marketers have tried to exploit their potential through viral marketing campaigns. At the same time, spam and e-mail-based viruses have cluttered electronic communications, making viral marketing campaigns problematic and challenging to deploy. The key driver in viral marketing is the effectiveness of unsolicited, electronic referrals to create awareness, trigger interest, and generate sales or product adoption. Yet, despite a large literature concerning interpersonal influence, little is known about *how* this electronic, or, indeed, any word-of-mouth process influences consumers' actual behaviors, particularly in a cluttered online environment. In this paper, we develop a model to help identify the role word-of-mouth plays during each stage of a viral marketing recipients' decision-making process, including the conditions that moderate such influence. We then present an innovative methodology for collecting data unobtrusively and in real time. We empirically test the model and methodology via a field study, where we observed the reactions of 1100 individuals after they received an unsolicited e-mail from one of their acquaintances, inviting them to take a survey and in turn spread the word about it. We found that characteristics of the social tie influenced recipients' behaviors, but had different effects at different stages: tie strength facilitated awareness, perceptual affinity triggered recipients' interest, and demographic similarity had a negative influence on each stage of the decision-making process. We conclude with a discussion of the theoretical and methodological contributions of our work and of managerial implications of these findings for online marketers interested in strategies for leveraging peer-to-peer referral networks.

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1. Introduction

The Internet dramatically facilitates consumer interconnections. E-mail referrals, online forums of users and newsgroups, as well as customer reviews encouraged by merchant websites allow consumers to share information far more easily than ever before. This interconnectivity is a global phenomenon that facilitates the dissemination of both positive and negative word-of-mouth (Shankar, Smith, & Rangaswamy, 2003), dissemination that cannot be easily controlled by marketers or brand managers. In addition, it challenges the existence of geographical markets, and hence the ability to conduct local marketing strategies.

However, marketers have noted the customer-leveraging possibilities the Internet offers (Brodin, 2000), among which viral marketing is amongst the most intriguing. The goal of viral marketing is to use consumer-to-consumer (or peer-to-peer) communications—as opposed to company-to-consumer communications—to disseminate

information about a product or service, thereby leading to more rapid and cost effective adoption by the market (Krishnamurthy, 2001).

Message dissemination can either be intentional or unintentional. In the latter situation, consumers are not intentional actors in the marketing-message dissemination process. A common example of unintentional dissemination involves Hotmail, where each outgoing e-mail sent via this free Web-based service contains a line promoting the company (i.e., “Get Your Private, Free E-mail at <http://www.hotmail.com>”). Hence, users sending e-mails from a Hotmail account automatically promote the service to every person they send a message to. Launched in July 1996, 12 million users signed-up for Hotmail within 2 years. The marketing budget over the same period of time was only \$500,000.

The most common version of intentional viral marketing occurs when consumers willingly become promoters of a product or service and spread the word to their friends; they are driven to do so either through an explicit incentive (e.g., financial incentives, need to create network externalities) or simply out of a desire to share the product benefits with friends (e.g., fun, intriguing, valuable for others). As examples, PayPal, by providing financial incentive to have members recommend members, acquired more than three million users in its first nine months of operation, while ICQ, a free instant-messaging service, offered an option to invite one's friends automatically to join

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the communication network. Launched in 1996, ICQ had 12 million users by 1997; its mother company Mirabilis was bought for \$287 million by AOL a year later.

The viral marketing concept and these examples suggest that marketers can leverage the power of interpersonal networks to promote a product or service. The concept assumes that electronic, peer-to-peer communications are an effective means to transform (electronic) communication networks into influence networks, capturing recipients' attention, triggering interest, and eventually leading to adoption or sales. Yet it is difficult to identify substantial evidence to support these assumptions or to explain why and how viral marketing works, which is perhaps why it is currently viewed as more of an art than a science (Diorio, 2001).

E-mail seems here to stay, and there is no doubt that peer-to-peer, e-mail-based communications will continue to play an informational and influential role on recipients' behavior. The proliferation of spam (i.e., unsolicited bulk e-mails) and e-mail-based electronic viruses have made recipients suspicious of most unsolicited e-mails. Consumers experience a high level of noise in their day-to-day electronic communications and for viral marketing campaigns to be designed more effectively, there is a need to better understand which online referrals are likely to cut through the clutter and which are not.

To better understand why and how viral marketing can be effective, we must understand its pass-along process and its underlying mechanisms of influence. While the existing word-of-mouth (hereafter WOM) literature can inform us, it is important to note that electronic referrals differ from their "offline" counterparts in two significant ways:

1. They are *electronic* by nature; there is no face-to-face communication.
2. Those referrals are usually *unsolicited*, that is, they are sent to recipients who are not looking for information, and hence are not necessarily willing to pay attention to them.

For reasons we review later, and despite an abundant literature, little attention has been given to *unsolicited* WOM communications. In addition, researchers who have addressed WOM communications have usually been limited in their ability to collect complete, detailed, and accurate information. Largely as a consequence of the lack of such data, the mechanisms by which WOM communications influence behaviors are not well understood. We concur with [Bansal and Voyer \(2000\)](#) that "...there is surprisingly little empirical research that examines [WOM] 'procedural' aspects" (p.166). And the advent of the viral marketing phenomenon underscores the importance of developing both methods to study and generate substantive findings about this phenomenon. Hence, our goals in this paper are three-fold:

1. To introduce multi-stage decision-making models as mechanisms to study and refine our understanding of unsolicited, electronic referrals.
2. To describe a research methodology we used to inform the model using data collected unobtrusively and in real time.
3. To test the above model and methodology with a field study,¹ and to compare our results with those from traditional one-stage models.

This paper is structured as follows. In the next section, we present a brief overview of the WOM literature and examine why so little is known about how unsolicited WOM communications influence consumer decisions. We then cast the existing WOM literature into a multi-stage framework to help decompose and predict the level, antecedents, and moderating effects of WOM influences on each stage

¹ The specific application chosen to illustrate this approach is how characteristics of the source moderate the effectiveness of online referrals. In our study, participants spread the word about a survey and encouraged their acquaintances to participate—a low-risk, low-involvement decision.

of recipients' decision-making processes. Next we introduce a research methodology to study the influence of WOM referrals at each stage of the decision process, and present the results of a field study in which we tracked the influence of one type of viral marketing: e-mail-based, unsolicited peer-to-peer referrals. We find that the antecedents of WOM influence (e.g., tie strength, demographic similarity) vary significantly and predictably across stages, thus enriching our understanding of the mechanisms of influence, and demonstrating the value of this new methodology for future research. We conclude with discussions of the theoretical, methodological, and managerial implications of this work.

2. How word-of-mouth (WOM) works

Word-of-mouth communications have received extensive attention from both academics and practitioners for decades. Since the early 1950s, researchers have demonstrated that personal conversations and informal exchange of information among acquaintances not only influence consumers' choices and purchase decisions ([Arndt, 1967](#); [Whyte, 1954](#)), but also shape consumer expectations ([Anderson & Salisbury, 2003](#); [Zeithaml & Bitner, 1996](#)), pre-usage attitudes ([Herr, Kardes, & Kim, 1991](#)), and even post-usage perceptions of a product or service ([Bone, 1995](#); [Burzynski & Bayer, 1977](#)). Some research has reported WOM influence as greater than print ads, personal selling, and radio advertising ([Engel, Kegerreis, & Blackwell, 1969](#); [Feldman & Spencer, 1965](#); [Katz & Lazarsfeld, 1955](#)), although [Van den Bulte and Lilien \(2001\)](#) show that some of those effects may have been overstated.

Considerable research has been directed at better understanding the antecedents and consequences of WOM. The existing literature can be classified into three streams. The first focuses on the reasons why consumers proactively spread the word about products and services they have experienced. That research reports that factors such as extreme satisfaction or dissatisfaction ([Anderson, 1998](#); [Bowman & Narayandas, 2001](#); [Dichter, 1966](#); [Maxham & Netemeyer, 2002](#); [Richins, 1983](#); [Yale, 1987](#)), commitment to the firm ([Dick & Basu, 1994](#)), length of the relationship with the firm ([Wangenheim & Bayon, 2004](#)), and novelty of the product ([Bone, 1992](#)) drive such behaviors.

The second stream aims to better understand information-seeking behaviors, or more specifically, under what circumstances consumers rely on WOM communications more than on other sources of information to make a purchasing decision. Consumers with little expertise in a product category ([Furse, Punj, & Stewart, 1984](#); [Gilly, Graham, Wolfenbarger, & Yale, 1998](#)), who perceive a high risk in decision-making ([Bansal & Voyer, 2000](#); [Kiel & Layton, 1981](#)), or who are deeply involved in the purchasing decision ([Beatty & Smith, 1987](#)) are more likely to seek the opinions of others for product advice.

Studies in the third stream examine why certain personal sources of information exert more influence than others. Researchers have identified factors such as source expertise ([Bansal & Voyer, 2000](#); [Gilly et al., 1998](#)), tie strength ([Brown & Reingen, 1987](#); [Frenzen & Nakamoto, 1993](#)), demographic similarity ([Brown & Reingen, 1987](#)), and perceptual affinity ([Gilly et al., 1998](#)) as important antecedents of WOM influence.

Despite this rich literature, we actually know very little about how WOM communications works, which can be attributed to four factors. First, as [Bristor \(1990\)](#) notes, most past research focuses on successful WOM communications; in other words, the research reports only on communications that have actually influenced the decision maker (see for instance [Brown & Reingen, 1987](#)).

Second, many studies focus only on recipients who were actively seeking information (e.g., [Bansal & Voyer, 2000](#)), i.e. those who were already interested in the product category in question and who were actively seeking to be influenced in their decisions. While these studies are useful to better understand information-seeking behavior and the flow of influence that spreads through social networks, their

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