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# Social influence model and electronic word of mouth
## PC versus mobile internet

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Compared with laptop or desktop computers, mobile devices offer greater flexibility in time and space, thus enabling consumers to be connected online more continually. In addition, their small size, portability and ease of use with location-based capabilities facilitate sending and receiving timely information in the right place. Drawing upon a social influence model proposed by Dholakia *et al.* (2004), this paper proposes a causal model for consumer participation in electronic word of mouth (eWOM), and compares the effects of PC-based and mobile-based eWOM (hereafter pcWOM and mWOM, respectively). The paper posits social identity, motivations (purposive value, social enhancement and intrinsic enjoyment), inherent novelty seeking and opinion leadership as antecedents affecting desire (individual-level driver) and social intention (group-level driver) to engage in eWOM. A total of 271 survey responses were collected from consumers in Japan. The proposed model fits the data reasonably well; all hypotheses are supported. The results reveal that desire only partially mediates the effects on social intention of social identity. Compared with pcWOM participants, mWOM participants exhibit significantly higher perceptions on social intention, intrinsic enjoyment and cognitive social identity. After recognising important limitations, theoretical implications are discussed and future research directions suggested.

## Introduction

Information derived from non-commercial sources is sometimes more powerful than that from impersonal media sources in persuading consumers. A McKinsey & Company study found that 67% of sales of consumer goods are based on personal information sources (Taylor 2003). This person-to-person information exchange, or word of mouth (WOM), has often been particularly influential in consumer decision making, and has received considerable attention in marketing. WOM can be broadly

defined as 'all informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services or their sellers' (Hennig-Thurau & Walsh 2004, p. 51). More specifically, it is an 'informal, person-to-person communication between a perceived non-commercial communicator and a receiver regarding a brand, a product, an organization, or a service' (Harrison-Walker 2001, p. 63). The impact of WOM communication has been examined in terms of product judgements (Bone 1995), selection and post-purchase product perceptions (Gruen *et al.* 2006), the influence of opinion leadership (Richins & Root-Shaffer 1988) and information transmission structure (Brown & Reingen 1987).

Since the late 1990s, the rapid proliferation of the internet has enabled consumers to spread their post-purchase experience through such online communications as email lists, website bulletin boards, Usenet news-groups, chat and blogs, among others. Such PC-based eWOM (hereafter pcWOM) has become increasingly popular as, in the last decade, the inter-net has become one of the most important communications media. Prior research argues that, as with traditional WOM, the credibility of pcWOM has been shown to be even higher than that of marketer-created sources of information on the web (Bickart & Schindler 2001).

In recent years, the rapid growth of mobile communication has expanded the availability and importance of eWOM in a ubiquitous context; here, 'ubiquitous' refers to 'anywhere, anytime' (Balasubramanian *et al.* 2002, p. 350). Thanks to the introduction of the internet-enabled mobile hand-set with location-based capabilities, real-time communications make it possible to transmit, gather and retransmit product information via interac-tive messaging services at any time, in any place. In addition, the unique-ness of mobile communication also stems from its capacity to disseminate information by connecting to a telephone network. Furthermore, com-pared with laptop or desktop computers, mobile devices offer greater advantages in size, portability and ease of use. Hence, such mobile-based eWOM (hereafter mWOM) has been extended in consumer decision making, especially among young people (De Kerckhove 2002; Ling 2005; Sato & Kato 2005). However, marketing research in general, and interactive advertising studies in particular, appear to be still 'testing the water'. A systematic review of the literature on eWOM shows that little research has examined this medium. Further, no research has been found that addresses how PC and mWOM differ in terms of communication

effectiveness. Hence, there is an emergent need for a timely response to the recent proliferation of eWOM in *both* PC and mobile media.

In response to these issues, several research questions are proposed. First, what are the factors influencing consumers' intention to use eWOM? Second, what might be the underlying theory that links these factors? Third, are there in fact any differences between pcWOM and mWOM? To address these questions, a survey was conducted in Japan, an Asian country that has experienced both high internet penetration and advanced mobile communication technology. As a research framework, the social influence model proposed by Dholakia *et al*. (2004) is adopted. This model postulates an individual-level driver ('desire') and a group-level driver ('social intention') as antecedents of consumer decision making and participation in a virtual community. In addition, the research extends the model, by introducing (1) uses and gratifications, (2) inherent novelty seeking, and (3) opinion leadership, as antecedents of the social intention to participate in eWOM.

The paper is structured as follows: first the significance of the study is explained and this is followed by a review of the relevant literature that provides an appropriate background for it. Next, the proposed model is presented and the research hypotheses are explained together with the rationale. Third, the methodology used to empirically test the model is detailed, and the results described. Fourth, the implications of the findings for both theory and practice are discussed, while recognising important limitations. In closing, some future research directions are suggested.


## Significance of the study

Some may argue that, while it is quite convenient having access to the internet via a mobile device, this technology may not be at the point of requiring a study of the type presented here. However, there are two important reasons why the author believes that an exploratory *empirical*, rather than *conceptual*, route should be chosen at this stage. First, as the penetration of internet-enabled mobile devices has been steadily increasing worldwide, the need for a theoretical foundation and empirical comparisons of PC and mobile media has explicitly been expressed (Balasubramanian *et al*. 2002; Okazaki 2004). For example, in Japan, internet access via mobile devices has exceeded that via PC since December

2005 (Ministry of Internal Affairs and Communication 2007). Such evidence indicates that information exchange via mobile device is increasingly important in everyday consumer life. Second, an increasing number of firms have already begun to use mobile internet in their viral marketing campaigns (Okazaki 2008). However, to the author's knowledge, there is very little published work that provides direct quantitative evidence on this topic. The results of this study may not be generalised at this stage, yet do offer considerable insights and directions for future research, as well as some practical implications for practitioners.

## Literature review

Along with opinion leadership, WOM is a central channel of interpersonal influence in consumer purchase decision making (Grewal *et al.* 2003). For this reason, some researchers regard WOM as a channel of relationship marketing (Stauss 1997; Hennig-Thurau *et al.* 2004). WOM communications can be positive, negative or both (Laczniak *et al.* 2001; Nyer & Gopinath 2005; Brown *et al.* 2005), and they have a stronger influence than printed information on product judgement (Herr *et al.* 1991). Gatignon and Robertson (1986) posited that WOM information and advice may be transmitted or suppressed, depending on the stock of obligations one has towards, or expects from, another individual. That is, social status and social power, along with decision support and decision justification, are the primary factors that motivate WOM communication.

In the late 1990s, the WOM concept was expanded into computer-mediated communications, by which interested people could spread information to each other in a virtual community (Marsden 2006). Using a diverse range of electronic tools (e.g. website bulletin board, community site, blog, email or chat), eWOM offers alternative channels to immediately bidirectional and interactive communication, as defined in traditional WOM (Gilly *et al.* 1998, p. 84). However, the advantage of eWOM goes far beyond this. In this regard, Varadarajan and Yadav (2002) point out four important changes that are occurring in the buying environment, as a result of the emergence of eWOM:

1. facilitating access to the type and amount of information associated with price and non-price attributes of competing product offers

2. increasing ease of comparing and evaluating alternatives in the buyers' consideration set
3. improving quality of information
4. organising and structuring information.

As a result, search costs, which are one of the most important determinants of buyers' decision-making process, will drastically decline. This will increase consumers' ability to evaluate a product prior to purchase, and increase price pressure on sellers. Hence, unequal information exchange between buyers and sellers will decline. Given this unprecedented ability to connect individuals by spreading words online, buyers will abandon their traditional passive role as mere recipients of firm-generated information, and will exercise greater control over the communication they receive, generate and share.

There is a limited, but rich, resource of research on WOM in electronic media (see Table 1). The literature in this area can be classified into two main categories, according to the method of information diffusion: virtual platforms and pass-along emails. In the former case, Hennig-Thurau and Walsh (2004) conducted a pioneering study and examined the motives for reading consumer articulations on virtual opinion platforms. They identified five factors: obtaining buying-related information; social orientation through information; community membership; remuneration; and learning to consume a product. These factors act in turn as determinants, although they do not constitute a sufficient condition for changes in buying behaviour and in communication behaviour. Similarly, Gruen *et al.* (2006) explored the effects of online forums, to address how consumer know-how exchange impacts on product value and loyalty. Their findings suggest that online know-how exchange significantly influences the overall perceived value of the products, but not repurchase intention (i.e. loyalty).

With regard to email diffusion, Phelps *et al.* (2004) used both qualitative and quantitative methods to study consumer responses and motivations to pass along both commercial and non-commercial emails. The most important reasons are enjoyment, entertainment and social motivations. According to the number of pass-along emails sent and received, two important pass-along email profiles were identified as viral marketing opportunities: viral mavens, who both receive and forward many messages,

**Table 1: Recent explorations on eWOM**

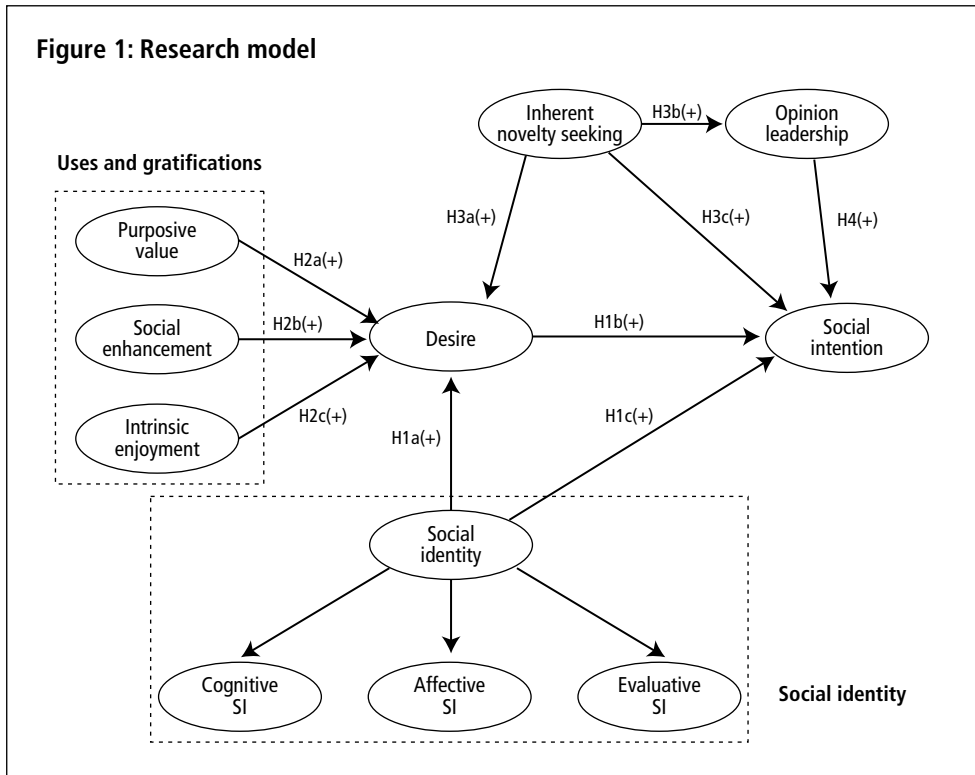| Authors (year) | Research issue | Theoretical base | Respondents | Methodology | Major findings |
|---|---|---|---|---|---|
| Phelps et al. (2004) | Pass-along emails | Diffusion and innovation, uses and gratifications | (a) 66 consumers (b) 1259 emails (c) 23 consumers | (a) Focus group (b) Content analysis (c) Telephone interview | Three studies examined pass-along email receipt and sending patterns. For viral mavens (those who receive and send many pass-along emails), the message must be important or contain something that the receiver will like. |
| Hennig-Thurau and Walsh (2004) | Virtual opinion platforms | Opinion leader, cognitive dissonance, etc. | 2903 users of the four most popular opinion platforms | Web-based survey | The study identified five primary motives to read online articulations: obtaining purchase-related information, social orientation through information, community membership, remuneration, and to learn how to consume a product. Consumers use eWOM primarily to save decision-making time, and to make a better buying decision. |
| Vilpponen et al. (2006) | Who-told-whom network of information flow for an internet campaign against a new copyright law | Network structure | 360 participants of the campaign | Email questionnaire | The electronic communication network structure is different from the traditional interpersonal communication network structure. The network structure affects innovation adoption timing. |
| Gruen et al. (2006) | Customer-to-customer know-how exchange on customer perceptions of value and customer loyalty intentions | Motivations and loyalty | 616 registered users of a popular software product website | Web-based survey | Customer know-how exchange impacts customer perceptions of product value and likelihood to recommend the product, but does not influence customer repurchase intentions. |

and infrequent receivers, who forward many messages. In the attempt to capture a referral network structure of pass-along email, Vilpponen *et al.* (2006) traced the 'who-told-whom' network of an internet campaign. They found that the network structure of pass-along email is extremely loose, and allows the focal members to exchange information with a wider environment. However, the tie strength of this network was not related to innovation adoption behaviour.

In recent years, more and more firms have attempted to disseminate promotional campaigns via mobile internet channels. Following this trend, Okazaki (2004) argues that research in WOM should shift focus from *fixed* to *ubiquitous* media, in that both information seeker and source are likely to exchange information via mobile communication technology. Here, mWOM can be delivered via voice call or interactive message mode. In the latter, advanced technology offers a variety of options, with SMS (short message service) and MMS (multimedia messaging service) being the most popular, followed by other mobile internet applications, such as chat, multiplayer games, bulletin boards, ranking sites, etc., which comprise an integral part of mobile-based electronic commerce, or m-commerce. However, little is known about how or why this kind of promotional campaign works with this technology.

## Proposed model and hypotheses

To fill the research gap identified in the preceding section, we present the framework of a theoretical model for understanding the antecedents of eWOM participation. Figure 1 represents the proposed model, in which eight primary dimensions underlie the degree to which consumers determine intention to participate in eWOM. Three dimensions – desire, social intention and social identity – are adopted from Dholakia *et al.*'s (2004) social influence model. Desire and social intention postulate that individual-level and group-level drivers, respectively, act separately to influence participation in a virtual community. Social identity represents the core aspects of the individual's identification with the group. The model is completed with three additional dimensions: (1) uses and gratifications, (2) opinion leadership and (3) inherent novelty seeking.

Figure 1: Research model

## Social influence model

From a group-level standpoint, the transmission of interpersonal informa-tion exchange via eWOM is primarily motivated by social interactions. In this regard, Bagozzi (2000) proposed the concept of *social intention*, in that many purchases and consumptions can be made jointly by social groups that exhibit a strong sense of social identity. On this basis, Bagozzi and Dholakia (2002) attempted to theorise how virtual community participa-tion works in terms of compliance (i.e. the normative influence of others' expectations), internalisation (i.e. congruence of one's goals with those of group members) and identification (i.e. conception of one's self in terms of the group's defining features). Their framework uses the social psycho-logical model of goal-directed behaviour (e.g. Perugini & Bagozzi 2001) and social identity theory (e.g. Tajfel 1978) as underlying frameworks, and conceptualises participation in virtual chat rooms as 'intentional social action' involving the group. Their findings indicate that internalisation

and identification exhibit significant effects on consumer participation, while compliance does not, probably because participation in a virtual community is voluntary and anonymous.

Dholakia *et al.* (2004) extended Bagozzi and Dholakia's (2002) study, and developed a *social influence model*, in examining network-based versus small-group-based virtual communities. This model has three primary parts: value perceptions, social influence variables, and decision making and participation. In the first phase of the model, virtual community participants are likely to seek out media in a goal-directed fashion, to fulfil a core set of motivations. In the second phase, social identify is formed in that a 'person comes to view himself or herself as a member of the community, as "belonging" to it' (Dholakia *et al.* 2004, p. 245). This individual's identification with the group is a psychological state, distinct from being a unique and separate individual, and involves three components: cognitive self-awareness of membership in the group; affective commitment to the group; and evaluative significance of membership in the group. Prior research demonstrates the construct and nomological validity of these components (Ellemers *et al.* 1999; Bergami & Bagozzi 2000; Dholakia *et al.* 2004; Bagozzi & Dholakia 2006).

Unlike individual-based attitude theory, the social influence model posits that it is a consumer's shared intention or social intention that performs a group act. Social intention can be defined as 'a commitment of an individual to participate in joint action and involves an implicit or explicit agreement between the participants to engage in that joint action' (Tuomela 1995, p. 2). In contrast, the social influence model incorporates desire, which represents an explicit and energised form of motivation to induce an intention to act. Bagozzi (1992, 2000) proposed that desire provides the motivational impetus for intentions to act, and suggested that attitudes and other antecedents in decision making work through desires en route to influencing social intentions.

Drawing upon Dholakia *et al.*'s (2004) model, we attempt to explain consumer participation in eWOM at both an individual level (desire) and a group level (social intention). Here, an eWOM group is conceptualised as an informal network that possesses primary parts of the social influence model. Specifically, we posit that, in the context of eWOM, information sources and seekers are connected through a sense of social identify, and share an implicit compromise of group-based motivations and self-esteem

(Bergami & Bagozzi 2000). Here, social identity, along with other gratifiers, is expected to affect the individual-level driver or desire, which in turn determines the group-level driver or social intention, to participate in eWOM. In other words, we expect desire to mediate the individual's social identity and social intention to engage in eWOM. Based on this discussion:

**H1a:** Stronger social identity will lead to higher levels of desire to participate in eWOM.

**H1b:** Stronger desire will lead to higher levels of social intention to participate in eWOM.

On the other hand, we view the mediating role played by desire as only partial, because participation in eWOM may be habitual. For many eWOM participants, checking new messages in emails or on opinion bulletin boards may be periodic and automatic. In such habitual actions, social identity was found to directly influence social intention (Dholakia *et al.* 2004). Therefore:

**H1c:** Stronger social identity will lead to higher levels of social intention to participate in eWOM.

## Uses and gratifications of eWOM

To understand one's individual-level motives for engaging in eWOM, uses and gratifications (U&G) theory, which was originally developed and employed in human communication, provides a useful starting-point. According to Katz *et al.* (1974), U&G theory is founded on three basic tenets: (1) consumers are goal directed in their behaviour; (2) they are active media users; (3) they are aware of their needs and select media to gratify those needs. Hence, people use mobile devices to exchange information, either offline or online, and to fulfil self-actualisation needs that can be fulfilled by sources independent from others, and that may help to enhance one's self-development (Katz *et al.* 1973). Lin (1999) suggests that there are five different self-actualisation needs, which appear especially relevant

to the present study: (1) cognitive needs, such as the need to understand; (2) affective needs that strengthen emotional experience; (3) integrative needs that strengthen one's confidence, credibility or stability; (4) needs related to strengthening contact with people; (5) needs related to escape or the release of tension.

The motives underlying internet usage have been widely explored (Eighmey & McCord 1998; Lin 1999; Sheehan 2002; Ko *et al.* 2005). However, prior research sheds little light on why people use eWOM. Our literature review found only one study that focused on the issue using U&G theory. Schindler and Bickart (2005) shed light on the motivational aspects of eWOM information seekers by conducting in-depth interviews. They found five primary reasons why people seek out WOM messages published on the internet: (1) direct comparison between brands or products; (2) negative information-seeking; (3) support for a decision already made; (4) search for a community of consumers with similar concerns and product interests; (5) fun or intrinsic enjoyment. However, these factors seem to capture consumers' motives for information *search*, not for information *exchange* in an interactive environment.

In this light, Dholakia *et al.*'s (2004) study provides three important motives for virtual community participation: purposive value, social enhancement and intrinsic enjoyment. Purposive value is defined as 'the value derived from accomplishing some pre-determined instrumental purpose', including information exchange through virtual community participation (Dholakia *et al.* 2004, p. 244). This is a combined single construct of the informational and instrumental values viewed by communication researchers (Flanagin & Metzger 2001). The second motive, social enhancement, refers to the 'social benefits derived from establishing and maintaining contact with other people, such as social support, friendship, and intimacy' (Dholakia *et al.* 2004, p. 244). Finally, intrinsic enjoyment is one of the most important motives in online media usage, and in WOM in particular. For example, Schiffman *et al.* (2003) and Bruner and Kumar (2005) found that enjoyment or fun significantly contributes to consumer acceptance of the internet in PC and mobile devices, respectively. Thus:

**H2a:** Stronger purposive value will lead to stronger desire to participate in eWOM.

**H2b:** Stronger social enhancement will lead to stronger desire to participate in eWOM.

**H2c:** Stronger intrinsic enjoyment will lead to stronger desire to participate in eWOM.

## Inherent novelty seeking

Research on the diffusion of innovation is generally in accord with the proposition that the predisposition to acquire new information, ideas and products is generally derived from inherent novelty seeking, which is defined as 'an individual's inherent innovative personality, predisposition, and cognitive style toward innovations' (Im *et al.* 2003, p. 62). This concept is similar to Mehrabian and Russell's (1974) 'arousal seeking' and Rogers' (1995) 'venturesomeness', and is closely related to a search for information (Dabholkar & Bagozzi 2002). In this vein, prior research indicates that individuals who are receptive to new ideas are heavy users of interpersonal communication (Bayus *et al.* 1985), which is the immediate intrinsic motivation of WOM. Furthermore, consumers high in inherent novelty seeking are more likely to look favourably on technology, and have a stronger intrinsic motivation to use such products (Dabholkar & Bagozzi 2002). Because the internet is considered an innovative modern technology, this conceptualisation of inherent novelty seeking approaches the heart of the issue: a proposition that the greater the inherent novelty seeking, the higher will be the likelihood to participate in online information exchange with others. A higher need for interaction with friends, family and peers will be also strengthened by this novelty-seeking propensity, due to spontaneous and timely exchanges of opinions through electronic communication. Hence:

**H3a:** Stronger inherent novelty seeking will lead to stronger desire.

**H3b:** Stronger inherent novelty seeking will lead to stronger opinion leadership.

**H3c:** Stronger inherent novelty seeking will lead to stronger social intention to participate in eWOM.

## Opinion leadership

Opinion leaders tend to be more innovative, or earlier adopters of new ideas or products, than their followers (Baumgarten 1975). Thus, opinion leaders tend to seek out novelty and creativity, and play a pivotal role in the diffusion of innovation (Rogers 1995). Opinion leadership can be defined as the extent to which individuals tend to give information or advice to others in terms of product or service purchase decision (Reynolds & Darden 1971). Opinion leadership presupposes a risk-taking propensity, and this fosters a greater level of ongoing search, in which 'participants create and share information with one another in order to reach a mutual understanding' (Rogers 1995). Gilly *et al.* (1998) point out that 'opinion leaders appear to receive more information via non-personal sources of information and are more product involved on an enduring basis; that is, they maintain a higher continuous level of interest in the product area in which they are opinion leaders' (p. 85). Furthermore, prior research suggests that mass-media channels are important as the initial contact points of an innovation, whereas interpersonal contacts are especially important in persuasion to use it (Rogers 1995; Phelps *et al.* 2004). Thus, it is reasonable to assume that a higher predisposition of opinion leadership tends to disseminate information to other information seekers. More formally:

**H4:**   Stronger opinion leadership will lead to higher levels of social intention to participate in eWOM.

## Moderating role of eWOM media

This section addresses how participants' motivations may vary between pcWOM and mWOM. This variance is best understood by clearly distinguishing the two media in question – PC and mobile internet – from a comparative point of view. To this end, two widely cited conceptualisations of mobile commerce are employed. First, Watson *et al.* (2002) compared the mobile phone and PC internet, in terms of level of uniqueness (see Table 2). Of particular interest to this study is the contact initiation: in the case of the mobile phone, owners keep the phone connected during waking hours, and use is initiated by the owner and those who want to contact that person. In contrast, PC internet can be accessed only when
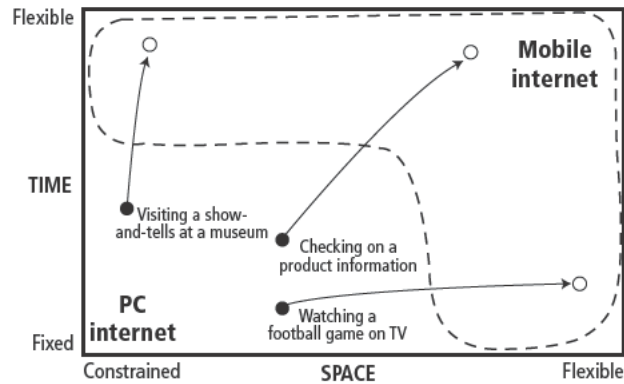
needed. This brings us to the next important point: the receipt of text messages via mobile phone is almost immediate, but, in the case of PC internet, it takes time to go to the server. Thus, as a device for exchanging WOM information, the mobile phone is much more spontaneous and quicker than PC internet.

Second, Balasubramanian *et al.* (2002) created a matrix, in which mobile and PC internet services are mapped along space and time dimensions. In Figure 2, surrounded by the inverted L-shaped area, are the activities served by mobile internet services, with the remaining lower left showing those served by PC internet services. Although this distinction is not always so clear-cut, it does illustrate how some PC internet services could increase flexibility along the spatial and/or temporal dimension. For example, watching a football game live on the internet would gain temporal flexibility, because the location of a fixed TV set becomes irrelevant when the mobile phone is equipped with terrestrial broadcasting technology. Museums that offer show-and-tells for exhibits on the PC-terminal screen would gain temporal flexibility, by which visitors acquire anytime access to the same information by using their handheld devices and connecting to a wireless network. Finally, checking product-related information before shopping would mean both spatial and temporal gains, because technology enables users to pinpoint precisely the nearest shop with the best available price, whenever they desire.

We strongly believe that these unique features of the mobile device would affect the strength or importance of the constructs proposed in the preceding sections. First, the absence of time and space constraints would enable consumers to initiate information exchange in any place, at any time. At the same time, the sending and receipt of the message is immediate, and thus makes the benefits from the information exchange more realistic. This would provide users with a stronger motivation to connect with their interpersonal network. As a result, participants in mWOM tend to hold purposive value and social enhancement value in higher esteem than do pcWOM users. Therefore:

**H5a:**   The perceived levels of purposive value and social enhancement value are greater in mWOM than in pcWOM.

**Figure 2: Space–time matrix of PC versus mobile internet services**



Source: adapted from Balasubramanian et al. (2002)

Similarly, compared with pcWOM, mWOM is a more spontaneous, more personal and more direct mode of communication. For this reason, the model based on mWOM participants would demonstrate a stronger social identity, which in turn strengthens social intention to participate in eWOM. On this basis:

**H5b:** The perceived levels of social identity and social intention are greater in mWOM than in pcWOM.

**Table 2: Comparison of mobile phone and PC internet**

| Focal point | Mobile phone | PC-based internet |
|---|---|---|
| Number of users | Used by only one person | Multiple users, often a family or people in an office |
| Access mode | Owners have access to the phone for most of their waking hours | Will only be switched on or accessed when really needed |
| Contact initiation | Use is initiated by the owner and those who wish to contact that person | Use is initiated by owner(s) |
| Message transmission route | Text messages go directly to the phone, and the owner is immediately notified as long as the phone is turned on | Text messages (e-mail) go to an e-mail server; owner has to access them |
| Network operator | The network operator usually knows exactly who that user is, his or her home and office address and other information, and where that person is geographically | The network operator does not necessarily know exactly who the user is or whether that person's details are correct. The network provider does not know where that person is geographically |

Source: adapted from Watson et al. (2002)

## Methods

### *Sample and data collection*

We collected data from consumers in Japan, where both PC and mobile internet have penetrated widely. A two-stage probabilistic sampling was conducted in the greater Tokyo area, on the basis of (1) a proportionate stratified sampling, according to the age and gender distribution of the official civil citizens' registry, and (2) a random sampling of respondents' residential locations. The sampling frame was limited to those between 15 and 65 years old, because we were interested in the general adult working population. To collect the data, we used the drop-off/pick-up fieldwork technique: (1) a structured questionnaire was delivered to a selected respondent by prior appointment; (2) the purpose of the survey was explained to the respondent or to a member of the household, in the event of his or her absence. In the latter case, an arrangement was made to ensure that the questionnaire would be handed to and filled out by the respondent; and (3) the completed questionnaires were collected one week later. In the questionnaire instructions, it was clearly explained that complete anonymity of the respondents' responses was guaranteed, that there were no right or wrong answers, and that they should answer the questions as honestly as possible.

In total, 1623 questionnaires were distributed, of which 752 were collected; 32 responses were incomplete and 720 responses were thus usable. The effective response rate was approximately 44.4%.

The survey instrument has three parts. The first part includes gender, occupation, marital status and monthly allowance, among others. The second part explains the purpose of the study to the respondents:

> We would like to ask the following questions related to your word-of-mouth activities in everyday life. By 'word-of-mouth', we refer to 'sharing topics or information associated with purchase or usage of products or services with others'. 'Others' include not only your friends and family, but also people in general who share common values and interests in some products or services.

The respondents were then asked to choose (1) the type of electronic communication media that they regularly use (i.e. PC or mobile internet), and (2) the type of eWOM venue that they have mainly used (i.e. PC-based

community sites, chat, or email versus mobile-based community sites, chat, or text messaging). This procedure identified 121 and 150 respondents, who participate mainly in pcWOM and mWOM, respectively.

Finally, the third part covers questions associated with the ten constructs of the proposed model. All the constructs were measured by multiple-item seven-point scales, ranging from 'not at all' (1) to 'very much' (7), with 'neutral/cannot answer' (4) as an anchoring point. The specific question items used in this study are shown in the Appendix.

## *Respondents' characteristics*

Table 3 summarises the primary characteristics of the respondents, by the type of eWOM. To our surprise, participants in mWOM outnumbered participants in pcWOM. First, gender distributions between the two types of WOM appear unequal. The difference in male and female composition of the two groups was statistically significant at $p < 0.001$ ($\chi^2 = 7.45$, $df = 1$). This is consistent with the view that female users are more frequent adopters of mobile devices (Tsang *et al.* 2004).

Next, probably the most striking difference was found in age distribution. In aggregate, almost 75% of participants in pcWOM are over 40 years old. In contrast, 78% of participants in mWOM are under 40 years old. Clearly, age is the most important divide between PC and mobile users, and this is consistent with prior research. Consequently, the difference of the proportion in age distribution between the two groups was statistically significant at $p < 0.001$ ($\chi^2 = 33.29$, $df = 5$). Similar patterns were also identified by recent larger-scale surveys on PC and mobile internet usage (Impress R&D 2007; Impress R&D & Mobile Content Forum 2007).

The unequal gender and age distribution between the two groups was also reflected in the distribution of marital status. In pcWOM, married participants outweighed single participants, while, in mWOM, the proportions were almost the same. Hence, the composition of the two groups was statistically different at $p < 0.001$ ($\chi^2 = 11.12$, $df = 1$).

With regard to occupational distribution, the proportions of the 11 categories between the two groups were statistically different at $p < 0.05$ ($\chi^2 = 21.60$, $df = 10$). For example, the proportion of managerial workers was greater in pcWOM than in mWOM. Similarly, in pcWOM, the proportion of clerical and administrative workers was consistently high, suggesting

**Table 3: Demographic profiles (%)**

| Categories | pcWOM (*n* = 121) | mWOM (*n* = 150) | Total eWOM (*n* = 271) |
|---|---|---|---|
| **Gender** | | | |
| Male | 62.0 | 45.3 | 52.8 |
| Female | 38.0 | 54.7 | 47.2 |
| **Age** | | | |
| Below 20 | 5.8 | 11.3 | 8.9 |
| 20–29 | 19.8 | 40.7 | 31.4 |
| 30–39 | 26.4 | 26.0 | 26.2 |
| 40–49 | 19.0 | 15.3 | 17.0 |
| 50–59 | 23.1 | 4.0 | 12.5 |
| 60–65 | 5.8 | 2.7 | 4.1 |
| **Marital status** | | | |
| Married | 69.4 | 49.3 | 58.3 |
| Single | 30.6 | 50.7 | 41.7 |
| **Occupational category** | | | |
| Executive | 5.0 | 4.7 | 4.8 |
| Managerial | 12.4 | 3.3 | 7.4 |
| Clerical | 17.4 | 16.0 | 16.6 |
| Administrative staff | 16.5 | 16.0 | 16.2 |
| Self-employed | 6.6 | 4.0 | 5.2 |
| Freelance professional | 5.0 | 2.7 | 3.7 |
| Part-time worker | 5.0 | 18.0 | 12.2 |
| Housewife | 14.9 | 14.0 | 14.4 |
| Student | 9.9 | 16.0 | 13.3 |
| Unemployed | 1.7 | 2.0 | 1.8 |
| Others | 5.8 | 3.3 | 4.4 |

Note: The numbers indicate percentages that vertically sum to 100%.

that daily use of the office computer may affect their use of pcWOM. In contrast, the most frequent participants in mWOM were freelance professionals and students. The former include highly skilled workers, such as architects, lawyers, accountants and medical doctors, who may be somewhat reluctant to use the PC in their office and thus adopt a mobile device for communication. Interestingly, the use of PcWOM and mWOM was almost equally high among housewives.

# Results

## Measurement model evaluation

First, a test for the common method bias was performed using the post hoc Harman's single-factor test, in which all the construct variables were

loaded into an exploratory factor analysis, and the unrotated factor solution was examined. No single factor accounted for the majority of the variance in the variables (Podsakoff *et al.* 2003).

Next, to examine the direct links between the constructs depicted in our proposed model, we followed the two-step approach of Anderson and Gerbing (1988). In this approach, the estimation of a confirmatory factor analysis (CFA) precedes the simultaneous estimation of the measurement and structural models. A CFA was built with ten latent constructs and a total of 26 variables with AMOS 5.0 (Byrne 2001). To take into account the recommendations of such authors as Bagozzi and Yi (1988) and Bollen (1989), multiple indexes were used to assess the goodness of fit of the overall model: the Satorra–Bentler $\chi^2$ statistic, the comparative fit index (CFI), the Tucker–Lewis index (TLI) and the standardised root mean squared error of approximation (RMSEA). The CFA produced the following results: $\chi^2 = 432.69$ (*df* = 207), CFI = 0.94, TLI = 0.92 and RMSEA = 0.050.

In a model with 'good' fit, the $\chi^2$ statistic should not be significant at the 5% level. However, the literature suggests that this index becomes too sensitive to larger sample size (Hair *et al.* 2006). The values of the CFI and TLI indexes should be close to 1, although values between 0.90 and 0.95 are considered adequate (Bagozzi & Yi 1988; Bollen 1989). The RMSEA index should be close to zero (Byrne 2001). Thus, all the indexes, except the $\chi^2$ statistic, are in an acceptable range. In addition, all items exhibited high standardised loadings on their intended factors. Thus, the measurement model was deemed to be acceptable.

*Internal consistency*

Next, the internal consistency of multiple measures was assessed using Fornell and Larcker's (1981) composite reliability (CR). Unlike Cronbach's alpha, which represents a lower bound estimate of internal consistency due to its assumption of equal weightings of items, the CR offers a better estimate of variance shared by the respective indicators, since it uses the item loadings obtained within the nomological network (Hair *et al.* 2006). As a benchmark, researchers generally recommend 0.70 as an appropriate reliability for an exploratory study. As shown in the Appendix, the CRs for all the multiple reflective constructs meet this criterion.

## Discriminant validity

Discriminant validity is the extent to which a construct truly differs from neighbouring constructs (Hair *et al.* 2006). This was assessed from the latent constructs correlations matrix, where the square roots of the average variance extracted (AVE) along the diagonal are reported. The correlations between the constructs are reported in the lower left off-diagonal elements in the matrix. Fornell and Larcker (1981) suggest that average variance shared between a construct and its measures should be greater than the variance shared between the constructs and other constructs in the model. Thus, discriminant validity is satisfied when the diagonal elements (square root AVE) are greater than the off-diagonal elements in the same row and column. As Table 4 shows, this condition was met for all the combinations.

**Table 4: Discriminant validity**

| Constructs | Items | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Social intention | 2 | 3.67 | 0.05 | **0.94** | | | | | | | | | |
| 2. Desire | 3 | 3.67 | 0.10 | 0.73 | **0.85** | | | | | | | | |
| 3. Purposive value | 2 | 4.85 | 0.19 | 0.30 | 0.35 | **0.83** | | | | | | | |
| 4. Social enhancement | 2 | 3.15 | 0.11 | 0.32 | 0.50 | 0.14 | **0.93** | | | | | | |
| 5. Intrinsic enjoyment | 2 | 4.27 | 0.56 | 0.32 | 0.35 | 0.41 | 0.12 | **0.88** | | | | | |
| 6. Cognitive social identity | 2 | 4.39 | 0.07 | 0.49 | 0.49 | 0.40 | 0.19 | 0.25 | **0.89** | | | | |
| 7. Affective social identity | 2 | 4.00 | 0.33 | 0.40 | 0.39 | 0.40 | 0.07 | 0.34 | 0.62 | **0.92** | | | |
| 8. Evaluative social identity | 2 | 3.52 | 0.10 | 0.45 | 0.59 | 0.19 | 0.48 | 0.12 | 0.50 | 0.53 | **0.94** | | |
| 9. Opinion leadership | 5 | 4.89 | 0.30 | 0.23 | 0.19 | 0.13 | 0.08 | −0.05 | 0.07 | 0.08 | 0.18 | **0.77** | |
| 10. Inherent novelty seeking | 3 | 4.37 | 0.22 | 0.20 | 0.32 | 0.13 | 0.24 | 0.21 | 0.21 | 0.06 | 0.27 | 0.33 | **0.77** |

Notes: Diagonal elements in bold are the square root of average variance extracted (AVE) between the constructs and their indicators. Off-diagonal elements are correlations between the constructs.

We also performed a simultaneous CFA for the latent variables across the two groups: consumers who mainly exchange information via pcWOM, and via mWOM. Following Steenkamp and Baumgartner (1998), the unconstrained model was compared to the constrained model. The simultaneous estimation of the model produced reasonable fit: $\chi^2$ = 743.84 ($df$ = 414, $p < 0.001$), CFI = 0.92, TLI = 0.90 and RMSEA = 0.043. The test of equality of factor loadings generates non-significant chi-square value, thus

indicating that the model operates invariantly across the two groups. This justifies the use of the full sample for the subsequent structural model estimation (Steenkamp & Baumgartner 1998).
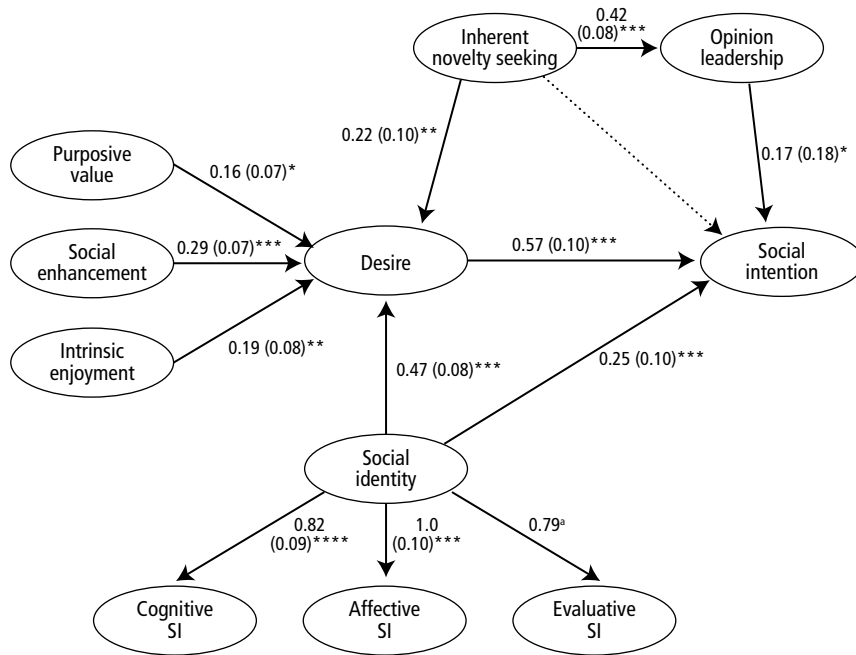
## Structural model estimation

The structural paths on the hypothesised relationships between the proposed constructs were examined for the full sample with maximum likelihood method using AMOS 5.0 (Byrne 2001). Most of the indexes indicate an adequate model fit, except for the $\chi^2$ statistic. Testing yielded a $\chi^2$ value of 569.54 with 238 degrees of freedom and a probability of less than 0.001. However, as we pointed out previously, it has been widely documented that the $\chi^2$ statistic tends to be substantial when the sample size is large (Byrne 2001). In addition, the difficulty of passing this stringent test has been noted elsewhere (Bollen 1989). Therefore, it was judged that the multiple indexes sufficiently justify the adequacy of the model's fit to the sample data. The resulting fit indexes are CFI = 0.90, TLI = 0.88 and RMSEA = 0.072.

In the current model, all three components of social identity loaded on the second-order factor with high levels of loadings, all of which were statistically significant (standardised $\beta$ = 0.82, 1.0 and 0.79, for cognitive, affective and evaluative component, respectively). The results clearly indicate the strong nomological validity of the construct. This is consistent with prior research.

Figure 3 shows the results of hypotheses testing. In H1a, it is assumed that the stronger the social identity, the higher will be the levels of the individual's participation desire. This path shows a strong effect (standardised $\beta$ = 0.52) that is statistically significant. Also, as hypothesised in H1b, the path from desire to social intention was also significant, and exhibits a strong effect (standardised $\beta$ = 0.57). H1c posits the partial mediation of desire, and the direct path from social identity to social intention. The study data indicate this effect is significant (standardised $\beta$ = 0.25). Thus, H1a to H1c are supported by the data.

Next, H2a, b and c assume that purposive value, social enhancement and intrinsic enjoyment, respectively, will directly and positively affect desire to participate in WOM. All the paths were significant at $p < 0.001$, indicating that these motivations indeed influence the level of desire. The

**Figure 3: Hypotheses testing results**

Note: standardised path coefficients with standard errors in parentheses. A dotted line indicates a non-significant path.
Fit indexes: $\chi^2$ ($df = 238$) = 569.54, $p < 0.001$, comparative fit index (CFI) = 0.90, Tucker–Lewis index (TLI) = 0.88, root mean squared error of approximation (RMSEA) = 0.072. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.
[a] This path is constrained to 1.0.

standardised coefficient was modest in purposive value (standardised $\beta$ = 0.16), but both intrinsic enjoyment ($\beta$ = 0.19) and social enhancement value (standardised $\beta$ = 0.29) exhibited solid effects. Thus, the data provide support for H2a to H2c.

In H3a, it is presumed that inherent novelty seeking has a direct and positive effect on desire. This path was statistically significant (standardised $\beta$ = 0.22), as was the association between inherent novelty seeking and opinion leadership (standardised $\beta$ = 0.42), as specified in H3b. Therefore, H3a and b are both supported by the data. By contrast, the path from inherent novelty seeking to social intention, which was hypothesised in H3c, was neither significant nor positive (standardised $\beta$ = –0.10, $p = 0.20$). This is contrary to the expectation in both respects. Thus, H3c was rejected.

In H4, opinion leadership was hypothesised to directly and positively affect social intention. This path shows a modest but significant effect (standardised $\beta$ = 0.17), supporting the study's proposition.

Finally, in the attempt to find any statistical difference in the paths between the two groups, a multigroup analysis was run. Following Byrne (2001), two models were created. In the first, all structural paths were unconstrained between the two groups and, in the second, all the paths were constrained to be equal. The two models were then simultaneously estimated. The procedure produced a $\chi^2$ difference of 35.97 with 24 degrees of freedom, which is statistically non-significant at $p < 0.05$. Given this information, it was concluded that all the paths in the causal structure are invariant across pcWOM and mWOM.

## Moderating effect of eWOM media

Finally, to address H5a and b, a test for invariant latent mean structure was performed. In the CFA validated in the measurement assessment, the parameters were to be freely estimated in the mWOM model, while those in the pcWOM model were fixed to zero as a reference group. In this way, it was possible to examine whether the latent means for the former were significantly different from those for the latter. The results indicate an acceptable model fit: $\chi^2$ = 794.16 ($df$ = 442, $p < 0.001$), CFI = 0.92, TLI = 0.90, RMSEA = 0.043.

Table 5 shows the results of the test for invariant latent means. As seen clearly, six out of ten latent means show statistically significant differences. Specifically, the latent means for purposive value and social intention are significantly greater in mWOM than in pcWOM, suggesting that the respondents are likely to perceive higher levels of these constructs when exchanging information via mobile internet than via PC internet. By contrast, the difference in social enhancement was not statistically significant. Thus, H5a was only partially supported by the data. Finally, with regard to social identity, the latent means of cognitive and affective social identity were significantly greater in mWOM than in pcWOM, while that of evaluative social identity was statistically similar in both media. Thus, H5b was only partially supported.

**Table 5: Test for invariant latent mean structures**

|  | pcWOM | mWOM | Standard error | t-value |
|---|---|---|---|---|
| Social intention | 0 | 0.57 | 3.56 | *** |
| Desire | 0 | 0.30 | 2.08 | * |
| Purposive value | 0 | 0.40 | 3.27 | ** |
| Social enhancement | 0 | −0.12 | −0.89 | n.s. |
| Intrinsic enjoyment | 0 | 0.42 | 3.56 | *** |
| Cognitive social identity | 0 | 0.55 | 4.65 | *** |
| Affective social identity | 0 | 0.39 | 3.04 | ** |
| Evaluative social identity | 0 | 0.05 | 0.38 | n.s. |
| Opinion leadership | 0 | −0.09 | −1.88 | n.s. |
| Inherent novelty seeking | 0 | 0.04 | 0.34 | n.s. |

Note: [a] Reference value. The latent means of pcWOM were fixed to zero.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, n.s. = non-significant.

## Limitations

Regarding the objectivity of these findings, it is important to recognise the exploratory nature of this study, and its limitations. First and foremost, this study is an exploratory empirical exploration whose results may not be generalisable. While this research does offer useful and insightful implications for future work, lessons and implications reported herein should be treated with caution. Second, the data were collected in Japan, where country-specific factors cannot be ignored. The collectivist and IT-orientated nature of Japanese society may have influenced the patterns for how WOM spreads online. Third, this study was based on self-reported data, which may not have revealed the true intention of the respondents. Fourth, in order to clearly accentuate differences between PC and mobile internet users, this study did not consider cases in which respondents use both regularly. Finally, this study is essentially a feasibility test based on a limited sample size with a modest response rate. Although this study employed multi-stage probabilistic sampling, the respondents were chosen only in the greater metropolitan area, which may not be representative of the entire population.

## Implications

This study should be viewed as a benchmark study for an empirical examination of eWOM. To the author's knowledge, research on this topic remains sketchy, despite a recent proliferation of interactive communication technology. This research makes three primary contributions by (1) testing a basic framework of the social influence model in an eWOM context, (2) highlighting the importance of the relationship between individual-level variables (gratifications and desire) and group-level variables (social identity and social intention) in this context, and (3) identifying latent mean differences between pcWOM and mWOM. The results from an empirical survey in Japan provide support for the basic propositions.

First, the most important findings of this study concern its identification of the theoretical model of eWOM in two different electronic venues: pcWOM and mWOM. The present study supports the application to eWOM of Dholakia *et al.*'s (2004) social influence model. The vital role that social identity plays in electronic information exchange between peers may not be surprising. It is surprising, however, that our results revealed a direct effect from social identity to social intention. This path was not supported by prior research on virtual community (Dholakia *et al.* 2004) or small brand community participation (Bagozzi & Dholakia 2006), in which social identity was found to influence social intention *only* through desire. The most logical explanation is probably that, unlike a virtual community, participants in eWOM are more spontaneous, and also strongly tied with a sense of 'belongingness', because (1) the information exchange has been reduced to a routine, and (2) the members also interact with one another on a face-to-face basis: they are likely to be family, friends, colleagues or schoolmates. Thus, eWOM does not involve an additional socialisation process that would be necessary in the case of a virtual community in which unknown strangers are expected to develop a social group. In addition, while the primary objective of eWOM is awareness creation and benefits signalling via information exchange, without exercising normative pressure on the information recipients, the primary goal of a virtual community is to achieve functional goals (i.e. to learn or to obtain specific information). Thus, the interaction among the members is calculative, short term and even superficial, especially in a network-based virtual community (Dholakia *et al.* 2004). Probably for this reason, eWOM

entails a simultaneous interaction between 'I'-level desire and 'we'-level commitment through social identity.

On the other hand, while our proposed model stands out, and differs from the virtual community model, it does so only in this path. That is, the model appears to be robust in its ability to be applied to other types of online communication. This may imply that, while our model highlights the unique causal structure of eWOM, what we have really validated may be a model that describes the larger phenomenon of online communication. The eWOM may be substituted for more general 'online exchange', but adding in distinguishing or clarifying elements that make it specific to eWOM. This is more empirically and theoretically sound, given the findings of prior and present research.

Among the additional constructs in the extended model, our data empirically supported the role of inherent novelty seeking and opinion leadership. However, to our surprise, the path from inherent novelty seeking to social intention was not significant. Further, the effect was negative. A possible interpretation of this is found in Midgley and Dowling (1978), who argue that the concept of innovativeness involves communication independence, determined by the degree to which a consumer's decision process is independent of others' personal influence in the social system. Thus, inherent novelty seeking per se does not act as an antecedent or cause of social intention. Individuals high in this propensity avoid interpersonal influence, consciously or unconsciously, to protect their information independence, and are thus unwilling to participate in eWOM. Some of them would disseminate innovative information, but *only* if they wanted to be opinion leaders.

The perceived levels of constructs were found to be higher in mWOM than in pcWOM, with regard to social intention, desire, purposive value, intrinsic enjoyment, cognitive social identity and affective social identity. Statistically, the difference was most striking in social intention, intrinsic enjoyment and cognitive social identity, all of which are likely to be perceived more favourably by participants in mWOM than by participants in pcWOM. One possible explanation for this may be that consumers who exchange information through mobile devices tend to be more conscious, and more intentional, than those who exchange information through PC. After all, a mobile device is a 'telephone', the primary objective of which is *message* transmission, while a PC is a 'processor', with the primary

objective of *data* transmission. Taken together, the mobile is indeed a better communication medium than the PC, and this motivates consumers to be more active in WOM. This is probably one of the most important differences between mWOM and pcWOM.

Furthermore, the higher level of intrinsic enjoyment found in mWOM is consistent with the generally accepted view that a mobile device provides consumers with an enjoyable, gratifying experience in a ubiquitous way. This aspect may be related to the demographic differences between the participants in PC-based and mWOM. That is, in mWOM, more than three-quarters of the participants are under 40 years old. In fact, more than half are under 30 years old. It appears reasonable to assume that such younger participants tend to appreciate the intrinsic enjoyment more than their older counterparts. In addition, our descriptive statistics show that the second most frequently exchanged information was shopping information in mWOM, but product and service complaints in pcWOM. Thus, it is possible that participants in the former perceived more positive emotions than the latter.

## Future research directions

There are several ways to extend the academic understanding of eWOM. First, and in general, it would be interesting to analyse how the type of information affects eWOM behaviour. For example, how does commercial information exchange differ from non-commercial information exchange via electronic venues? Similarly, it will be of great interest to analyse how price information search, as opposed to non-price information search, affects consumers' participation in eWOM.

Second, in terms of pcWOM, it would be useful for future work to examine the relationship between pcWOM and different communication channels, such as advertising, promotion and public relations. Because the existing literature on traditional media suggests that the components of the marketing communication mix each generate distinct effects from one another, the information exchange mechanism in pcWOM may also differ according to the information obtained from different channels. Such interaction between traditional and pcWOM may be a promising avenue for future research.

Finally, in the light of advances in mobile technologies, it would be interesting to investigate how consumers disseminate information obtained from different venues of mWOM. For example, satellite-based global positioning systems (GPS) provide an ultimate mode of ubiquitous services, which is completely controlled by the information provider, rather than the recipient, because the information is tied in to the physical location of the information recipient. By contrast, there are applications that are entirely physically independent, such as search engines. Answering the question of how the level of location sensitivity relates to the structure and mechanism of mWOM will provide important and necessary information for future WOM marketers and advertisers.

## Appendix: Questionnaire items employed in this study

| Constructs (source) | $\alpha$ | CR | AVE |
|---|---|---|---|
| 1. Purposive value (Dholakia *et al.* 2004; $\alpha = 0.71$, CR = 0.92, AVE = 0.69)<br>• I want to transmit to somebody the information I found.<br>• The information I found may provide specific benefits to others.<br>• I think the information I found may be helpful in solving someone's problem. | 0.71 | 0.92 | 0.69 |
| 2. Social enhancement (Dholakia *et al.* 2004)<br>• I want to impress others by distributing the information I found.<br>• I want others to recognise me as an important information source. | 0.86 | 0.94 | 0.86 |
| 3. Intrinsic enjoyment (Ko *et al.* 2005)<br>• Exchanging information is really enjoyable.<br>• Distributing information is a fun way to kill time. | 0.67 | 0.85 | 0.78 |
| 4. Desire (Dholakia *et al.* 2004)<br>• I desire to share interesting information that I have right now with somebody by word of mouth this week or next week.<br>• In the course of the next month, I want to provide word-of-mouth information to others on the topics I have long been interested in.<br>• I will try to find out today or tomorrow whether there is any word-of-mouth information on the topic I am interested in. | 0.82 | 0.94 | 0.73 |
| 5. Cognitive social identity (Dholakia *et al.* 2004)<br>• Please think about a group of people with whom you exchange information very frequently. To what degree does your self-image overlap with the identity of that group, as you perceive it?<br>• Please think about a group of people with whom you exchange information very frequently. To what degree do your values and lifestyle overlap with those of that group, as you perceive them? | 0.77 | 0.89 | 0.79 |
| 6. Affective social identity (Dholakia *et al.* 2004)<br>• When you are engaged in the information exchange we mentioned above, how strong would you say your feelings of belonging to that group are?<br>• When you are engaged in the information exchange we mentioned above, how attached are you to that group? | 0.81 | 0.94 | 0.84 |

| Constructs (source) | α | CR | AVE |
|---|---|---|---|
| 7. Evaluative social identity (Dholakia *et al.* 2004) | 0.89 | 0.96 | 0.89 |
| • When you are engaged in the information exchange we mentioned above, do you feel you are a valuable member of that group? | | | |
| • When you are engaged in the information exchange we mentioned above, do you feel you are an indispensable member of that group? | | | |
| 8. Opinion leadership (Gilly *et al.* 1998) | 0.79 | 0.83 | 0.60 |
| • My friends want me to listen to their problems. | | | |
| • I am a very social person. | | | |
| • I can usually make crucial decisions for others. | | | |
| • My friends say that my ideas and opinions are creative and original. | | | |
| • I can usually reconcile different types of opinion. | | | |
| • I usually try to transmit third party information correctly. | | | |
| • I usually take leadership in groups. | | | |
| 9. Inherent novelty seeking (Im *et al.* 2003) | 0.65 | 0.81 | 0.60 |
| • I am very keen on fashion and fads. | | | |
| • I am usually eager to buy a new product as soon it is as available. | | | |
| • I usually try to look for new advertising messages. | | | |
| • When I want to buy something new, I try to collect as much information on it as possible. | | | |
| • When necessary, I try to find new information by myself. | | | |
| • I really like collecting interesting information and recommending new things to my friends. | | | |
| 10. Social intention (original) | 0.89 | 0.96 | 0.89 |
| • I believe that, either this week or next week, I will exchange information with the group of people with whom I am always engaged in word-of-mouth. | | | |
| • I believe that the word-of-mouth network to which I belong will start some kind of information exchange quite soon. | | | |

Note 1: For all items, a seven-point 'not at all' to 'very much' scale was used.
Note 2: CR = composite reliability; AVE = average variance extracted. The CR and AVE scores are computed for each multiple indicator construct using the data obtained from the confirmatory factor analysis. The formulas were adopted from Hair *et al.* (2006).

# Acknowledgements

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