WORKING PAPER NO: 312

An Empirical Study on Tendencies towards word-of-mouth communication of mobile phone users

BY

S Ramesh Kumar
Professor
Marketing Area
Indian Institute of Management Bangalore
Bannerghatta Road, Bangalore – 5600 76
Ph: 080-26993184
rkumar@iimb.ernet.in

U Dinesh Kumar
Professor
Quantitative Methods and Information System Area
Indian Institute of Management Bangalore
Bannerghatta Road, Bangalore – 5600 76
Ph: 080-26993146
dineshk@iimb.ernet.in

Anuradha Sridharan
Product Manager
Cleartrip Travel Services Private Limited
anuradha.sridharan@yahoo.co.in

Lakshmi Narasimham
R&D Line Manager
Nokia Siemens Networks Limited
narasim82@gmail.com

An Empirical Study on Tendencies towards Word-of-Mouth Communication of Mobile Phone Users

Abstract

Word-of-Mouth (WOM) communication has become one of the most important channels to share information about products and services. With today's rapid technological advancements, it becomes imperative to analyze the impact of *Technical Savvy* and its role in the creation and consumption of word-of-mouth. In this paper, we have analyzed the inter-linkages between WOM creation, WOM consumption and opinion leadership based on existing literature. We have introduced a new dimension 'Technical Savvy' among the prevailing inter-linkages and have evaluated its influence on WOM creation and consumption. Using a survey administered on a convenience sample of mobile phone users, we have been able to draw some insights on the correlations between technical savvy, opinion leadership traits specific to mobile phones, WOM creation and WOM consumption. The results show that there is a correlation between opinion leaders who spread WOM through social media and tech savvy.

Among the non-opinion leaders, it is significant to note that the level of tech savvy depends upon the consumption of information from friends, co-workers or colleagues. Non-opinion leaders also show a correlation between tech savvy and tendency towards creation of codified buzz. The analysis also reveals that non-opinion leaders are less likely to be opinion seeking. It also shows that tech savvy is correlated with both information consumption and information creation from both friends and social media.

1.0   Introduction

Word-of-mouth (WOM) communication has become a critical information-sharing medium which can influence consumers' buying decisions and attitudes towards product categories and brands. In this paper, we study the tendencies towards WOM and how they vary between people who are technically savvy and people who are not. Buzz or word-of-mouth marketing (one consumer sharing information/his excitement with another and the phenomenon taking a viral effect) is one of the topical strategies in marketing.

With the Indian emerging markets reflecting proliferation of mobile phone consumers (one of the markets where mobile services have grown rapidly with about 500 million consumers within a short period of time), there were several research perspectives that could be investigated among the users of mobile phones. This paper addresses word of mouth (WOM) and its implications for the strategy of brands in the Indian mobile market. It was felt by the authors that word of mouth is an area that is important from the viewpoint of marketers of mobile phones as consumers tend to use mobile phones both for functional and symbolic purposes. This aspect of consumer buying makes a mobile a good product to investigate using WOM dimensions that may matter to consumers. Being a lifestyle-based gadget and also sold in varying price ranges with several brands in the competitive fray, we feel that consumers' curiosity would engage them in WOM conversations about the category in general and brands in particular.

WOM is also becoming a powerful tool in the present day context, either having tremendous potential to create a brand or to ruin a brand. In studies that Dr East conducted in several categories of products including mobile phones, he found that 30% of WOM was about brands that have never been owned by people who owned them (Rosen, 2010). WOM can have an impact on the power of the collective (Evans, 2010), the way in which the social web is organized. WOM can also have an impact on the hype cycle (Jackie and Rasikino, 2008) which is associated with the initial hype and hope associated with the launch of new or innovative offerings. Both the power of the collective and the hype cycle are important in the Indian context where around 60% of the population is below the age of 25 years. The convergence technologies with the arrival of 3G technologies are likely to provide a greater fillip to WOM among the young population.

Kumar *et al.* (2007) have discussed the importance of customers doubling up as salespeople which will therefore have an impact on Customer Lifetime Value (CLV). CLV will include a measure of the customer's ability to bring in profitable new customers. So the individual's willingness to make referrals becomes crucial while calculating CLV. A firm that targets customers who would be willing to make profitable referrals will earn a better return on its marketing investments. Customer Referral Value (CRV) is calculated based on the estimated number of successful referrals a customer would be willing to make. If a new customer purchases a product primarily due to a referral from an existing customer, then such a customer is a type-one referral whose referral value needs to be incorporated within the CRV of the existing customer. On the other hand, if a new customer purchases a product irrespective of the referral, then such a customer is a type-two referral whose referral value should only include the savings in acquisition for the firm.

Trusov *et al.* (2009) have shown that WOM referrals have substantially longer carryover effects than traditional marketing actions and produce substantially higher response elasticities. For marketers of products like mobile phones it therefore becomes attractive to market their new products and features through word-of-mouth marketing. Consumers who are tech savvy usually

relate easily to the new features and capabilities of mobile phones or other similar products. Brands have been able to reach such consumers by highlighting the product features and benefits by exploiting the word-of-mouth communication. In the case of non-tech-savvy consumers, enabling such word-of-mouth or buzz creation is a key challenge to brands since the expectations of such consumers are not just linked to innovative product features or benefits. As mobile phone brands are trying to reach out to all kinds of consumers in India, it is imperative to understand the behavioural differences in order to highlight the appropriate messaging in their communications.

The key objectives of this paper on word-of-mouth communication are as follows:
1. To explore the various dimensions of WOM communication;
2. To identify and analyze the key influencing factors related to WOM creation and consumption;
3. To understand the influences of opinion leadership characteristics towards WOM creation and consumption;
4. To outline a conceptual framework to analyze the inter-linkages between WOM creation, WOM consumption, opinion leadership and technical savvy.

To accomplish the objectives set, we have followed an approach as outlined below:
- Conduct a literature survey to
  - analyze different WOM dimensions based on earlier research
  - understand general opinion leadership characteristics.
- Create and administer a survey to gather specific characteristic traits of WOM creators, WOM consumers, general opinion leaders and tech-savvy consumers.
- Analyze the results to evaluate the inter-linkages across these different groups of consumers.

The rest of the paper is organized as follows. In section 2, we discuss the literature highlighting various studies based on word of mouth. Impact of WOM on mobile phone users is discussed in section 3. Hypotheses and analysis of the data are presented in section 4. Managerial implications are discussed in section 5. Conclusions and recommendations are discussed in section 6.

2.0   Literature Review

To understand the motivation behind talking about a product or a service, Dichter (1966) acknowledges the effects of four different involvement levels such as Product involvement, Self involvement, Other involvement and Message involvement. If the consumer had distinctly pleasurable or unpleasant experiences with a product or a service, there seems to be a tendency to call for mental repetition through speech. This helps to dispose of the excitement aroused by the use of the product. A self-involved speaker gets hurt when his/her opinion is rejected by others. Rejection is more resented when another speaker's opinion has prevailed. On the other hand, other involved speaker uses WOM as a medium to express his need to help and to share his joy or frustrations in using a product with others.

Word of mouth can either be initiated by the consumer or the firm that sells the product or the service. In the paper 'Building the buzz in the hive mind' by Thomas (2004), buzz marketing is defined as the amplification of initial marketing efforts by third parties through their passive or active influence. Buzz can either be uncodified or codified. When individuals come across new information related to a product or a service, they pass the information on to their

4

social network voluntarily. This process leads to creation of uncodified buzz. As messages are exchanged within the social network, there is an implicit level of trust and credibility to the information.

Codified buzz is initiated and fostered by the firm through various means like testimonials, endorsements, customer referrals, etc. The reward has to be significant enough for the customer to make referrals. Testimonials and endorsements are given by people who are the key influencers or change agents in the respective product sectors. Their experience with the product helps in creating codified buzz, thereby increasing the credibility levels. Customer product ratings are collected from individuals who have purchased a product and are willing to share their experiences. Prospective consumers can get to know the product ratings from the collective knowledge that's being built from the customers of the product. Gift certificates are another means of creating codified buzz. By providing a gift coupon to a customer, new prospective customers can be attracted through WOM.

Brown and Reingen (1987) discuss the importance of social ties in spreading word of mouth and the relative effectiveness of the message being spread through this form of communication. The earliest formal studies on WOM conducted by Katz and Lazarsfeld (1955) found that WOM was found to be very influential in the purchase of household goods and food products. It was seven times as effective as newspapers and magazines, four times as effective as personal selling, and twice as effective as radio advertising in influencing consumers to switch brands. Brown and Reingen (2005) studied how WOM interaction happens in small groups and the flow of communication across different groups. At micro level they also looked at which interpersonal ties are more effective in influencing consumer purchase decisions.

Mazzarol *et al. (2007)* argue that WOM needs to be examined as a rich construct and provide a conceptualization of WOM. A single unit of WOM is used in the study which is defined as a specific incident in which WOM is given. Based on a focused group research, the authors find that there are two key WOM themes – richness of message and strength of advocacy. The authors further discuss triggers of WOM which are instrumental in its occurrence. Some of the triggers could be the necessity of the receiver, serendipity and promotion. In addition to triggers there are also conditions which enhance the incidence of WOM given its existence. The main conditions were found to be a tendency to act as an advocate of the organization, closeness of the giver and the receiver, risk associated with the communication and the self-confidence of the giver.

The listener's motivation is influenced by the following groups of people whose opinions are considered trustworthy and credible:
- Commercial authorities
- Celebrities
- Connoisseurs
- Sharers of Interests
- Intimates
- Bearers of tangible evidence.

Once there is enough motivation on the listener's side, the level of influence such motivation can have and can lead to purchase decisions depends on multiple factors. Social ties seem to play a significant role in taking the motivation levels to influence actions.

Most studies (Ying and Chung, 2007) on WOM (have studied the effects of positive or negative WOM. This paper examines the effects of WOM from the same source that has both positive and negative valence. Based on earlier research on information order effects, there are

two possibilities. A recency effect in cases where involvement is low or a primacy effect in cases where the subjects engage in cognitive reasoning. Thus the level of information processing might act as a mediator in cases where there is mixed valence WOM. Studies conducted on attitude towards product and purchase intention of two service categories based on factors on involvements (high vs. low) and presentation order of information reaffirmed earlier findings that positive WOM impacted attitude towards product and purchase intention more favourably than negative WOM. However in mixed valence conditions, levels of involvement could not be established as a mediating factor. In three cases out of four, the recency effect tended to dominate the effect of WOM. Hence implying that if positive WOM is presented after negative WOM by the same source effect of WOM on attitude towards product, then purchase intention would be favourable as against presenting negative WOM after positive WOM.

Herr *et al.* (2008) investigated the mediation of WOM effects on perception. Based on studies conducted, it has been shown that positive anecdotal WOM communication is more effective than extensive, diagnostic attribute information. The accessibility-diagnosticity model indicates that when more diagnostic information is available then accessible information is not used for making decisions. Since information from WOM is accessible, the paper surmises that vividly presented WOM should have lesser impact on perception when detailed information is presented. Experiments conducted showed that in cases where extreme negative product-attribute information is presented, the effect of vivid WOM communication is reduced.

Sweeny *et al.* (2008) examine the word of mouth and its effect on the receiver rather than the sender. Through focus group study about a service organization, it has been shown that there are four broad factors which enhanced the impact of WOM on the receiver. These have been characterized as personal, interpersonal, situational and message characteristics. In personal factors, three issues were found to be relevant: sender characteristics which included aspects like credibility and expertise, need for reassurance for the receiver in making the purchase decision and finally receiver characteristics which include receiver's expertise and past experiences. Among interpersonal issues, strong ties between the sender and the receiver seemed to have an influence on the receiver. In case of a weak tie, the nature of opinion seemed to be an influencing parameter. Situational factors influencing WOM effectiveness indicated that there are specific situations in which WOM is more effectively received. These were as follows:

- service in question is complex, the receiver has less information;
- lack of time for the receiver in making the decision;
- receiver seeking information rather than sender giving it voluntarily.

Finally vividness of the message, communication and non-verbal cues also seemed to impact the effectiveness of WOM.

Myers and Robertson (1972) explore the various dimensions of opinion leadership. Based on an empirical study, it is found that opinion leadership is related to knowledge about a topic and interest in the topic. Demographic variables did not seem to have a relation to opinion leadership. A moderate relationship was seen between innovation and opinion leadership. No general opinion leaders were found although there was some overlap in the opinion leadership on related topics. Opinion leadership was found to be positively correlated to social leadership and individual's overall level of social activity. Finally, a need for considering a two-way influence is also raised implying that opinion leaders are also influenced by others. King and Summers (1970) determine whether opinion leadership could be generalized. Contemporary literature suggested that opinion leadership is restricted to special topics. Based on the research conducted,

it was found that there is an overlap in opinion leadership across product categories. Significant overlap was found among related product categories.

Opinion leadership literature (Venkatraman, 1990) has explored the relationship between enduring involvement as well as situational involvement with opinion leadership. Enduring involvement is characterized by 'on-going concern with a product that transcends situational influences'. Marsha and Bloch (1986) attempt to find the nature of the relationship between enduring involvement and the characteristics of opinion leadership. The relationship could either be moderating or mediating. A moderating relationship explains when an effect occurs while a mediating relationship explains why and how the effects occur. Based on an experiment conducted with movies as the product category, the results indicate that 'opinion leadership mediates the relationship between enduring involvement and opinion leader characteristics of influence'. This implies that enduring involvement results in opinion leadership which then produces the behaviour associated with opinion leaders such as information sharing.

Richins and Root-Shaffer (1988) attempt to capture opinion leadership in an explicit, empirically tested model. The hypothesized model is one in which enduring involvement results in opinion leadership which in turn creates word of mouth. In addition, situational involvement also results in word of mouth. In other words, this model attempts to question the implicit assumption that word of mouth results from opinion leadership. Based on the experiments, it was found that there is an implicit relationship between opinion leadership and word of mouth. Enduring involvement emerges as a pre-condition to opinion leadership. Further, by dividing the word of mouth into product news WOM, advice-giving WOM and personal experience WOM, it is seen that the strongest relationship for opinion leadership is with advice-giving WOM. A significant result of this experiment is also that situational involvement can lead to some amount of personal experience WOM. Another result from the experiment indicates that there is also a direct result of enduring involvement in the form of product news WOM which is outside of the opinion leadership construct.

Lyons and Henderson (2005) attempt to capture the characteristics of online opinion leaders. Opinion leaders are considered to have an enduring involvement in the product category, exhibit a self-perceived product knowledge, exploratory behaviour and innovativeness. An empirical study conducted reaffirms that these characteristics of opinion leaders is also valid for online opinion leaders. It also goes on to show that knowledge of computers strongly influences opinion leadership. According to Ruvio and Shoham (2007) opinion leadership is defined as one's behavioural tendency and ability to influence the purchase decisions of others and market mavens are those individuals who have information about many kinds of products, places to shop and other facets of markets, and initiate discussions with consumers and respond to requests from consumers for market information. This study focuses on the relationships between mavenship, opinion leadership on exploratory behaviour as well as innovativeness. Market mavens are differentiated from opinion leaders on three dimensions:

- Market mavens are more useful when information regarding changes in the marketing mix are involved.
- Market mavens have general market knowledge whereas opinion leaders tend to be product category specific.
- Motives underlying mavenship and opinion leadership are different.

Cosmas and Sheth (1980) define a opinion leader as someone whose opinions are highly respected and valued by the receivers to help in making decisions. This person can be someone with whom the receiver has personal contacts or someone in public life. There are 24 attributes

of opinion leaders that the authors have identified and tested through their research methodology. Some of the relevant characteristics from this list are that an opinion leader is an authoritarian in his respective field, has all-round knowledge, has strong opinions on different things and is quite experienced in life. There are seven key dimensions of opinion leadership which have been evaluated across different cultures.

1. Practical
2. Authoritarian
3. General Expert
4. Accessible
5. Peer Expert
6. Self-centered
7. Opinionated

In trying to understand the linkages between word of mouth or buzz marketing, involvement levels and opinion leadership, we can identify three core themes to explain the linkages using the literature survey. The interaction between these three themes and identification of the influence of technical savvy will form the basis of our research.
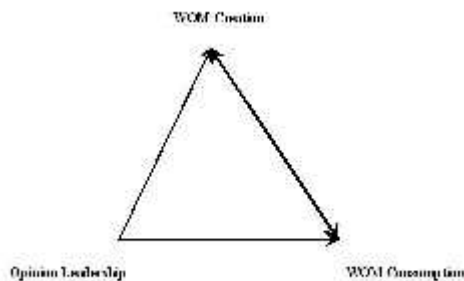

Figure 1 Interaction between opinion leadership, WOM creation and WOM consumption

From the literature survey, it is clear that there are facets of opinion leadership which continue to be challenged by newer products that emerge in the market place. For instance, a product like a mobile phone these days includes the functionalities of several products (phone, camera, PDA, music player). Users of mobile phones might have selective expertise among some features of a mobile phone depending on the extent of tech savvy which they exhibit.

A person is said to be tech savvy when he or she is aware of the latest technological advances and uses them on a regular basis. On the other hand a consumer who is an expert user of mobile phones might not have the need to use some of the sophisticated technological features. Such consumers who could be called non-tech savvy nevertheless might still be opinion leaders when it comes to mobile phones. The tendencies towards WOM among these two categories of opinion leaders would be the subject of further experimentation and study. Based on the empirical studies in this direction we hope to derive results which would have both conceptual and managerial implications.

3.0 Impact of Word of Mouth on Mobile Phone Users
To study the impact of word of mouth, different dimensions of word of mouth to be analyzed were identified as follows:

1. Information consumption from friends and co-workers.
2. Information consumption from social media such as blogs, Twitter and Facebook.

3. Information creation or creation of uncodified buzz.
4. Information creation or willingness to participate in codified buzz.
5. Opinion leadership - general characteristics.
6. Opinion seeking.
7. Opinion leadership traits specific to mobile phones.
8. Tech savvy.

Various aspects to evaluate these dimensions were formulated using a Likert scale approach. A survey was designed to measure the ratings across these various dimensions. General demographic attributes such as age range, gender and occupation were also added as part of this survey. The survey questions are shown in appendix 1.

3.1   Measurement Scales

A 5-point Likert scale was used for measuring the different aspects of WOM-related dimensions. The scale provided to the respondents was
1. Strongly disagree (Value = 1)
2. Disagree (Value = 2)
3. Neutral (Value = 3)
4. Agree (Value = 4)
5. Strongly agree (Value = 5).
The demographic attributes like age, gender and occupation were obtained by providing the respondents with a fixed set of predefined choices to choose from.

3.2   Sample characteristics

The data collection approach adopted was based on a convenient sampling technique. The responses were collected from 102 respondents; 79% of them were male and 21% of them were female. In terms of the age range, 58% of them belonged to the age range of 26–30 years; 22% belonged to the range of 31–35 years;13% belonged to the range of 21–25 years and the remaining 7% belonged to the range of 36–40 years. With respect to occupation, 90% of them belonged to the working professional (IT) category. Seven responses were discarded since these respondents used only a company-provided mobile. These respondents continued to use the company-provided mobiles despite their own preferences. Further, the time since the purchase of a mobile phone was distributed shown in table 1.

Table 1. Time since purchase of mobile phone

Time since purchase	No. of respondents
More than 2 years	30
Between 1 and 2 years	30
Between 6 months and 1 year	18
Between 3 and 6 months	8
Less than 3 months	9

4.0   Hypothesis

While we wanted to form hypotheses, we also took into account the contextual setting in an emerging market like India other than considering the extant literature. India has a huge population with varying lifestyles and diversity of several kinds. The degree and strength of relationships between two persons are relevant when the diffusion of information across any network is considered. Taking into account the diversity and cultural aspects of the context, tie strength in a network offered interesting possibilities in terms of its impact on opinion leadership and diffusion of information. Weak ties between individuals (low intensity of relationship between individuals) are important from the viewpoint of integration of these individuals into a community (Granovetter, 1973). In the context of an emerging market, the term community may be an organization, an informal group or a formal group or an institution. We posit that given the large population and heterogeneity, networks and information flows do not only depend on strong ties that are formed between consumers or individuals but also depend on weak ties that are formed in a network. This also enables individuals to connect with several others in the population and exchange information: to that extent information diffusion as well as integration of the individuals is likely to happen. Evans (2000) in his paper mentions the design of the social web that could have an impact on WOM. The social web in an emerging market may also have a 'weak tie' basis in the backdrop of several other factors that drive the WOM. Weak ties also contribute to uncodified buzz (Thomas 2004) as superficial conversations are a part of the socialization process in the Indian context and weak ties offer an important direction for individuals to interact in a society where the power distance is high (Hofstede, 2001). Sweeney *et al.* (2008) also make a mention of weak ties and the nature of the opinion and also delve into situational factors, though it does not reflect the direction we have posited. Asian collectivist cultures are characterized by high-context communication (de Mooji M, 2004). The information flow is faster and cultural symbolism plays a role in the communication. There are possibilities for weak ties to play an important role in the high context where information flow is not direct and explicit. Based on these arguments we feel that in a broader and unique contextual setting, technology orientation of individuals will get subjugated to weak ties and high context characteristics with regard to diffusion of information. Individuals with strong ties may have similar brand preferences (Van Den Bulte and Wuyts, 2007). We feel that information flows may occur more in the form of word of mouth (two-way interaction) in an environment characterized by weak ties than as opinion leadership. Considering many aspects that include opinion leadership, technical orientation of respondents in the ***context of the existence of weak ties***, we propose the following hypothesis:

> **H1**: Only minority of the consumers are expected to be opinion leaders for the product.
> **H2**: Opinion leaders tend to consume more information from social media as opposed to non-opinion leaders.
> **H3**: Tech savvy has a strong correlation with mobile phone opinion leadership.
> **H4**: Non-opinion leaders show high degree of information consumption from friends with differing levels of ties.
> **H5**: Tech savvy people create information through codified buzz and opinion seeking.

4.1   Data Analysis

Since Likert scales are also referred to as summative scales, the responses for individual variables were summed up based on the dimension to which they belong to. The summed values were used for the analysis. From the data collected, opinion leaders with respect to mobile phones had to be identified. Consistent with the opinion leader theory, only a minority of the consumers are expected to be opinion leaders for a given product field (Ruvio and Shoham, 2007). In our case, the respondents with opinion leadership scores greater than the 3rd quartile were considered as opinion leaders. Totally 22 out of the 95 respondents qualified as opinion leaders. The remaining respondents were categorized as non-opinion leaders with respect to mobile phones. The opinion leaders had a score of 16 or above out of a total score of 25 for mobile phone opinion leadership. Summary statistics of the hypothesized dimensions are presented in Table 2

Table 2. Summary statistics of mobile phone users

Variable	Overall		Opinion Leaders		Non-Opinion Leaders	
	Mean	SD	Mean	SD	Mean	SD
Info_Con_Frnds (30)	20.82	3.68	21.55	3.88	20.60	3.62
Info_Con_Social (50)	30.65	5.49	33.82	4.53	29.70	5.42
Info_Create_Uncode (30)	18.51	4.03	19.86	4.28	18.10	3.90
Info_Create_Code (15)	7.62	2.10	8.09	2.29	7.48	2.04
Op_Ldr_Mob (25)	13.85	2.57	17.36	1.40	12.79	1.78
Op_Seek (15)	7.32	1.61	6.86	1.61	7.45	1.59
Tech_Savvy (30)	20.47	4.50	23.82	3.53	19.47	4.29

As can be seen from the above table, the scores for tech savvy is higher for opinion leaders compared to non-opinion leaders. It can also be seen that opinion leaders tend to consume more information from social media as opposed to non-opinion leaders. Correlations among the nine dimensions are presented in Table 3.

Table 3. Correlations among different dimensions of mobile phone users

		1	2	3	4	5	6	7	8	9
1	Usage Duration	1.00								
2	Info_Con_Frnds	0.08	1.00							
3	Info_Con_Social	0.13	0.56	1.00						
4	Info_Create_Uncode	0.02	0.65	0.72	1.00					
5	Info_Create_Code	0.15	0.33	0.41	0.55	1.00				
6	Op_Ldr_Mob	0.01	0.14	0.36	0.18	0.22	1.00			
8	Op_Seek	0.13	0.18	0.01	0.07	0.10	-0.07	-0.06	1.00	
9	Tech_Savvy	-0.06	0.48	0.43	0.50	0.47	0.39	-0.09	-0.17	1.00

4.2   Regression Results

To understand how tech savvy can be described in terms of the other variables, a regression was performed with tech savvy as the dependent variable and all other dimensions as independent variables. The regression analysis was carried out in two phases separately for mobile phone opinion leaders and non-opinion leaders. Opinion leaders and non-opinion leaders models can be specified using equations 1 and 2.

$$\text{Opinion Leaders} = \beta_0 + \beta_1 \times \text{Info\_con\_frnds} + \beta_2 \times \text{Info\_con\_social} + \beta_3 \times \text{Info\_create\_code}$$
$$+ \beta_4 \times \text{Info\_create\_uncode} + \beta_5 \times \text{Usage duration} + \beta_6 \times \text{Op\_Ldr\_Mob}$$
$$+ \beta_7 \times \text{Opn\_Ldr} + \beta_8 \times \text{Opn\_Seek} + \varepsilon$$

$$(1)$$

$$\text{Non - Opinion Leaders} = \alpha_0 + \alpha_1 \times \text{Info\_con\_frnds} + \alpha_2 \times \text{Info\_con\_social} + \alpha_3 \times \text{Info\_create\_code}$$
$$+ \alpha_4 \times \text{Info\_create\_uncode} + \alpha_5 \times \text{Usage duration} + \alpha_6 \times \text{Op\_Ldr\_Mob}$$
$$+ \alpha_7 \times \text{Opn\_Ldr} + \alpha_8 \times \text{Opn\_Seek} + \varepsilon$$

$$(2)$$

For the mobile phone opinion leaders, the regressions results are shown in Table 4.

Table Regression output for opinion leaders (equation 1)

	Coefficients	Standard Error	t Stat	P-value
Intercept	1.704993866	12.44210652	0.13703418	0.893103336
Info_Con_Frnds	0.118619341	0.259869247	0.456457785	0.655593561
Info_Con_Social	-0.068657326	0.289459453	-0.237191515	0.816205124
Info_Create_Uncode	0.339457055	0.3683591	0.921538399	0.373555466
Info_Create_Code	0.06932647	0.453263609	0.152949561	0.880786576
Usage Duration	0.117360522	0.58805737	0.199573253	0.844902166
Op_Ldr_Mob	1.150246592	0.635606441	1.809683662	0.093514494
Op_Seek	-0.002573915	0.424282646	-0.00606651	0.995251762

For the mobile phone opinion leaders the regression model had an adjusted R square coefficient of 0.41 with a standard error of 2.69. The F statistic of 2.86 had a significance of 0.044. Based on the analysis of regression coefficients, it can be seen that tech savvy has a strong correlation with mobile phone opinion leadership. Other than this relation, there was a marginal relationship between tech savvy and information creation through uncodified buzz. None of the other variables had a significant correlation with tech savvy. Regression results for non-opinion leaders are shown in table 5.

Table 5. Regression output for non-opinion leaders (equation 2)

	Coefficients	Standard Error	t Stat	P-value
Intercept	11.58594927	4.632742575	2.500883457	0.014958978
Info_Con_Frnds	0.530403731	0.148806569	3.564383861	0.00069581
Info_Con_Social	-0.064173776	0.10985795	-0.584152313	0.561171273
Info_Create_Uncode	0.084632589	0.175503	0.482228732	0.631288641
Info_Create_Code	0.725029957	0.236787651	3.061941584	0.003213803
Usage Duration	-0.266475247	0.3434586	-0.77585842	0.440690282
Op_Ldr_Mob	-0.01412369	0.235209745	-0.060047215	0.952305144
Op_Seek	-0.735177984	0.26712905	-2.752145389	0.007693745

For the non-opinion leaders, the regression model had an adjusted R square coefficient of 0.35 with a standard error of 3.43. The F statistic of 6 had a high significance. Based on the analysis

of the regression coefficients, it can be seen that for the non-opinion leaders there is a strong correlation between tech savvy and information consumption from friends. There is also a significant correlation between tech savvy and information creation through codified buzz and opinion seeking.

5.0 Managerial Implications

WOM creation and consumption, opinion leadership and tech savvy of consumers can be conceptualized with two basic dimensions: (1) word of mouth and (2) consumer knowledge associated with the specific category. There are two aspects of marketing communication: consumer generated and marketers sponsored. The former involves WOM to a considerable extent and the latter involves advertising and other communications sponsored by the brand manager. In order to balance these two aspects, managers should know how WOM is associated with the consumer knowledge about the specific product category. This would enable marketers to synergize WOM with their marketing-sponsored communication. They may also be able to decide on the degree of codified or un-codified buzz required for a segment of consumers based on the knowledge of the consumers. High or low, exposure to word of mouth is one dimension and the other is high or low consumer knowledge.

5.1- High WOM Exposure and High Consumer Knowledge – Segment 1

If opinion leadership is sought by a consumer who is knowledgeable, a high degree of uncodified buzz is likely to occur before the marketer can generate codified buzz. Marketers need to ensure that the consumer knowledge is in a direction that would benefit the consumer. Myths, if any, about the category need to be considered by the marketer and delving into myths with this category of consumers is more complex than dealing with the segment of consumers who perceive themselves to have less knowledge about the product category.   Tech savvy consumers who perceive themselves knowledgeable are likely to draw less information from the social media (includes mass media or the online social media like Facebook etc.). This is a scenario where opinion leaders may exhibit several characteristics of innovators (Schiffman and Kanuk, 2007) other than just product knowledge and a high degree of interest in the category. These 'innovator' characteristics may perhaps differentiate opinion leaders from other knowledgeable consumers. Codified buzz from a brand needs to appeal both to the opinion leaders and the knowledgeable segment of consumers and hence may involve several product/ feature-related discussions that are exclusive to this segment of consumers. Opinion leaders who may also play the role of innovators with related characteristics are likely to be more receptive to customized information that can be formulated with codified buzz. Such communication on online social media is likely to engage the opinion leaders who in turn may use the codified buzz to communicate to consumers who may be highly knowledgeable about the category but may not be receptive at the outset to social media delivering mundane information about the category or brands. In the case of conspicuous product categories with status or psychological dimensions, it

may be assumed that the consumers may be equally interested in the knowledge aspect of the category or brand, given their higher degree of knowledge orientation towards the category. In this segment the codified buzz in a customized form may be a better option than marketing communication.

5.2 High WOM Exposure but Low Consumer Knowledge – Segment 2

Consumers having low knowledge about a product category may be amenable to perceived risk (more so if the offering is from a new brand) and they may also have a strong orientation to be impressed by the symbolic appeals of a brand (especially if it is a well-known brand). At least one cross section of such consumers may exhibit this tendency. There are two kinds of approaches that opinion leadership can play in this context with codified buzz. Opinion leaders can disseminate information about the category, benefits of specific brands and reduce the perceived risk in the case of unknown brands and critically compare known and unknown brands if the offering is from an unknown brand. Codified buzz may also strengthen the symbolic appeal of a well-known brand through the employment of such opinion leaders. Marketing communication for this segment of consumers needs to be strengthened with opinion leadership and codified buzz.

5.3 Low Exposure to WOM and High Consumer Knowledge Segment 3

Despite high consumer knowledge about the category domain, consumers in this segment may have a low exposure to WOM possibly because of their low interest in social networks (both online and offline). They may have a little but accidental exposure to buzz during their interaction with other consumers. One aspect that is important to probe is the tendency of these consumers to receive information from marketing-sponsored communication (unlike segment one that has a high degree of WOM exposure). The cognitive nature (need for cognition due to their knowledge levels) of consumers in this segment suggests that they will be exposed to some information to ensure that their quest for knowledge is satiated. Marketer-sponsored communication needs to dominate over buzz for this segment of consumers. It may be worthwhile to probe if these consumers become amenable to WOM to a significant extent after their initial exposure to marketer-sponsored communication, especially when they are contemplating the purchase of the product category. As in the first segment of consumers, it is highly likely that this segment of consumers would be also oriented towards category knowledge besides their probable interest in the symbolism associated with specific brands.

5.4 Low Exposure to WOM and Low Consumer Knowledge - Segment 4

Low exposure to both WOM and low consumer knowledge may occur due to lack of motivation, ability and opportunity (MAO) concerned with the respective product category. A consumer in this segment associated with the purchase of a mobile phone may not have the motivation or/and ability to analyze in depth the comparative aspects of several brands in the category. The consumers may not also have the affordability to buy the category. Given the low orientation of the consumer towards both consumer knowledge and WOM (this segment has to be interested in symbolism in the case of a socially conspicuous category), a marketer needs to ensure that the consumers in this segment opt for an offering that is in tune with their needs. Hence the knowledge aspect of the category/brands requires a strong thrust towards the point of sale (retailing point) rather than WOM/buzz. Even social media (including mass media) may fail to educate this segment of consumers on their own needs. Personal selling at the retail point can only ensure that the consumer in this segment benefits. WOM on retail outlets rather than on

brands or category may work for a marketer desirous of approaching this segment. Given the diversity of an emerging market like India, WOM studies should take into account marketing-sponsored communication and the consumer segment to ensure that there is synergy between WOM and promotional communication.

6.0   Conclusions

The objective of the empirical study was to study the linkages between WOM creation, WOM consumption, opinion leadership and tech savvy. While prior literature has studied the relationship between WOM creation, WOM consumption and opinion leadership, the influence of tech savvy was previously not studied in conjunction with these dimensions. The results show that there is a strong correlation between mobile phone opinion leadership and tech savvy. The opinion leaders identified in this survey exhibit strong tech savvy which is significantly higher compared to the non-opinion leaders. Further the results also show that there is a correlation between opinion leaders who spread WOM through social media and tech savvy. Among the non-opinion leaders, it is significant to note that the level of tech savvy depends upon the consumption of information from friends, co-workers or colleagues. Non-opinion leaders also show a correlation between tech savvy and tendency towards creation of codified buzz. This could be interpreted as the tendency of the non-opinion leader to become more tech savvy given an opportunity to create codified buzz. The regression also shows that non-opinion leaders are less likely to be opinion seeking.

From the correlation matrix, it is also clear tech savvy is correlated with both information consumption and information creation both through friends and social media. The interactions that were identified through the literature survey can thus be further enhanced with the results as described in Figure 2.
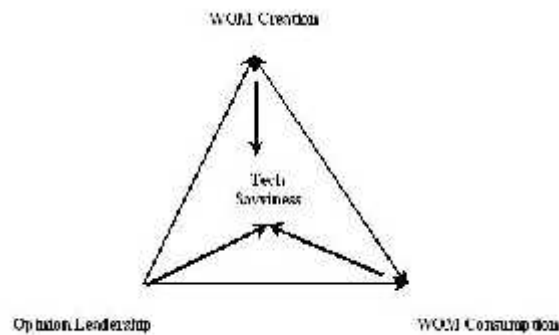

Figure 2. Opinion leadership, WOM creation, WOM consumption and Tech Savvy

From the results, we can conclude that WOM creation either through codified or un-codified buzz and WOM consumption from friends and colleagues can influence the level of tech savvy an individual possesses as a personality characteristic. In the present age, word of mouth is an important marketing tool. This is especially true for hi-tech products like mobile phones where companies introduce incremental technological innovations with every new model. With the penetration of mobile phones increasing all the time, the task of the marketer is to try and induce switching to newer models of mobile phones more often. The other task also is to try and sell superior models to the non-urban population.

The present day mobile phone is a complex device capable of numerous tasks. Therefore an average human being might not be able to understand the improvement in a newer model that is being brought to the table. However there are technologically discerning consumers who are capable and aware of the benefits and new features. The knowledge of technological features and the propensity to possess and use all new technological features could be termed as technical savvy. Technical savvy is a measure of how much a consumer is able to relate to the benefits when the marketer communicates the superiority of a product in terms of technical specifications.

Based on the review of existing WOM and opinion leadership literature, it seems intuitive that opinion leaders in the mobile phone categories would be tech savvy. But the intention of the study was to find the various aspects which are correlated to tech savvy. In that sense, tech savvy is not binary like opinion leadership. Our research confirms that opinion leaders are indeed likely to be more tech savvy. Further, the results show that tech savvy and WOM consumption and creation are correlated. It is interesting to note that while mobile opinion leaders tend to create uncodified buzz, there is a relationship between codified buzz and tech savvy among the non-opinion leaders. A practical implication of this finding to the marketer is that choosing a non-opinion leader for creating codified buzz might improve the level of tech savvy. This also makes intuitive sense since opinion leaders by definition are expected to spread word of mouth.

The main limitation of the study is that it uses a convenience sample rather than a stratified random sample. This undermines the practical significance of the results. Further, a higher sample size would have helped in establishing relationships between different dimensions identified in a more concrete manner. Further research could explore the relationship between these dimensions using other exploratory techniques.

References

1. A S Acar and M Polonsky (2007) 'Online Social Networks and Insights into Marketing Communications', *Journal of Internet Commerce*, Vol. 6(4), 2007.
2. H Assael (1992), *Consumer Behavior and Marketing Action*, 4th edn, Kent Publishing Company, Boston, MA.
3. J J Brown and P H Reingen (1987), 'Social Ties and Word-of-mouth Referral Behavior', *Journal of Consumer Research*, Vol. 14, No. 3, 350–362.
4. S C Cosmas and Jagdish N Sheth (1980), 'Identification of Opinion Leaders across Cultures: An Assessment for Use in the Diffusion of Innovations and Ideas', *Journal of International Business Studies*, Vol. 11, No. 1, 66–73.
5. E Dichter (1966), 'How Word of Mouth Advertising works', *Harvard Business Review*, Vol 44, 147–166.
6. R Emanuel, '*Buzz –Real Life Lessons in Word of Mouth Marketing*', Profile Books, 2010.
7. D Evans (2010), '*Social Media Marketing-An hour a day*', Times Group Books, 2010.
8. M Granovetter (1973), 'The Strength of Weak Ties', *American Journal of Sociology*, Vol. 78 (6), 1360–1380.
9. G Hofstede (1991), '*Cultures and Organizations: Software of the Mind*' McGraw Hill, New York.
10. F Jackie and Raskino (2008), '*Mastering the Hype Cycle, How to Choose the Right Innovation at the Right Time*', Harvard Business Press.
11. C W King and J O Summers (1970), 'Overlap of Opinion Leadership across Consumer Product Categories', *Journal of Marketing Research*, Vol. 7 (February 1970), 43–50.
12. V Kumar, J A Peterson and R P. Leone, (2007) 'How valuable is Word of Mouth?', *Harvard Business Review*, 85(10), 139-146.
13. H Lai Y, M Cindy and Y Chung (2006), 'The Effects of Single-message Single-source Mixed Word-of-mouth on Product Attitude and Purchase Intention', *Asia Pacific Journal of Marketing and Logistics*, Vol. 19 No. 1 (2007), 75–86.
14. B Lyons and K Henderson (2005), 'Opinion Leadership in a Computer-mediated Environment', *Journal of Consumer Behaviour*, Vol. 4, 5, pp. 319–329.
15. T Mazzarol, C Jillian , G Sweeney and N Soutar (2007), 'Conceptualizing Word-of-mouth Activity, Triggers and Conditions: An Exploratory Study', *European Journal of Marketing*, Vol. 41 No. 11/12 (2007), 1475–1494.
16. J H Myers and T S Robertson (1972), 'Dimensions of Opinion Leadership', *Journal of Marketing Research*, Vol 9 (Februrary 1972), 41-46.
17. M Paul, Herr, Frank R Kardes, John Kim (1991), 'Effects of Word-of-Mouth and Product Attribute Information on Persuasion: An Accessibility-Diagnosticity Perspective', *The Journal of Consumer Research*, Vol. 17, No. 4 (Mar., 1991), 454–462.
18. M L Richins and P H. Bloch (1986), 'After the New Wears Off: the Temporal Context of Product Involvement', *Journal of Consumer Research*, Vol.13, (Sept., 1986), 280–285.
19. M L Richins and Teri Root-Shaffer (1988), 'The Role of Involvement and Opinion Leadership in Consumer Word-of-Mouth: An Imididt Model Made Explicit', *Advances in Consumer Research*, Vol.15, 1988.
20. A Ruvio and A Shoham (2007), 'Innovativeness, Exploratory Behavior, Market Mavenship, and Opinion Leadership: An Empirical Examination in the Asian Context', *Psychology & Marketing*, Vol. 24(8), (Aug., 2007), 703–722.

21. J C. Sweeney, G N Soutar and T Mazzarol (2008), 'Factors Influencing Word of Mouth Effectiveness: Receiver Perspectives', *European Journal of Marketing*, Vol. 42, No. 3/4 (2008), 344–364.
22. G M Thomas, Jr., (2004), 'Building the Buzz in the Hive Mind', *Journal of Consumer Behavior*, Vol. 4, 1, 64–72.
23. M Trusov, R E. Bucklin and K Pauwels (Sept 2009), 'Effects of Word-of-Mouth versus Traditional Marketing: Findings from an Internet Social Networking Site', *Journal of Marketing*, Vol. 73 (Sept., 2009), 90–102.
24. C Van Den Bulte and S Wuyts, (2007) '*Social Networks and Marketing'*, Marketing Science Institute, Vol. 52, 53.
25. M P Venkatraman (1990), 'Opinion Leadership, Enduring Involvement and Characteristics of Opinion Leaders: A Moderating or Mediating Relationship?', *Advances in Consumer Research*, Vol.17, 60-67.

Appendix 1: Survey Questions
Measured Variables
For each of the 8 dimensions mentioned in section 3, certain variables were measured using Likert scale. The variables measured and their indicators are mentioned below:

Information Consumption from Friends and Co-workers
- Before buying a mobile phone I discuss it with friends and co-workers who I think are knowledgeable about mobile phones (INFO_CON_FRNDS_1)
- I normally discuss the latest trends in mobile phones with friends and co-workers (INFO_CON_FRNDS_2)
- Some friends and co-workers tend to discuss about mobile phones they purchased recently (INFO_CON_FRNDS_3)
- When I watch advertisements about mobile phones along with friends and co-workers, we tend to discuss more on mobile phones (INFO_CON_FRNDS_4)
- I trust a friend or co-worker's recommendation on mobile phone brands and features (INFO_CON_FRNDS_5)
- I usually discuss with several friends before I decide on which mobile phone to buy (INFO_CON_FRNDS_6)

Information Consumption from Social Media Such as Blogs, Twitter and Facebook
- I am connected to the internet for several hours in a day (INFO_CON_SOCIAL_1)
- I am active on social media sites such as Facebook, Orkut, Twitter or blogs (INFO_CON_SOCIAL_2)
- I regularly follow discussions on mobile phones, features of mobile phones on such media (INFO_CON_SOCIAL_3)
- I trust opinions on mobile phones available through this media (INFO_CON_SOCIAL_4)
- I read sections in magazines which discuss the latest mobile phone features and brands (INFO_CON_SOCIAL_5)
- I regularly tune into TV shows which discuss the latest mobile phone features and brands (INFO_CON_SOCIAL_6)
- I am an active member of social communities related to mobile phones (INFO_CON_SOCIAL_7)
- I trust the opinions of the experts from TV, magazines and social media (INFO_CON_SOCIAL_8)
- I seek information from one or more of the above media before buying a mobile phone (INFO_CON_SOCIAL_9)
- I trust the views of friends and co-workers more than the views expressed in these media (INFO_CON_SOCIAL_10)

Information Creation or Creation of Uncodified Buzz
- I am willing to make referrals or spread the message when I like a certain mobile phone model (INFO_CREATE_UNCODE_1)
- After I buy a mobile phone, generally I discuss it with friends and co-workers (INFO_CREATE_UNCODE_2)
- After I buy a mobile phone, I tend to discuss it on online forums, blogs and social networking sites (INFO_CREATE_UNCODE_3)

- When I hear about new mobile phone brands or features, I tend to discuss it with my friends and co-workers (INFO_CREATE_UNCODE_4)
- When I hear about new mobile phone brands or features, I tend to discuss it on online forums, blogs and social networking sites (INFO_CREATE_UNCODE_5)
- If I like a mobile phone which I bought recently, I recommend friends, co-workers and family to buy the same phone (INFO_CREATE_UNCODE_6)

Information Creation or Willing to Participate in Codified Buzz
- I am willing to participate in referral schemes offered by companies - refer a friend and get 10% off on my next bill for example (INFO_CREATE_CODE_1)
- I am willing to share my experiences with the mobile phones in blogs maintained by the mobile phone company (INFO_CREATE_CODE_2)
- I have shared my experiences with the mobile phones in blogs owned by the mobile phone company (INFO_CREATE_CODE_3)

Opinion Leadership - General Characteristics
- I often notice that I serve as a model for others (OP_LDR_1)
- I am often a step ahead of others (OP_LDR_2)
- I like to take the lead when a group does things together (OP_LDR_3)
- Compared with my circle of friends, I'm more likely to be asked for advice (OP_LDR_4)

Opinion Seeking
- To make sure I buy the right product, I often observe what others are buying or using (OP_SEEK_1)
- It's important that others like the products and brands I buy (OP_SEEK_2)

Mobile Phone Opinion Leadership
- Friends frequently seek my advice about Mobile phones (OP_LDR_MOB_1)
- I sometimes influence the choice of mobile phone which a friend buys (OP_LDR_MOB_2)
- My advice about mobile phones is valued by my friends (OP_LDR_MOB_3)
- My friends come to me more often than I go to them about mobile phones (OP_LDR_MOB_4)
- I have spoken about mobile phones with at least 5 people in the last six months (OP_LDR_MOB_5)

Tech Savvy
- I explore all the features available on the mobile phone (TECH_SAVVY_1)
- I use most of the features available on my mobile phone (TECH_SAVVY_2)
- I usually do not refer to the manual or seek advice from others before using the features of a mobile phone (TECH_SAVVY_3)
- I believe that I should always own a mobile phone which has all the latest technological features (TECH_SAVVY_4)
- My mobile phone contains all the latest features of a mobile phone (TECH_SAVVY_5)
- I compare features available in various mobile phone models/brands before visiting a store to buy the mobile phone (TECH_SAVVY_6)