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# **Gender Differences in the Determinants of Sharing Information via Mobile Phones**

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## **ABSTRACT**

*The notion of sharing information has become a critical element in competitive advantage for mobile phone companies. The purpose of this particular research is to collate, compare and prioritize gender differences in the determinants of sharing information via mobile phones. The content analysis and the analytic hierarchy process methods were made use of to collect and examine relevant data. According to the findings of this research, the determinants of information sharing via mobile phones may be arranged into four fundamental categories. The categories, in order of significant, are: situational factors (including time pressures, convenience, and price discounts), the unique characteristics of mobile phone senders (including personality, emotion, and verbal capability), informational factors (including private information, important information and interesting information), and mobile phone receivers (including personality, emotion, and verbal capability). There is no singular gender difference in the first two factors (situational factors and mobile phone senders). The results gauge and assess the determinants of information sharing by the way of mobile phones.*

## **INTRODUCTION**

The growth and progress of the mobile phone industry has accelerated considerably due to constant technological advancement. Mobile phones have changed significantly from serving as an engineering commodity to becoming one of the most popular consumer electronic products currently available (Catalan & Kotzab, 2003). Recently, new kinds of mobile services have made it possible to perform a number of tasks such as sending text messages, surfing the web, making payments, and purchases and engaging in digital imaging and banking ( Lu, Liu, Yu, & Yao, 2005; Mao, Srite, Thatcher, & Yaprak, 2005). It is useful to understand how mobile service companies should connect with their customers and distribute services (Jain, 2005; Parasuraman & Zinkhan, 2002). Consumers' use of mobile communication devices is increasing at a rapid pace, and devices based on mobile technology have become an ordinary part of daily life for many people (Balasubramanian, Peterson, & Jarvenpaa, 2002). The extent to which consumers share information on mobile phones has allowed mobile phone developers to improve and modify their product communications and information quality considerably (Li & Lin, 2006). Research has demonstrated information sharing via mobile phones as being a significant means for decision making in informal groups (Miranda & Saunder, 2003). In team projects, members can share their available information and resources (Mesmer-Magnus & DeChurch, 2009) as well as personal knowledge gained from work-related experience. This is crucial for the development of both systems integration and the performance of projects.

There is an abundant of interest in gender differences in the information technology field (Ronald, Stuart, & Jing, 2005). Contemporary studies have researched gender differences in a variety of contexts including e-mail (Gefen & Straub, 1997), Internet and Web use (Flanagin & Metzger, 2003), information retrieval systems (Venkatesh & Morris, 2000) and electronic commerce (Van Comunale & Belanger, 2002). A lot of this literature has centered on how men's and women's attitudes and perceptions differ when faced with informational technologies. Generally, men tend to have a more accepting attitude towards IT while women appear to have less experience using computers. Also, women seem to suffer greater levels of computer phobia and apprehension towards the use of computers (Van Comunale & Belanger, 2002; Durndell & Haag, 2002; Illie, Van Slyke, Green, & Lou, 2005), whereas men take a more favorable view of IT. There are, however, some conflicting results (Gefen & Straub, 1997).

As aforementioned, the primary purpose of this study is to investigate the determinants of sharing information by way of mobile phones. The second intention of this study is to prioritize gender differences in the determinants of information sharing with regard to mobile phone usage. This study is laid out in the following way: section two briefly reviews information sharing theories and gender differences; section three then presents the research design and methodology. Lastly, the analytical results and conclusions are displayed in sections four and five, respectively.

## **LITERATURE REVIEW**

### ***Information sharing theories***

What factors affect the way in which mobile phone users share information? There are various theories concerned with informational sharing. Firstly, the theory of reasoned action assumes that human beings are generally rational and have the ability to make systematic use of the information available to them (Fishbein & Ajzen, 1975). Secondly, the economic exchange theory states that individuals' behavior is based on reasonable self-interest. Amberg, Hirschmeier and Wehrmann (2004) argue that the Compass Acceptance Model (CAM) should be considered as it is especially designed for the analysis and valuation of user acceptance for mobile services. Information sharing occurs when the benefits exceed the costs (Kelly & Thibaut, 1978). The third notion to consider is the social exchange theory. The social exchange theory is concerned with intrinsic rewards (Blau, 1964). Fourth, according to Bandurd (1986) self-efficacy in the social cognitive theory may be defined as people's ability to judge their own aptitudes and behavior in order to achieve certain goals. These judgments of capability greatly influence decisions related to information sharing. In an effort to understand the dynamics which govern user adoption, various multidisciplinary studies have contributed to Davis' Technology Acceptance Model (TAM) (Davis, 1989; Hart & Poeter, 2004). Such studies include the work motivation theory, action theory, theory of reasoned action and task-contingent decision-making. Nysveen, Pedersen and Thorbjonsen (2005) introduce four expansive influences on IT usage: motivational influences, attitudinal influences, normative pressure, and perceived control. Li and Lin (2006) examine the determinants of information sharing and quality in supply chain management. These determinants include intra-organizational relationships. Accordingly, it is argued that while acquiring knowledge is easy, its distribution is more difficult (Liu & Chen, 2005). An increased number of firms are beginning to realize that knowledge shared is knowledge cleverly arranged and leveraged (Dixon, 2002). Zboralski (2009) looks at a leading

facilitator and managerial support as factors which have an impact on the sharing of knowledge. Swift, Balkin & Matusik (2010) develop goal strategies and the motivation to share and distribute knowledge. Li (2010) suggests that three factors are crucial for making an impact on the online sharing habits of Chinese and American participants. These factors are organizational issues, national cultural differences, and online communities of practice. Holste & Fields (2010) examine the willingness of professionals to share and use implied knowledge by proposing two kinds of affected-based and cognition-based trust of partners. According to these views, many factors which explain individuals' information sharing behavior have been identified. There are, however, some factors which have yet to be discovered and explored, such as determinants of sharing information and mobile phone usage. To summarize, the purpose of this study is to verify these theories with empirical data and to further investigate new perspectives that have so far been ignored by contemporary theories.

### *Gender differences in information technology attitudes*

Gender differences connected to IT usage and perceptions of IT provide some interesting insights. Sweeney (1953) focused his attention on the need to consider gender difference in terms of decision-making and information preferences. Powell and Johnson (2005) examine such literature widely (Taylor 2004). Research concerned with advertisements for high-technology products in business and technology magazines clearly shows that depictions of males and females were mostly stereotypical (Craig, Christie, & France, 2002; Dilevko & Harris, 1997). Crew and Butterfield (2003) propose a means to reduce some of the traditional impediments that have held back female students in taking computer-programming classes. Illie, Van Slyke, Green and Lou (2005) use a "diffusion of innovation" approach to explore how gender influences perceived relative advantage, compatibility, ease of use, and result demonstrability with the use of mobile phones. Results presented a significant moderating effect on gender differences. DeBaillon and Rockwell (2005) reveal that the gender gap in cellular telephone use is lessening as males and females report almost equal usage. Lerouge, Newton and Blanton (2005) showed that there are gender differences in perceptions and preferences of taste in systems analysts. Park and Krishnan (2005) suggest women's attitudes to decision making are different from those of men. Laroche, Cleveland, Bergeron and Goutaland (2003) examine the differences between males and females when it comes to the relationship of subjective knowledge, experience, and the challenges of perceived product evaluation. A number of note-worthy gender differences were uncovered. Dattero and Galup (2004) imply that males and females choose different programming languages. Males exceed expectation in terms of representation when considering object-oriented language, while females have a greater than expected representation when taking more traditional programming languages into account. Panteli, Stack and Ramsay (1999) report that women were under represented in all areas of the IT industry and cite several studies showing that the IT culture is dominated by masculine, engineering types and those interested in computer culture. Generally, men are connected to and associated with technology more so than women. Moreover, research and evidence shows that this trend may also be true in the workplace (Van Slyke, Comunale, & Belanger, 2002). Korgaonkar and Wolin (1999) suggest that gender is worth mentioning as a predictor of the respondents' general Web usage. Hancock (1999) found that women fared significantly lower than men on the GMAT. Lemish and Cohen (2005) deal with gendered roles of activity and technological appropriation for men and dependency and domesticity for women. Lim and Kumar (2008) stated that women tend to be influenced by the

quality of mobile services more than men. Economides and Grousopoulou (2008) showed that students use mobile phone to make calls, send text messages, to take photos, and schedule reminders. There wasn't a statistically noteworthy relationship between gender and preferred usage in students. Oh, Yang, Kunia, Lee, Mackay and O'Doherty (2008) propose that gender is an important demographic variable which affects the workings of mobile phone services. To conclude, the findings on gender differences in IT usage are both inconsistent and lacking. Additionally gender differences in determinants of information sharing via mobile phones are not paid enough attention.

## METHODS

### *Sample and data collection*

Purposive sampling is divided into two stages. In the first stage, eight people who owned mobile phones for more than three years were chosen for in-depth interviews. An open-ended questionnaire was applied which focused on information sharing and mobile phone usage. The purpose of the in-depth interview was to develop the determinants and corresponding details with regards to sharing information via mobile phones.

The data gained by this study was analyzed using the content analysis method. Four main dimensions are referenced and in-depth interviews and literature reviews are used to help create the conceptual framework:

- 1. Mobile phone senders:** Characteristics of mobile phone senders which include personality, emotional state, and verbal capability (Burkhard, Horan, Hilton, & Leih, 2009; Chen & Aritejo, 2008; Fishbein & Ajzen, 1975; Lal & Dwivedi, 2008; Liu, 2008; Liu & Chen, 2005; Miranda & Saunders, 2003; Razi, Wiley, & Hsu, 2007; Sonj, Korda, & Mumel, 2004; Tarn, Hsu, Lu, & Hsu, 2008; Wogalter & Mayhorn, 2005).
- 2. Mobile phone receivers:** various characteristics of mobile phone receivers including personality, emotional state, and verbal capability (Burkhard, Horan, Hilton, & Leih, 2009; Fishbein & Ajzen, 1975; Liu & Chen, 2005; Liu, 2008; Matthing, Sanden, & Edvardsson, 2004).
- 3. Informational characteristics:** Characteristics or facets of shared information including private, important, and interesting information (Kelly & Thibaut, 1978; Liu & Chen, 2005; Laroche, Cleveland, Bergeron, & Goutaland, 2003; Chen & Rea Jr, 2004; Huang, 2008).
- 4. Situational factors:** Contextual factors which influence the willingness of mobile phone users to share information including time pressure, convenience, and price discounts (Blau, 1964; Nysveen, Pederson, & Thorbjonsen, 2005; Liu & Chen, 2005; Economides & Grousopoulou, 2008; Shim, Ahn, & Shim, 2006; Sun, Koong, & Poole, 2009).

### ***Reliability and validity***

The reliability and accuracy of this qualitative study was analyzed using the content analysis method (Berelson, 1952; Budd, Thorp, & Donohew, 1967; Holsti, 1969). This study used twelve items to calculate the degree of mutual agreement of three coders, and the author applied the result of coding to a formula  $[2M/(N+O)]$ , M: all coders agree, N: coder 1 agree; O: coder 2 agree (Liu and Chen, 2005; Smith and Houston, 1985; Liu, 2010) to reach the degree of mutual agreement. Of the twelve items, the degree of mutual agreement between researcher and coder 1 is 8/12, researcher and coder 2 is 9/12; coder 1 and coder 2 is 9/12, using a formula of reliability  $[n \text{ (average mutual degree)} / 1 + (n-1) \text{ (average mutual degree)}]$  (Liu & Chen, 2005; Smith & Houston, 1985; Liu & Chen, 2009; Liu, 2010). The reliability of this study is 0.886  $(3 \times 0.723 / 1 + 2 \times 0.723)$ , which is considered to be satisfactory.

There are two types of legitimacy dealt with in this study: face and content. Face validity is the subjective assessment of this study by experts in the appropriate field. Questionnaire items are thought to have face validity if the items are seen as accurately representing their intended aim (Issac, Rajendran, & Anantharaman, 2004; Hair, Anerson, Tatham, & Black, 1998). Content validity is ensured if the questionnaire items are backed up by a comprehensive review of the relevant literature (Issac et al., 2004). Six experienced mobile phone users were asked to confirm that the measures were in consensus and to provide questionnaire design feedback. The results confirmed that the face and content validity are satisfactory.

### ***Data Analysis***

After the analytic hierarchy process (AHP) questionnaire was carried out, the second stage was to use a bigger sample to complete the questionnaire. The analytical hierarchy process was developed by Saaty (1977/1994), and government and business study fields have used it extensively (Hafeez, Zhang, & Malak, 2002; Chan, Kwok, & Duffy, 2004; Chin, Chan, & Lam, 2008). AHP is a technique used a great deal in many circumstances where decisions are made. The AHP methodology consists of four steps: first, development of the hierarchical structure; second, assigning various levels of relative importance to each of the selection criterion; third, arranging the alternatives under each criterion; fourth, ranking the contribution of each alternative to the evaluation criteria. Pair wise comparison processes enhance the accuracy of these levels' weightings because they allow managers to focus on a series of relatively simple questions. Software (Expert Choice) implementation of the AHP offers a number of verbal, numerical, and graphical comparison methods. The judgment inconsistency coefficient must ideally be below 0.1. Two hundred people were chosen to participate in and complete the AHP questionnaire. This sample came from six universities and three companies. 50% of the participants were male, while 50% were female. Forty-eight percent of those who responded were university students, forty-five percent were full-time employees, and the rest were part-time employees. The sample ranged in age from 25 to 46. The judgment inconsistency coefficient was below 0.1.

## RESULTS

### *First level comparison*

The results of the attempt to identify the determinants of sharing information via mobile phone users are displayed below. The findings showed four dimensions of information sharing amongst mobile phone users.

**Table 1: Ranking of information sharing of mobile phone users (first level).**

	Mobile phone senders	Mobile phone receivers	Informational characteristics	Situational factors
Total(n=200)	0.242	0.206	0.220	0.332
Ranking	2	4	3	1
Male(n=100)	0.235	0.233	0.192	0.342
Ranking	2	3	4	1
Female(n=100)	0.239	0.209	0.209	0.343
Ranking	2	3	3	1

## Second level comparison

**Table 2: Gender differences in determinants of information sharing of mobile phone users (second level).**

	First level	Second level	Total (n=200)				Male (n=100)				Female (n=100)			
			Weight	Rank	Total weight	Total Rank	Weight	Rank	Total weight	Total Rank	Weight	Rank	Total weight	Total Rank
Determinants of information sharing of mobile phone users	Factors	Items												
	Mobile phone senders	Personality	0.330	2	0.078	5	0.321	2	0.075	8	0.339	1	0.081	3
		Emotion	0.328	3	0.078	5	0.321	2	0.075	8	0.335	2	0.080	5
		Verbal capability	0.342	1	0.081	3	0.358	1	0.084	3	0.326	3	0.078	6
	Mobile phone receivers	Personality	0.342	1	0.076	8	0.329	2	0.077	7	0.355	1	0.074	8
		Emotion	0.340	2	0.075	9	0.350	1	0.082	4	0.330	2	0.069	10
		Verbal capability	0.318	3	0.070	10	0.321	3	0.075	8	0.315	3	0.066	11
	Informational characteristics	Private information	0.338	2	0.068	11	0.316	2	0.061	11	0.361	1	0.075	7
		Important information	0.383	1	0.077	7	0.405	1	0.078	6	0.360	2	0.075	7
		Interesting information	0.279	3	0.056	12	0.279	3	0.054	12	0.279	3	0.058	12
	Situational factors	Time pressure	0.408	1	0.140	1	0.418	1	0.142	1	0.398	1	0.137	1
		Convenience	0.354	2	0.121	2	0.343	2	0.116	2	0.366	2	0.126	2
		Price discounts	0.238	3	0.081	3	0.239	3	0.082	4	0.236	3	0.081	3

The results show that the determinants in the first level could be ranked as follows: situational factors (including time pressure, convenience, and price discounts), mobile phone senders (including personality, emotion, and verbal capability), informational characteristics (including private information, important information and interesting information), and mobile phone receivers (including personality, emotional state, and verbal capability). There was no noteworthy difference based on gender in situational factors, mobile phone senders and mobile phone



receivers. On the other hand, there was a difference in informational characteristics in that females mostly prioritized informational characteristics more than males. The second level dimensions displayed a number of important differences. Firstly, situational factors were found to be the most crucial determinants. Mobile phone senders were the next most important determinant. In the second level, just time pressure, convenience, and interesting information were the same between genders. In contrast, there were differences based on gender in the determinants of personality, emotional state, and verbal capability. Men generally prioritized verbal capability in mobile phone senders and emotional state in mobile phone receivers, while women prioritized personality, emotional state, and verbal capability. In terms of regarding mobile phone senders, males were found to prioritize verbal ability, whereas females prioritized personality. In mobile phone receivers, males prioritized emotional state, whereas females prioritized personality. When it came to informational characteristics, males prioritized important information, and females prioritized private information.

### **CONCLUSIONS AND SUGGESTION**

Understanding the factors which influence mobile phone users' information sharing is valuable for researchers and the mobile phone industry generally. Determinants of information sharing are usage indicators that could help mobile phone service organizations to improve their efficiency and effectiveness. This research takes a look at gender differences in the context of mobile phone information sharing. In-depth interviews, the content analysis method and analytical hierarchy process were all used for data collection and analysis. Most of the determinants suggest differences in the priorities of males and females. As a result, this study suggests mobile phone service companies may want to offer an increased number of information sharing incentives and differentiated services targeted to each gender.

#### ***Managerial implications to knowledge management and suggestions***

Gender research has been a matter of interest in the IT community for a long time as a way to understand why the number of women in the aforementioned field is comparatively low. Gender has also been considered a variable to account for differences in technology usage (Illie, Van, Green & Lou, 2005; Dattero & Galup, 2004). The findings of this study may have some practical implications. This article could help managers and designers of mobile phones to decide whether or not it is worth exploring gender differences as a factor in sharing information. It may also help mobile service businesses recognize gender differences in information sharing via mobile phones. As a result they may suggest new and creative service opportunities to benefit from and capitalize on these differences. For example, designing gender-based rewards or incentive programs may draw in new mobile phone users or increase the usage of current customers. Understanding the willingness to share knowledge, and how it is different between males and females not only allows the mobile phone service providers to take part in right market segmentation, but also contributes to advanced knowledge management in terms of consumers' attitude (Chan, 2009; Green, Liu, & Qi, 2009). The findings could also be applied to value management in the mobile services industry.

## LIMITATIONS AND FUTURE RESEARCH

This research uncovers some interesting and useful information relevant to gender differences in the determinants of sharing information via mobile phones. However, this study is not without its fault. One of the limitations of this study is the inclusion of just twelve practical evaluation measures. For future research, an increased number of evaluative measures should be used. For example, areas such as loyalty decisions should be considered. Also, a longitudinal study should be conducted in order to determine and assess how gender differences change over a period time.

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