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Why people use social networking sites: An empirical study integrating network externalities and motivation theory

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ABSTRACT

Fast-developing social networking sites (SNS) have become the major media by which people develop their personal network online in recent years. To explore factors affecting user's joining SNS, this study applies network externalities and motivation theory to explain why people continue to join SNS. This study used an online questionnaire to conduct empirical research, and collected and analyzed data of 402 samples by structural equation modeling (SEM) approach. The findings show that enjoyment is the most influential factor in people's continued use of SNS, followed by number of peers, and usefulness. The number of peers and perceived complementarity have stronger influence than the number of members on perceived benefits (usefulness and enjoyment). This work also ran clustering analysis by gender, which found notable difference in both number of peers and number of members between men and women. The number of peers is an important factor affecting the continued intention to use for women but not for men; the number of members has no significant effect on enjoyment for men. The findings suggest that gender difference also produces different influences. The implication of research and discussions provides reference for SNS operators in marketing and operation.

1. Introduction

Social networking sites (SNS) have infiltrated people's daily life with amazing rapidity to become an important social platform for computer-mediated communication (Correa, Hinsley, & de Zuniga, 2010; Powell, 2009; Tapscott, 2008). Facebook, MySpace, and Friendster are successful examples (Kang & Lee, 2010; Lipsman, 2007; Pempek, Yermolayeva, & Yermolayeva, 2009). SNS, by definition, provides a new method of communicating, employing computers as a collaborative tool to accelerate group formation and escalate group scope and influence (Kane, Fichman, Gallaugher, & Glaser, 2009; Pfeil, Arjan, & Zaphiris, 2009; Ross et al., 2009). The SNS innovative operation mode has not only successfully drawn the attention of industry and academia, but has also boosted user growth. SNS is currently the world's fastest developing personal networking tool.

SNS is a cyber environment that allows the individual to construct his/her profile, sharing text, images, and photos, and to link other members of the site by applications and groups provided on the Internet (Boyd & Ellison, 2008; Pfeil et al., 2009; Powell, 2009; Tapscott, 2008). Hence, SNS enables users to present themselves, connect to a social network, and develop and maintain relationships with others (Ellison, Steinfield, & Lampe, 2007; Kane et al., 2009). Users who propagate perceived benefit of use to their friends and relatives achieve network externalities, and positive feedback gives rise to larger expansion, which increases platform members (Powell, 2009). Facebook is an obvious example. Facebook statistics indicate that its global members have rapidly increased from 150 million to about 350 million between January and December 2009 (Eldon, 2009). Hence, network externalities not only increase its economic benefits, but also have significant effect on expanding social network potential.

The above reveals that network externalities are an important factor affecting Internet users, a reason for people to use information technology (Gupta & Mela, 2008; Schmitz & Latzer, 2002). However, previous research has seldom studied how network externalities relate to the formation of user's perception about SNS. In addition, as the SNS spirit emphasizes user's interaction and involvement, users are the key to a successful website (Powell, 2009; Sledgianowski & Kulviwat, 2009). Thus, "what motives affect continued intention to use" becomes an important issue. Many researchers (Davis, Bagozzi, & Warshaw, 1992; Igbaria, Parasuraman, & Baroudi, 1996; Lin & Bhattacherjee, 2008; Teo, Lim, & Lai, 1999; van der Heijden, 2004) have recently explicated individual's behavior of using information technology from the motivation theory perspective. They discovered that both internal and external motivations influenced such behavioral intention, whereas, the benefits perceived by individuals was derived from the factor of motivation (Kim, Chan, & Gupta, 2007). In other words, the individual adopts information technology because

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he/she perceives the possibility of obtaining utility and enjoyment from it (Kim et al., 2007; Lin & Bhattacherjee, 2008; Lu & Su, 2009; Moon & Kim, 2001; Teo et al., 1999; van der Heijden, 2004).

SNS service providers need to investigate the correlation between network externalities and individual motives to comprehend the concerns of users to attract them. This study combines network externalities and motivation theory, to propose a rational research model to explain why people continue to join the SNS. Profitable online service performance depends on understanding users factors of use. Yet, few studies have investigated these factors. The findings of this study could serve as a reference for SNS providers for the enhancement of the services they offer.

2. Theoretical background

2.1. Motivation theory

Previous research has widely used *motivation theory* to explain individual's behavior of accepting information technology. Deci (1975) divided the motivations underlying individual's behavior into extrinsic motivation and intrinsic motivation. *Extrinsic motivation* refers to committing an action because of its perceived helpfulness in achieving value (e.g., the performance of improvement), while *intrinsic motivation* refers to committing an action because of interest in the action itself, rather than external reinforcement (Davis et al., 1992).

Davis et al. (1992) found that both extrinsic (usefulness) and intrinsic (enjoyment) factors affect the motivation to use information technology systems. Later studies (Kim et al., 2007; Lin & Bhattacherjee, 2008; Lu & Su, 2009; Moon & Kim, 2001; Teo et al., 1999; van der Heijden, 2004) also found usefulness to be an extrinsic motivation, and perceived enjoyment an intrinsic motivation. These two motivations affect the individual's intention to use information technology. Kim et al. (2007) pointed out that perceived benefit affects the individual's use of information technology, consisting of cognitive benefit and affective benefit, i.e., of extrinsic and intrinsic factors. Based on these reasons, this work proposes extrinsic benefit (usefulness) and intrinsic benefit (enjoyment) as the components of individual's perceived benefit in SNS.

2.2. Network externalities

Katz and Shapiro (1985) defined *network externalities* as "the value or effect that users obtain from a product or service will bring about more values to consumers with the increase of users, complementary product, or service." Hence, once the scale of users reaches a critical number, external benefit emerges and attracts more users to join (Lin & Bhattacherjee, 2008). For instance, when the number of cell phone users reaches a critical mass, it generates relative benefit, providing subsequent users with more correspondents and a wider scope of use, as well as attracting third-party businesses (e.g., software developer) to join, which in turn bring in more users by making cell phone use easier and more convenient. As such, the number of users and availability of complementary goods or services are factors that drive network externalities.

Many researchers (Gupta & Mela, 2008; Katz & Shapiro, 1985; Lin & Bhattacherjee, 2008) have pointed out the two types of network externalities: direct and indirect. *Direct network externalities* derive from the increase in users of a particular product or service, where user's benefits increase. Taking online auction sites as an example, the more users that buy and sell, the more chances to choose from there are, and the higher the transaction value is (Gupta & Mela, 2008). Many researchers (Gupta & Mela, 2008; Iimi, 2005; Kim, Park, & Oh, 2008; Pae & Hyun, 2002; Wu, Chen, & Lin, 2007; Yang & Mai, 2010) have claimed that utility for users is derived from market size, impacting the way that people use telecom facilities, computer software, and websites. For example in the marketplace, different kinds of people can use these products, thereby increasing utility for users. This in turn encourages them to continue using these products and services. On the other hand, *indirect network externalities* display an increased sense of user value from using a product or service, as the effect the user obtains from such product or service increases with the increase of related complementary products. The computer software spreadsheet is an example: consumers are willing to buy or use it to obtain network externalities rising from compatibility (Gandal, 1994). From the viewpoint of above-mentioned researchers, direct network externalities are due to the demand side of the network, while indirect network externalities are the supply side.

Findings from previous research show that researchers have distinct perspectives about sources of network externalities (as Table 1 shows). This investigation found that one single construct too often represented network externalities, a measurement incapable of reflecting sources of network externalities commonly considered in the literature. A number of researchers (Gupta & Mela, 2008; Katz & Shapiro, 1985; Lin & Bhattacherjee, 2008) have indicated the two types of direct and indirect network externalities as sources of network externalities, thus the measurement in one single construct is insufficient. In addition, a number of researchers (Lin & Bhattacherjee, 2008, 2009) believed that the utility for users also comes from social effects. In the case of instant messaging (e.g., MSN Messenger), the more friends that join the network, the more users can maintain or develop their individual social circles, thereby increasing the utility for users. Sledgianowski and Kulviwat (2009) argued that SNS is a pleasure-oriented information system that the individual becomes more willing to use as more friends or peers join (Baker & White, 2010; Li & Bernoff, 2008; Powell, 2009; Tapscott, 2008). Combining these perspectives, this study posits that in the context of a pleasure-oriented information system, *peer network externality* is one of the sources of network externalities. In summarizing the above-stated views of researchers (Baker & White, 2010; Gupta & Mela, 2008; Katz & Shapiro, 1985; Li & Bernoff, 2008; Lin & Bhattacherjee, 2008; Powell, 2009; Sledgianowski & Kulviwat, 2009; van der Heijden, 2004), this study concluded that in the environment of SNS, the sources of direct, peer and indirect network externalities should all be considered with regard to network externalities. Hence, these sources of network externalities were mentioned in the study to explore their effects on individual's continued intention to use SNS.

3. Research model and hypotheses

Fig. 1 presents this study's research model, developed based on network externalities and motivation theory. The model considers that perceived benefits and network externalities are key factors affecting individual's continued intention to use, where the composing constructs of perceived benefits are extrinsic benefit (usefulness) and intrinsic benefit (enjoyment), while for network externalities, the model considers three types of sources, namely, direct (number of members), peer (number of peers), and indirect (perceived complementarity) network externalities. The figure below presents the definition and hypothesis of each construct.

3.1. Perceived benefits

3.1.1. Extrinsic benefit: usefulness

Davis (1989) defined *usefulness* as "the degree to which a person believes that using a particular system would enhance his or her job performance," when the individual feels a system is useful, he or she thinks positively about it. Many scholars (Lee, 2009; Lu,