



# Exploring individuals' subjective well-being and loyalty towards social network sites from the perspective of network externalities: The Facebook case

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## ABSTRACT

This study aims to investigate users' subjective well-being and loyalty towards social network sites (SNSs). Despite the growing role of network externalities in SNS continuance decisions, the SNS usage literature has paid scant attention to the relationship between network externalities, SNS identification, and users' subjective well-being. In this study, we identify four components of network externalities: perceived network size, external prestige, compatibility, and complementarity. In the research model, both network size and external prestige are hypothesized positively to affect SNS identification. Perceived compatibility and perceived complementarity are hypothesized positively to affect user satisfaction. Satisfaction and SNS identification are hypothesized positively to affect user subjective well-being and loyalty towards the SNS. Users' subjective well-being is hypothesized positively to affect their loyalty towards the SNS. Data collected from 615 valid users of Facebook provide strong support for most of these hypotheses. The findings indicate that perceived network size negatively affects users' SNS identifications. Other components of network externalities have positive effects on SNS identification and satisfaction, which in turn have positive effects on users' subjective well-being and loyalty towards SNS. Implications for theory and practice and suggestions for future research are also discussed.

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## 1. Introduction

Hundreds of millions of people use social network sites (SNSs) to participate in the relational components of the Internet. SNSs are “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (boyd & Ellison, 2007). SNSs such as Facebook and MySpace initially began as forums through which young people could connect and have rapidly evolved into important platforms for social and commercial exchange (Clark & Roberts, 2010). The diffusion of SNSs can be seen in the usership statistics: Facebook had 955 million monthly active users worldwide by the end of June 2012 (Facebook Newsroom, 2012). However, according to the latest comScore figures, MySpace lost almost a million US users between November and December 2011, leaving it with around 24 million unique US users (TechCrunch, 2012). MySpace, once social

networking's darling, is in very real danger of becoming merely a footnote in Internet history (TechCrunch, 2011). Whether Facebook will prove the king of the Internet or the next MySpace is unknown. However, one thing that is certain is that user retention or loyalty dominates the development and survival of SNSs. Thus, it is important for SNS managers to understand the factors that drive user loyalty.

Drawing upon expectancy disconfirmation theory (EDT) (Oliver, 1980) and the information systems (IS) success model (DeLone & McLean, 2003), satisfaction has been considered an important determinant of users' continued usage (continuance) in IS research (e.g., Bhattacharjee, 2001; Chiu, Chiu, & Chang, 2007). Individuals' psychological or affective state is related to and results from a cognitive appraisal of system use—satisfaction with system use—that influences their continuance intention (Bhattacharjee, 2001). Similarly, individuals who are satisfied with the experience of using the functions, applications, or services offered by a particular SNS will be more likely to remain loyal towards it. From a practical perspective, there are some implementation problems related to the conventional satisfaction-based continuance or loyalty linkage. Although the fundamental role of satisfaction remains undisputed, a permanent increase in individuals' satisfaction is becoming increasingly difficult to achieve (Homburg, Wieseke, and Hoyer, 2009), so the managers

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of SNSs should search for alternative ways to increase user loyalty.

Subjective well-being (SWB) is an individual's cognitive and affective evaluation of the extent to which he or she experiences pleasant emotions, low levels of negative mood, and high life satisfaction (Diener, Lucas, & Oishi, 2005). The organizational behaviour literature indicates that employee well-being significantly increases organizational commitment and decreases employee turnover (e.g., Spector, 1997). Similarly, in the consumer behaviour literature, El Hedhli, Chebat, and Sirgy (in press) show that shopping well-being positively influences mall loyalty. However, the question of whether increasing users' SWB could be an important way to increase their loyalty to SNSs remains unanswered.

Social identity implies a sense of being connected to a group's character or purpose, which researchers have characterized as identity-based attachment to the group (e.g., Ren et al., 2012). Members who have a strong attachment to their online community are crucial to its success (Ren et al., 2012). Social identity is defined as "the individual's knowledge that he belongs to certain social groups together with some emotional and value significance to him of this group membership" (Tajfel, 1972, p. 292). Prior research suggests that social identity has positive implications for an individual's well-being (Kirmayer, Brass, & Tait, 2002; Reitzes & Mutran, 2002). The literature on online communities suggests that a sense of belonging or social identity cultivates member loyalty towards the community (Lin, 2008). In addition, Homburg et al. (2009) indicate that satisfaction and identification have nearly equal effects on customer loyalty in a service-profit chain study. However, little attention has been paid to the influence of members' identification on their SWB and the relative importance of identification and satisfaction as determinants of loyalty within the context of SNSs.

Recent studies suggest that network externalities are important factors affecting technology acceptance (Pontiggia & Virili, 2010) and Internet users, a reason for people to continue using an SNS (Lin & Lu, 2011), mobile instant message (IM) platform (Zhou & Lu, 2011), blog (Wattal, Racherla, & Mandviwalla, 2010), or micro-blogging service (Zhao & Lu, 2012). Network externalities refer to "the utility that a user derives from consumption of the good increases with the number of other agents consuming the good" (Katz & Shapiro, 1985, p. 424). The literature on online communities suggests that the components of network externalities (e.g., network size) are significant predictors of identity-based group attachment (e.g., Fiedler & Sarstedt, 2010). Zhao and Lu (2012) show that network externalities have an indirect effect on user satisfaction with a micro-blogging service through perceived interactivity. Despite the growing role of network externalities in SNS continuance decisions, most studies (e.g., Zhao & Lu, 2012; Zhou & Lu, 2011) consider perceived network size and perceived complementarity as the major components of network externalities. Little attention has been paid to other components of network externalities. In addition, the SNS usage literature (e.g., Lin & Lu, 2011; Zhao & Lu, 2012) has paid scant attention to the direct effect of network externalities on SNS identification and user satisfaction.

Broadly, the purpose of this study is to link network externalities and social identity theory in the SNS context in order to explore whether SNS identification can promote users' subjective well-being and loyalty towards the SNS. Specifically, the research questions of interest to this study are:

- (1) What are the key components of network externalities within the context of user loyalty towards SNSs?
- (2) Which components of network externalities have a direct effect on SNS identification or user satisfaction?

- (3) To what extent does subjective well-being matter in driving user loyalty?
- (4) To what extent does SNS identification influence users' subjective well-being and loyalty?

## 2. Theoretical background and research model

### 2.1. Network externalities

Products or services that demonstrate network externalities are called network goods. Network externalities effects can generally be classified into two types: direct and indirect (Katz & Shapiro, 1985). Direct network externalities arise when consumer utility depends directly on the total number of purchasers of the same network product (Katz & Shapiro, 1985). A typical example is mobile telephone networks like AT&T, Verizon, T-Mobile, or Sprint. As new participants enter the network, the existing users gain more choice regarding communication, and thus can access greater network utility (Lin & Bhattacharjee, 2008). SNSs work in the same way, with sites like Facebook becoming more useful the more users join. Indirect network externalities arise if the utility arising from consuming a product depends on the supply of the product's complementary goods or services. One may observe that the success of a tablet computer depends not merely on its technological advantages, but also on the variety of utility applications available in the market. This hardware–software paradigm (Katz & Shapiro, 1985), the indirect network effect, also applies to SNSs.

As described previously, direct externalities pertain to the number of network participants; therefore, prior research has modelled network size as a component of network externalities (Lin & Bhattacharjee, 2008; Lin & Lu, 2011; Wattal et al., 2010; Zhou & Lu, 2011). In this study, we assume that a user's utility or value obtained by using a SNS is not only an increasing function of the number of its members but also its perceived external prestige or image. Perceived external prestige refers to an individual's own assessment of what others think about the group (Mael & Ashforth, 1992). It reflects the social value assigned by individuals to their group membership (Dutton, Dukerich, & Harquail, 1994). Accordingly, external prestige can work as a direct network externality: the more prestigious an SNS is considered by others, the more useful or valuable it is perceived.

Indirect network externalities result from the availability of complementary goods and services. Some studies have modelled perceived complementarity as a component of network externalities (Lin & Bhattacharjee, 2008; Lin & Lu, 2011; Zhou & Lu, 2011), whereas other studies (Gandal, 1994; Sheremata, 2004) have modelled perceived compatibility as a component of network externalities. Gandal (1994) found that consumers are willing to pay a significant premium for spreadsheet software to obtain network externalities arising from compatibility. Following Lin, Tsai, Wang, and Chiu (2011), we consider complementarity and compatibility as the components of network externalities.

### 2.2. Social identity theory

The social identity perspective is a social psychological analysis of the role of self-conception. It contains a number of compatible and interrelated components and emphases: social comparison, intergroup relations, self-enhancement, and social categorization (Hogg, 2001; Tajfel & Turner, 1979). For Tajfel, social identity is also an emotional attachment to the group and knowledge of the social standing of the identified group in relation to other groups (Hogg, 2003). Social identity is distinct from personal identity, which is self-conception in terms of the unique properties of the self or of

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