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Ubiquitous use of mobile social network services

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ABSTRACT

Smartphones are becoming increasingly penetrated among people. Social networking is one of the most popular applications that are being widely used through smartphones. The current research aims to understand Chinese users' behaviour and identifies factors that impact intentions toward the usage of the social network services via handheld devices. By making use of Structural Equation Modelling technique based on a sample of 297 respondents, the research findings show that, technology acceptance model and its variants can only be used as an instrument to understand users' adoption behaviour. The research findings reveal that mobility in concert with perceived ease of use, use context, and critical mass in concert with social influence impact users' behavioural intention and usage significantly. Moreover, habitual behaviour of users plays a particularly important role toward the use of mobile social network services.

1. Introduction

This empirical study explicitly investigates factors that influence end-user intention to use social network services or applications through handheld devices. Smartphones and tablets are becoming increasingly important handheld devices for many people to perform various daily routine tasks. Correspondingly, one can argue that in the near future smartphones and tablets become the primary personal devices for various activities such as business, work, pleasure, and entertainment. Moreover, the increasing use of smartphones has led to the development of various mobile applications and services that help end-users to perform different activities or be in touch with their peers. One of the most popular and excessively used of such mobile services is social networking applications such as Facebook, Twitter and "*Tencent QQ*" in particular in China. Social network application allows the network to be used as a platform for information sharing, user-centred content generation and interoperability. Social network service is a web-based service that allows end-users to create a public or semi-public profile, to share their activities and interests or create a list of people with whom they would like share and exchange information (Chang, 2013). Kwon and Wen (2010) argued that a SNS is an individual web page that allows them to create an online human-relationship by collecting useful information and sharing it with specific or unspecific people. It is interesting to mention that, although group lock-in plays an important role when offering SNS, we have seen that social networks have been replaced by others, for instance My Space is replaced by Facebook. Social network services (henceforth referred to as SNSs) and specifically the use of SNSs through handheld devices has become increasingly popular among end-users worldwide.

To assess and gain understanding of the individual technology acceptance, behavioural intention and actual use, several conventional theories (e.g., Technology Acceptance Model (TAM) Davis, 1989), Unified Theory of Acceptance and Use of

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Technology (UTAUT) (Venkatesh et al., 2003), Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975) and Theory of Planned Behaviour (TPB) (Ajzen, 1985) have been proposed, applied, tested and evaluated. In this study in conjunction with TAM as an instrument to understand the adoption, we employ other important dimensions such as mobility, use context, social influence, habitual behaviour and critical mass for a new integrated conceptual model to provide insights into end-user acceptance and use of mobile SNSs. In TAM, perceived usefulness (PU) and perceived ease of use (PEOU) are the main determinants of accepting task-oriented information systems or to investigate the casual relationships between task and human–like in management of information systems (Venkatesh et al., 2003). However, when human-oriented interaction is involved with mobile technology or technological artefacts (mobile SNSs in the current study) conventional technology acceptance theories cannot provide accurate and sufficient understanding toward users' behavioural intention. There is a lack of empirical evidence in the literature to examine whether the two latent variables in TAM remain sufficient to explain users' intention to use or actual use of a system. Although there are some rather holistic models that explain the adoption of mobile service and new technologies, there are still many gaps with regard to the adoption and use of social network service through mobile devices in existing literature. We argue that there are other social and habitual behaviour, psychological features and personal characteristics which influence end-users' intention to use a system. Therefore, amended constructs should be incorporated to the conventional TAM constructs (i.e., PEOU and PU which are often labelled as psychological beliefs) to gain sufficient insights into how human-oriented information systems are being accepted and used by end-users. To do so, an extensive empirical study among Chinese users who use a national designed social networking application (QQ) through handheld devices is conducted. The purpose of the current research is to investigate and gain insights into the effect of the different determinants rather than just psychological aspects on end-user intention to use social network services via handheld devices.

This study contributes to existing research by focusing on specific conditions in relation with intention to use, benefits and values gained by the use of mobile SNSs. The findings of this study contribute to the acceptance theory and it is highly relevant to practical discussion on (mobile) SNSs. More specifically it provides understanding on the role that mobility as a context plays. Theoretically the results of this study contribute to the understanding on social norms, habitual behaviour and collective behaviour in the behavioural intention and use of mobile SNSs. Moreover, the findings of the current research are relevant for engineers and marketing managers to understand future adoption behaviour of users of systems to be developed, in which group behaviour or collective action can lead to group lock-in.

To provide the required grounding for these research purposes, the rest of this paper is organized as follows. Section 2 discusses the conventional acceptance theories and introduces some related works on social network services. Section 3 introduces the research model and formulation of the hypotheses. Sections 4 and 5 provide the methodology and research results respectively. Finally Section 6 contains the discussions, conclusion and limitations.

2. Theoretical foundations and related work

2.1. Technology acceptance model

Technology Acceptance Model (TAM) is predominantly the most broadly used theory in information systems research to investigate individual system use and technology acceptance. TAM was proposed by (Davis, 1989) and it is one of the most influential extensions of theory of reasoned action (Fishbein and Ajzen, 1975). TAM is based on two dominant determinates for system use, perceived ease of use (PEOU) and perceived usefulness (PU). The initial TAM (PEOU and PU) is composed of three more constructs (i) attitude toward using (ii) behavioural intention and (iii) actual system use. The extended TAM is referred to as TAM2 and proposed by (Venkatesh and Davis, 2000). It includes other key determinates such as social influence processes (subjective norm) and cognitive instrumental processes (job relevance). This is done to examine how the effects of these determinants change by increasing the user's experience over time with the target system (Venkatesh and Davis, 2000). Nonetheless, the theoretical importance and the relevance of TAM and its determinants (PU and PEOU) have excessively been verified by prior empirical information systems studies such as in e-commerce adoption (Gefen and Straub, 2000; Liu and Zhang, 2011), drivers acceptance of car navigation system (Park and Kim, 2013), user adoption of mobile games (Zhou, 2013a), factors affecting user adoption of mobile purchase (Zhou, 2013b), social network sites adoption (Goh et al., 2004), personal innovativeness and user technology acceptance (Jackson et al., 2013) and health care (Holden and Karsh, 2010). Anandarajan et al. (2000) have used TAM to investigate students Internet usage and have found that perceived usefulness was related to the time spent on the internet, whereas in business activity context ease of use has been found to be the most influential variable. The Unified Theory of Acceptance and Use Technology (UTAUT) is also another conventional acceptance theory that aims to explain end-user intentions and usage behaviour of an IS. Performance expectancy, effort expectancy, social influence, and facilitating conditions are four direct determinants in the theory (Venkatesh et al., 2003). Gender, age, experience, and voluntariness of use are considered to mediate the impact of the four key constructs on usage intention and behaviour (Venkatesh et al., 2003). Koivumäki et al. (2008) have used UTAUT to investigate user perceptions towards mobile services and found that familiarity of the device and user skills have an impact on the perception of the services. Diffusion of Innovation (DOI) has also excessively been used to investigate end-users' acceptance of new technology. The core objective in DOI is to provide insights into how, why and at what rate a new technology or innovation spread through members of a specific social system over a period of time (Rogers, 1995). López-Nicolás et al. (2008) have