

Online Privacy Concerns when Using Online Services (comparison of SNS, cloud storage services, and mobile banking services)

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Abstract: This study investigates the influencing factors of online privacy concerns in using social network services, cloud storage services, and mobile banking services in South Korea. We induced that influencing factors to online privacy concerns are awareness of privacy issues, the perceived ability to control data collection and its subsequent use, and a perceived vulnerability to personal data collection and misuse. We propose that the level of privacy concerns will differ by the kinds of services used and affect the intentions for using certain online services.

Keywords: Online Privacy Concerns, Awareness of Privacy Issues, Perceived Ability to Control, Perceived Vulnerability, Intention to use Online Services, Service Factors

1 Introduction

Privacy concerns are among the major considerations of Internet users, whether they use online services (i.e., SNS, cloud storage services, and mobile banking services) or not. Such concerns are on the rise because users are becoming more aware of the importance of their digital privacy. Because of increasing concerns, the perceived risk of Internet users is getting higher.

Internet users must offer their personal information to the providers of online services. For example, Facebook users must give an e-mail address when setting up an account, and they have to disclose their real name, school name, and workplace on the profile section to make relationships easier to form. In addition, in order to give third-party companies users' personal data, Facebook requires their personal data, when using Facebook-related applications.

In 2013, Stefan Stieger and his team investigated whether Facebook quitters (n=310) differ from Facebook users (n=321) by examining privacy concerns, Internet addiction scores, and personality. They found Facebook quitters were significantly more cautious about their privacy, had higher Internet addiction scores, and were more

conscientious than Facebook users. The main self-stated reason for committing virtual identity suicide was privacy concerns (48%) [1].

In this paper, we suggest that online privacy concerns will influence intention to use online services (i.e., SNS, cloud storage services, and mobile banking services). The users who are high in privacy concerns will be reluctant to use online services. Privacy concerns are determined by three factors: awareness of privacy issues, perceived ability to control data collection, and perceived vulnerability to the data being misused [5, 7, 12]. The paper is organized as follows: Section 2 provides the overview of the privacy definition and privacy concerns. Our research model is discussed in section 3, followed by a detailed description of the model and the constructs. Finally, we will discuss our future work.

2 Literature review

In 1890, Warren and Brandeis defined privacy as "the right to be let alone" [2]. Privacy has been redefined over time, and now online privacy can entail either Personally Identifying Information (PII)

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or non-PII information, such as a site visitor's behavior. PII refers to any information that can be used to identify an individual. For example, an individual could be identified by only age and physical address. These two factors are typically unique enough to identify a specific person [3].

The privacy concerns of Internet users have been addressed in many studies (see Table 1). For example, when people use online services they may be concerned about their personal information being leaked and misused, or that someone could find private information about them online.

A survey in Canada indicated that two-thirds of Canadians are concerned about the protection of their privacy, with a quarter revealing they are extremely concerned about the problem. In terms of the risks to personal privacy that concern Canadians most, financial information/bank fraud tops the list, with nearly a quarter citing it (23%), while 10% mentioned credit card fraud. Following this, the top concerns identified were computer privacy/Internet security (21%) and identity theft (20%) [4].

Passerini (2007)	- Trust in other members of social networking site	of new relationships
Jochen Wirtz, May O. Lwin and Jerome D. Williams (2007)	- Policy - Regulation - Concern	- Fabricate - Protect - Withhold
Changi Nam, Chanhoo Song, Euehun Lee, Chan Ik Park (2006)	- Convenience - Reputation - Third-party certificate - Privacy concerns	Willingness to disclose information
Shu Yang, Yuan Wang, Kan-liang Wang (2009)	- Information Sensitivity - Information Sensitivity - Compensation - Privacy Concern	- Information Disclosure - Protection Intention - Transaction Intention

Table.1 Former Studies about Privacy Concerns

3 Research Model

We focus on users' privacy concerns in social network services, cloud storage services, and mobile banking services. Our research model is shown in Figure 1. It is based on the theory of reasoned action (TRA). In our research model, awareness of privacy issues, perceived ability to control, and perceived vulnerability will influence online privacy concerns. In turns, online privacy concerns will influence intention to use online services. And the effect of online privacy concerns on intention to use online services is moderated by SNS, cloud storage services, and mobile banking services.

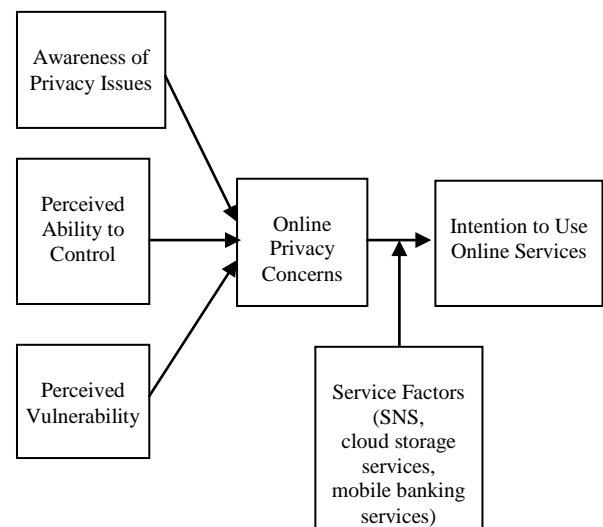


Fig.1 Research Model

3.1 Awareness of Privacy Issues

The role of social awareness in influencing online privacy concerns was proposed by Dinev and Hart. According to them, individuals with high social (privacy) awareness will in general closely follow privacy issues, the possible consequences of a loss

Autors	Antecedent and Intervening Variables	Consequent Variables
Soumava Bandyopadhyay (2009, 2012)	- Internet Literacy - Social Awareness - Perceived Vulnerability - Perceived Ability to Control - Cultural Factors - Online Privacy Concerns	- Willingness to Provide Personal Information - Acceptance of E-Commerce - Willingness to Use the Internet
Heng Xu, Tamara Dinev, H. Jeff Smith, Paul Hart (2008)	- Privacy Awareness, - Privacy Social Norm, - Perceived Effectiveness of Privacy Policy, - Perceived Effectiveness of Industry Self-regulation - Privacy Risk - Disposition to Value Privacy - Privacy Control - Perception of Intrusion,	Privacy Concerns
Tamara Dinev and Paul Hart (2006)	- Internet Literacy - Social Awareness - Privacy Concerns	Intention to Transact
Tamara Dinev and Paul Hart (2004)	- Internet technical literacy - Social awareness	Internet privacy concerns
Xiao Jiang (2011)	- Institutional Assurance - Privacy Awareness - Disposition to Trust - Online Privacy	Intention to Use SNS
Tamara Dinev and Paul Hart (2003)	- Perceptions of Vulnerability - Ability to control - Trust - Interest - Privacy Concerns	Internet Use
Tamara Dinev and Paul Hart (2006)	- Privacy Concerns related to Information Finding - Privacy Concerns related to Information Abuse	Levels of Information Exchange
Catherine Dwyer, Starr Roxanne Hiltz, Katia	- Internet Privacy Concern - Trust in social networking site	- Information sharing - Development

of privacy due to accidental, malicious, or intentional leaks of personal information, and the development of privacy policies. In our research, awareness of privacy issues is described as the extent to which consumers are knowledgeable about the social issues involving Internet usage [5].

Thus, we propose that awareness of privacy issues directly and positively impacts online privacy concerns.

3.2 Perceived Ability to Control

Dinev and Hart defined the perceived ability to control as the extent to which consumers believe they can stop personal information being disclosed online, which allows them to exercise their right to privacy [6]. In addition, Dinev and Hart concluded that if people have a greater sense that they can control the use of their information, they will have fewer privacy concerns [7].

Therefore, we propose that a perceived ability to control information use directly and negatively impacts online privacy concerns.

3.3 Perceived Vulnerability

Dinev and Hart proposed that a perceived vulnerability to the misuse of personal information obtained online was a major antecedent of online privacy concerns [6], and suggested that Internet users' perceived vulnerability increased privacy concerns [7].

Thus, we propose that perceived vulnerability directly and positively impacts online privacy concerns.

3.4. Intention to Use Online Services

Previous studies have shown that privacy concerns are related to Internet use.

Bandyopadhyay concluded that Internet users who are extremely concerned about online privacy may feel they could be unknowingly and involuntarily disclosing sensitive information online. To protect their privacy, these consumers may be unwilling to use the Internet altogether in extreme cases [8].

Dinev and Hart concluded that low Internet literacy, and an inability to manage security risks and privacy invasions, may impede Internet usage due to higher privacy concerns.

In accordance with previous studies, we propose that online privacy concerns directly and negatively impact the intention to use online services.

3.5 Service Factors

Privacy concerns can be relatively high when using mobile banking services, but it can be relatively low when using SNS. Thus, in our research model, we

set the service factors (SNS, cloud storage services, and mobile banking services) as a moderating effect.

4 Conclusion and Future Work

Personal information is exposed every second on the web, and people using a specific online service have concerns about the possibility of their private information being broadcast or collected. Users have been known to stop using online services, meaning protecting Internet users' private information is important.

In this paper, we present a research model of privacy concerns with regards using online services. It reveals that higher levels of online privacy concerns – affected by the extent of awareness of privacy issues, the perceived ability to control, and perceived vulnerability – lead to lower levels of intention to use the services, while the effect of online privacy concerns differs depending on the services in question.

The model proposed in this paper and the measures of related constructs are based on existing theories, but must be empirically tested to determine validity and reliability.

The next step in this study is to refine the research model and measure the relationships in the model, and then test the hypotheses and analyze the results of empirical studies.

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