

Unpacking Privacy Paradox: A Dual Process Theory Approach

Emergent Research Forum Paper

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Abstract

Prior studies showed that some users tend to act against their stated privacy concerns (a phenomenon commonly known as privacy paradox). In this study, we adopt the dual process theory as our theoretical basis to account for conscious and unconscious modes of individual decision making processes to examine privacy paradox in order to gain an understanding of the reasons which cause inconsistency between privacy concern and information disclosure. We also posit that privacy paradox can occur due to the conscious mode (affected by bounded rationality) as well as unconscious biases.

Keywords

Privacy paradox, privacy concern, information disclosure, dual process theory

Introduction

Social media and social platforms have become a part of daily routine of users around the world (Palen & Dourish, 2003). Many researchers have pointed out that privacy concern plagues the use of social media (Dwyer et al., 2007). Some of these studies have concluded that owing to privacy concern, users are afraid of disclosing their private information (Li, 2011; Li, 2012). On the other hand, some studies have suggested that users act against their stated privacy concerns (Acquisti & Grossklags, 2007; Norberg et al., 2007; Spiekermann et al., 2001). This phenomenon of disclosure of private information despite privacy concern has been termed as privacy paradox (Acquisti et al., 2015). Privacy paradox is an inconsistency between users' privacy attitude and their privacy behavior (sometimes also referred to a discrepancy between users' privacy intention and their privacy behavior). One reason for privacy paradox is that that users do not always follow a rational decision making process in disclosure of their private information (Brandimarte et al., 2013).

Some studies have investigated privacy paradox (see Awad & Krishnan, 2006 and Smith et al. 2011 for some examples), however "they have unfortunately provided contradicting results and incomplete explanations of the observations" (Hallam & Zanella, 2017; p. 217). One reason for this might be the lack of theoretical insights into understanding the irrationalities associated with privacy paradox (Kokolakis, 2017). Dual process theories allow us to investigate information processing related to information disclosure decision making from both rational and irrational point of view which can be useful in unpacking the privacy paradox black-box. Using dual process theories, we can help explain why privacy

paradox exists, why this dichotomy between privacy intention and privacy behavior occurs, and why some researchers have had difficulty explaining the phenomenon. In accordance, we attempt to understand the privacy paradox based on dual process theories.

The rest of this article proceeds as follows: in the next section we briefly look at the literature on privacy paradox, privacy decision making and dual process theory. Subsequently, we present the explanation for privacy paradox as derived from the application of the dual process theory and the conceptual model. Finally as part of our future work we propose our research methodology.

Literature Review

Privacy Paradox

The pertinent literature offers plethora of definitions on privacy (Altman, 1976; Gross & Acquisti, 2005) which can be conceptualized from different perspective i.e. physical, social, psychological and information privacy (Hallam & Zanella, 2017). This study is mainly concerned with information privacy, which is defined as users' "right to keep information about themselves from being disclosed to others" (Rognehaugh, 1999; p. 125). Previous studies show that users are concerned with disclosing their information on digital environments in variety of contexts such as online shopping and personal profile creation. However some investigations indicate that individuals will disclose their information despite their privacy concerns (Belanger & Crossler, 2011; Norberg et al., 2007; Smith et al., 2011). This discrepancy between attitude and behavior is known as privacy paradox. Many studies have shown multiple reasons for this paradox. For example, in an ecommerce context, people tend to trade their privacy and personal information usually at a low price (Acquisti & Grossklags, 2007).

Privacy Decision Making

In this emergent research paper, we examine privacy paradox as a decision of information disclosure. We propose that privacy decision making can be influenced by both rational and irrational processes. Individual's mental processes can be affected by constraints which will impact the rational thinking. Studies suggest that in some cases, user's privacy trade-offs is not based on a rational evaluation of the available choices but is rather based on heuristics (Acquisti & Grossklags 2005; Zafeiropoulou et al., 2013). Norberg et al. (2007) also argues that actual disclosure behavior is based on trust heuristics. In their model of privacy paradox, the information disclosure intention is affected by risk evaluation. This heuristic processing or information selectivity in the decision process influence behavior independently of intentions (Bender & Speckart, 1979).

On the other hand most of the studies on privacy decision making use normative theories such as privacy calculus, expectancy theory and utility-maximizing, which assume the users are rational decision makers and are able to weight the benefits and risk of the information disclosure (Adjerid et al., 2016). In contrast to this view Herbert Simon bounded rationality (1956, 1959, 2000) posits that human rational behavior is shaped by a scissors whose two blades are the environment structure and the computational capabilities of the user. (Gigerenzer & Goldstein, 1996). For example, in the digital environment users usually are forced to provide their information. Privacy setting environments are also designated in a way that limits users' options to protect their information since they may be unfamiliar with the process in which their information can be exploited and utilized by applications (Acquisti & Gross, 2006; Dinev & Hu 2007). Therefore we can argue that the privacy decision making process is affected by first the environment structure (e.g. the application options, privacy setting) and then by the computational capabilities of the users (imperfect information).

In the next section, we introduce dual process theory and further explain how the two modes, conscious and unconscious can affect information disclosure.

Theoretical Background

Dual Process Theories

Several theorists suggest that humans have two separate memory systems (Alvarez et al., 1994; McClelland et al., 1995). The main argument is that human reasoning follows two distinct modes of thoughts: rational and irrational thinking (Newell & Shanks, 2014). Researchers suggest that information processing is constituted of an initial system that is experiential associative and unconscious, and a separate conscious system which is capable of rational thoughts (Osman, 2004). The conscious mode records information incrementally and works at a slower pace, in which the memory is a reflection of large sample of experiences. The unconscious mode learns from new information rapidly so that the memory remembers the latest experience when a similar incident occurs (Smith & DeCoster, 2000). Likewise, users' decision making on information disclosure can be processed in either way, while the primary decision is influenced by unconscious mode, the conscious decision making is also limited by factors such as time pressure. This is depicted in Figure 1.

Conscious Decision Making

Acquisti & Grossklags (2005) indicate that the privacy paradox is the result of systematic psychological deviations from rationality, incomplete information especially through not understanding the disclosure implications and bounded rationality. Their findings provide evidence of the simultaneous role of both normative and behavioral factors. Under bounded rationality the reasoning is fast and frugal as a result of time pressure and lack of information (Gigerenzer & Selten, 2002). In the presence of factors such as time constraints and cognitive limitations, people can miscalculate their privacy decisions (i.e. information disclosure). In other words, they may fail to rationally decide what information to release and what to withhold. Therefore, we propose that the privacy decision making is affected by conscious mode.

Unconscious Decision Making

Human decision making can be unconscious. Newell & Shanks (2014) for instance, indicate that inadequate procedures for assessing awareness and a tendency to uncritically accept conclusions that fit with our intuitions are the results of unconscious decision making. Likewise, unconscious biases can affect privacy decision making in social media. For example, in one such optimism bias, users may overestimate the potential benefits of disclosing information while ignoring the risks of information loss. Such biases within unconscious mode can affect information disclosure behavior.

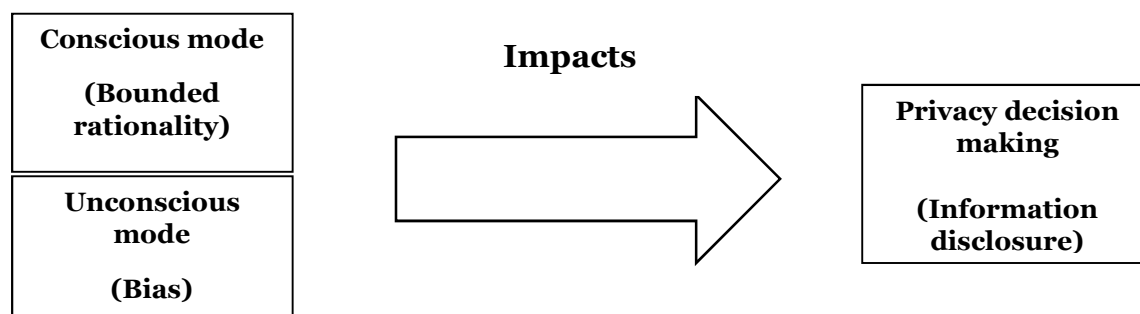


Figure 1. Conceptual Model

Privacy Paradox

Built upon the abovementioned reasoning, the privacy paradox is the inconsistency between privacy attitude and privacy behavior. While in the real world individuals are concerned about their privacy on the internet, their decision making process which is manifest in information disclosure in digital environment is affected by conscious and unconscious factors of decision making that prevent them from following a completely rational decision making process. This results in a behavior that is not consistent with their

primary stated concerns. The privacy decision making is affected by both unconscious biases and bounded rationality (in conscious mode), and can be important considerations in the conceptual model of information disclosure.

Methodology (Future Research)

The conscious mode in privacy decision making process is limited by bounded rationality. In this emergent study cognitive limitation, we will employ information imperfection, time constraints and environmental structure, the four dimensions of Simon's bounded rationality (1956, 1959, 2000) theory, to examine the effect of conscious mode on privacy decision making. Furthermore based on the prior studies (Zafeiropoulou et al. 2013; Acquisti et al. 2007), we will also utilize major unconscious factors such as psychological biases, valence effect and optimism bias that affect privacy decision making. In this study optimism bias will be applied as the major construct to measure the impact of unconscious mode on privacy decision making. Our continuing plan includes the empirical validation of the conceptual model by conducting a survey.

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