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The Role of User Psychological Contracts in the Sustainability of Social Networks

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Abstract:

Many emergent ventures, such as social networks, leverage crowd-sourced information assets as essential pillars supporting their business models. The appropriation of rights to information assets through legal contracts often fails to prevent conflicts between the users and the companies that claim information rights. In this paper, we focus on social networks and examine why those conflicts arise and what their consequences are by drawing on psychological contract theory. We propose that intellectual property and privacy expectancies comprise core domains of psychological contracts between social networks and their users. In turn, perceived breaches of those expectancies trigger a psychological contract violation. We use the exit, voice, loyalty, and neglect typology to define the user behavioral outcomes. We evaluated our framework by surveying 598 Facebook users. The data support our framework and indicate that perceived breaches of privacy and intellectual property rights generate the affective experience of a psychological contract violation, which is strongly associated with exit intentions.

Keywords: Psychological Contract, Social Networks, Information Exchange, Privacy, Intellectual Property, Information Asset.

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1 Introduction

Both research and practice have long recognized the value of information assets. Manuel Castells coined the term “information economy”, which acknowledged the growing contribution of information-based businesses to the overall economy (Castells, 1992, 2009). The information economy already contributes two-thirds of the gross national product in the United States and continues to grow (Apte & Nath, 2007). The evolution of the Internet has served as a catalyst for the information economy by significantly lowering the cost of sharing information and creating new opportunities for information-based ventures. The Internet has also provided the infrastructure to efficiently crowdsource information assets (Benkler, 2006). While some crowdsourced projects, such as Wikipedia, developed as non-profit ventures, there are many examples of for-profit corporations that have integrated information assets produced by unpaid contributors. Social media companies, such as Facebook, Twitter, Tumblr, and Flickr, exemplify this trend.

Facebook, a social network site with more than 1.4 billion users, represents one of the most successful examples of the new generation of businesses that rely primarily on monetizing information that users create and share. Facebook primary source of revenue comes from highly targeted (i.e., based on user-generated content) paid advertising that appears on users’ timelines. In addition, the company is constantly moving towards further monetizing the wealth of information that its users create and share (LaFrance, 2014). Facebook routinely turns users’ “likes” into social ads and collects money from advertisers for displaying them. The company has recently announced plans to leverage user-generated content for optimizing advertising outside of Facebook services, which would effectively make the information available to advertisers across the entire Web (Mathis, 2014). At present, Facebook continues to enjoy continued global growth, but recent history offers examples of other social network sites, such as MySpace, which once flourished and then rapidly lost users. There are some indications that Facebook may not be immune to the threat of losing its audience. Media outlets have reported that Facebook is already losing the key teenager demographic to other social network services (Plummer, 2015).

The sustainability of social media business models that monetize user-contributed information depends on users’ continuously involving themselves with and contributing information. Maintaining a loyal and active user base is a challenge for all online businesses that enable information exchanges between their users. In our study, we look at the role of two important user expectancies—privacy and intellectual property rights—in sustaining a social network’s active user base. We use psychological contract theory to develop a theoretical framework that examines the impact of perceived breaches of those expectancies on user behavior.

The motivation for this research comes from frequent instances of conflict that arise between social media companies and their users. Facebook and other companies, whose business models depend on monetizing user-generated content, commonly rely on legal contracts to acquire the legal rights to the content. Registration on Facebook, for example, requires a user to agree to its terms of use, which contain the following statement: “you (the user) grant us (Facebook) a non-exclusive, transferable, sub-licensable, royalty-free, worldwide license to use any intellectual property content that you post on or in connection with Facebook”. However, repeated instances of conflict between Facebook and its users, including four class-action lawsuits, suggest that the legal contracts are limited in their ability to assure the sustainability of users’ creating and sharing information (Prince, 2012). In this paper, we propose that the instances of conflict indicate that the users’ psychological contracts, which encompass the beliefs concerning the terms of their relationship with the company, can differ substantially from the legal contracts they agree to and that a perceived breach of the psychological contracts can trigger negative user reactions, including legal action directed against the company.

Drawing on prior research on information rights (Mason, 1986; Straub & Collins, 1990) and through theoretically integrating prior research, we propose that expectancies in relation to intellectual property rights and privacy exist inherently in the psychological contracts of all social network users and are key to their continuous involvement. To understand how a perceived breach of these expectancies affects social networks’ sustainability, we draw on psychological contract theory and develop a framework on the impact of perceived psychological contract breaches on social network user behavior.

Psychological contract theory evolved in the organizational context to address the limitations of formal legal contracts in explaining exchange outcomes (Rousseau 1989, 1995, 2004). It emphasizes the importance of beliefs about the terms of an exchange rather than their actual legal content because beliefs motivate behaviors. IS research has applied psychological contract theory to understand the outcomes of outsourcing relationships (Koh, Ang, & Straub, 2004) and participation in online auctions

(Pavlou & Gefen, 2005) among other contexts. In the framework we develop and empirically test, we show that perceived breaches of expectancies related to privacy and intellectual property rights result in a negative affective reaction, called a psychological contract violation, which significantly increases user behaviors that are detrimental to the viability of social networks, including the user intention to completely sever the relationship.

This paper proceeds as follows. In Section 2, we review prior research on psychological contracts and in Section 3 we develop the theoretical framework of psychological contracts for social network users. In Section 4 we discuss the methodology. In Section 5, we empirically test the framework in the context of Facebook and present evidence supporting the proposed model. Finally, in Section 6, we conclude with a discussion of the contribution to theory and practice.

2 Psychological Contracts

A psychological contract refers to a set of perceived counterparty obligations that accompany virtually any exchange (Rousseau, 1989). The discussion of psychological contracts began with Argyris (1960) and Schein (1965), but Rousseau (1989) elucidated the psychological contract framework and sparked a wave of empirical studies (Guzzo, Noonan, & Elron, 1994; Robinson, Kraatz, & Rousseau, 1994; Sims, 1994). Rousseau's research focused on the relationships between companies and employees and sought to uncover factors predicting employee performance and retention. The investigation revealed that employees typically hold a set of perceived obligations in relation to the employers, which, when broken, lead to a decrease in productivity and an increase in turnover independent of the terms of the formal legal employment contracts (Rousseau, 1990). While each employee holds a unique psychological contract in relation to the employer, training, promotion, organizational support, and job security are commonly shared perceived obligations that constitute the psychological contracts in the employment relationships (Rousseau, 1990). Subsequent research has found employment-related psychological contracts to be malleable over time while a wave of corporate restructurings virtually erased job security from the employment-related psychological contracts (Robinson et al., 1994).

The malleability of a psychological contract points to its nature as a mental schema that comprises a set of perceived obligations (Rousseau, 2001). The content of a psychological contract depends on the context: employment related psychological contracts may include perceived obligations in relation to training and advancement, while psychological contracts in the context of online marketplaces may include perceived obligations in relation to proper disclosure of product attributes prior to sale and prompt delivery of purchased items. In addition, the content of a psychological contract may not be fully salient until a violation occurs (Rousseau, 1996). In other words, people may not be fully aware that they even hold a set of perceived obligations until they perceive a violation to them (Robinson & Morrison, 2000).

A psychological contract commonly exists alongside and independently from a legal contract, and the two may substantially differ in content (Rousseau, 1989). Understanding the content of psychological contracts is important to prevent psychological contract violations that lead to negative outcomes. Researchers have broadly categorized the behavioral outcomes of a psychological contract violation into four groups: exit, voice, a decrease in loyalty, and an increase in neglect (Turnley & Feldman, 1999). Researchers have extensively applied the exit, voice, loyalty, and neglect (EVLN) typology in the organizational setting (Farrell & Rusbult, 1992; Farrell, 1983; Rusbult, Farrell, Rogers, & Mainous, 1988; Rusbult, Zembrodt, & Gunn, 1982), where they have studied the four behavioral responses as non-mutually exclusive behaviors. In the organizational context, a decrease in loyalty refers to the unwillingness to take on extra organizational roles or defend the company when others criticize it. Neglect is evident in absenteeism and employee underperformance in relation to job obligations. Workers' complaints to management refers to voice, while a departure from the company constitutes an exit, which is the most extreme outcome from psychological contract violations (Turnley & Feldman, 1999). Prior research has found individuals to engage in various combinations of the four behaviors. For example, in the organizational context, employees may voice their disagreement, be less willing to defend the company against criticism, lower their productivity, and consider other employment options separately or all at the same time (Farrell, 1983).

Researchers have applied the EVLN typology to understand outcomes across a wide range of exchange relationships, including personal relationships (Rusbult et al., 1982), relationships between consumers and brands (Fornell & Bookstein, 1982), and relationships between citizens and governments (Sharp, 1984), which demonstrates the EVLN typology's applicability in a broad range of contexts. We believe that

it is also applicable in the context of social networks and their users. Prior research on online social structures has firmly established that user community size and user communication activity are the key factors that affect online social structures' sustainability (Butler, 2001). Therefore, we propose that the loyalty, neglect, and exit components of the EVLN framework can capture key user attitudes and intentions that are critical for social networks' sustainability. In addition, we believe that voice offers an important dimension in this context. Social network users, enabled by the very structure and functionality of the social networks they use, are exceedingly vocal about issues that matter to them. In many cases, their voiced concerns concern the social networks themselves. Therefore, we feel that voice, from the EVLN framework, is essential because it can capture both the users' actions in voicing concerns but also their potential willingness to work with the service provider to resolve conflicts. Therefore, we apply the EVLN typology in our study to understand the outcomes of psychological contract violations in information exchanges.

IS researchers have adopted the psychological contract perspective across several contexts: virtual teams (Piccolli & Ives, 2004), outsourcing (Koh et al., 2004), online market places (Pavlou & Gefen, 2005), sponsored open source software projects (Agerfalk & Fitzgerald, 2008), recommendation agents (Goyal, Davis, & Limayem, 2008) and mobile computing (Mamonov & Koufaris, 2014). Piccolli and Ives (2004) conducted a content analysis of communications in virtual teams and observed that apparent psychological contract violations had a detrimental impact on trust among team members and consequently on their performance in virtual teams. Koh et al. (2004) studied the content of psychological contracts in outsourcing relationships and found that the fulfillment of psychological contracts in outsourcing relationships was positively related to satisfaction with the relationships and intention to continue them in the future. Pavlou and Gefen (2005) found that psychological contract violations in online marketplaces were associated with an increase in the perceived risk of future transactions in the marketplace and a decrease in the willingness to transact. Agerfalk and Fitzgerald (2008) identified perceived obligations in sponsored open source projects and found that the fulfillment of the psychological contracts was positively associated with the success of the projects. Goyal et al. (2008) examined the content of users' psychological contracts in relation to software-based recommendation agents (RAs) and found that the psychological contracts encompassed perceived obligations regarding RAs' ability to generate recommendations and find the best available price for the products. Mamonov and Koufaris (2014) found that users can perceive user location tracking by mobile carriers as an infringement on user privacy and undermine continued use of mobile technology for information sharing.

What is most important about psychological contracts is what happens when they are violated. The definition of psychological contract violation has evolved over time. Rousseau initially defined a psychological contract as a failure to fulfill perceived obligations (Rousseau, 1989). Subsequent research, however, differentiated the *cognitive* and the *affective* components of a psychological contract violation. In a seminal study, Morrison and Robinson (1997) proposed a process model that distinguishes the cognitive perception of a violation of the perceived obligations, which they termed *psychological contract breach*, from the affective experience of frustration, anger, and betrayal that accompanies such a breach, which they termed *psychological contract violation*. In a subsequent study, Morrison and Robinson (2000) showed that a cognitive perception of a *psychological contract breach* was associated with the behavioral response but that the affective experience of a *psychological contract violation* mediated that relationship (Robinson & Morrison, 2000). To maintain consistency with the published body of research on psychological contracts, we follow the Morrison and Robinson's (1997) and Robinson and Morrison's (2000) terminology of a *psychological contract breach* as the cognitive perception and a *psychological contract violation* as the affective response. Figure 1 below summarizes the core constructs in the model of psychological contract violation that Morrison and Robinson (1997) and Robinson and Morrison (2000) developed.

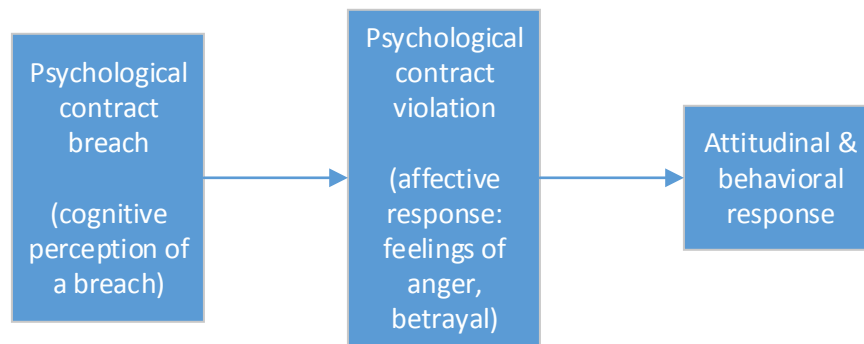


Figure 1. Key Constructs and Relationships in the Psychological Contract Theory

The key emotions that define the affective experience of a psychological contract violation are the feelings of frustration, anger, and betrayal. Research on anger offers insight on how the affective response mediates the behavioral outcomes in response to a perceived breach. The research has conceptualized anger as a cognitive-affective state that develops in response to perceived interference with attaining individual goals (Berkowitz & Harmon-Jones, 2004). Anger may arise from perceptions of goal incongruence, obstacles to achieving goals, or indications of negative outcomes (Berkowitz, 1989). These perceptions undermine successful goal attainment and, therefore, pose a threat to self-efficacy, which is an individual's self-assessment of being able to attain their desired objectives (Bandura, 1997). The resulting emotional response implies the individual does not accept the perceived circumstances and carries two additional implicit assumptions (Stein & Levine, 1999): 1) that someone responsible for the perceived interference exists and 2) that a course of action that can remedy the situation exists. The assumption that a course of action exists combined with a high level of negative emotional arousal motivates behavioral responses associated with anger and, often, aggression (Berkowitz, 1990).

In the context of social networks, users initially share information to accomplish individual goals, such as to share news or personal information with friends. The users' reliance on a technology provider, such as Facebook, to facilitate an information exchange implies the existence of a psychological contract that users have in relation to the technology provider. A perception that the technology provider breached its obligations poses a threat to successful goal attainment and to self-efficacy, and it triggers an emotional response that can include the feelings of anger, betrayal, and frustration (Ausbrooks, Thomas, & Williams, 1995). This emotional response will motivate a behavioral response that focuses on decreasing the perceived threat to goal attainment and self-efficacy.

Preventing a psychological contract breach requires understanding the content of psychological contracts. Though psychological contracts are idiosyncratic and can encompass perceived obligations specific to each exchange relationship, we argue, based on integrating prior research on information rights, that expectancies in relation to intellectual property rights and privacy are key components of psychological contracts for social network users.

3 Psychological Contracts in Social Networks

3.1 Key Expectancies in Psychological Contracts

In the context of social networks, we propose that users' psychological contracts comprise their expectancies regarding the information that they create and share on these platforms. More specifically, since social networks enable users to share information among themselves while capitalizing on that information to create revenue, we believe that psychological contracts concern the use of that information. Due to the nature of information (i.e., its ability to be copied indefinitely and easily adapted or reused), information sharing makes the disclosing party vulnerable to information misappropriation (Murphy, 1995). This misappropriation can mainly take two forms: violation of information property rights (i.e., unauthorized use of intellectual property) and privacy violations (i.e., unauthorized disclosure of private information) (Mason, 1986; Straub & Collins, 1990). Therefore, we propose that these two forms of misappropriation encompass the most critical dimensions of psychological contract breaches in social networks.

Morrison and Robinson (1997) define a psychological contract breach as a cognitive perception of a gap between the expectancies that comprise psychological contracts and the actual performance of the counterparty. Rousseau (2001) suggests that promises play an important role in shaping the content of psychological contracts; however, more recent research shows that promises have little predictive value and that perceived counterparty performance is the key predictor of attitudes and behaviors (Montes & Irving, 2008; Montes & Zweig, 2009). Examining prior research on psychological contracts reveals that many studies in fact have measured perceived counterparty performance as a measure of psychological contract breach (Johnson & O'Leary-Kelly, 2003; Robinson & Morrison, 2000). As such, consistent with the psychological contract literature, we name the two independent variables in our model "perceived intellectual property rights breach" and "perceived privacy breach", and both variables measure perceived counterparty performance in relation to key expectancies.

Research has highlighted the importance of intellectual property and privacy from the ethical (Mason, 1986) and the pragmatic-managerial (Straub & Collins, 1990) perspectives. Mason (1986) argues that privacy and property rights are critical ethical concerns associated with the information age. Straub and Collins (1990) echo this theme by pointing out that privacy and intellectual property rights (software piracy and proprietary databases) are key liability issues that managers face. Legal scholars have repeatedly observed that intellectual property and privacy are intricately intertwined. For example, Zittrain (2000, p. 1201) note that "intellectual property and privacy have something significant, yet understated in common: both are about balancing a creator's desire to control a particular set of data". Further, proposals have been made to strengthen privacy protection by recognizing private information as a form of intellectual property (Samuelson, 2000).

The theory of incomplete contracts provides strong theoretical support for the critical role of intellectual property rights in information exchanges (Hart & Moore, 1990; Hart, 1988). The theory suggests that legal contracts simply cannot address unforeseen contingencies and, therefore, that all legal contracts are incomplete. It also points out that a greater level of detail explication in legal contracts has the unwanted effect of creating unanticipated loopholes (Grossman & Hart, 1986; Hart & Moore, 1990). The theory suggests that hierarchies (companies) have evolved to specifically address the issues of incomplete contracts by providing a more flexible control structure that can address non-contractible terms and the contingent outcomes (Tirole, 1999). Hierarchies are efficient because they give the owners greater leeway in controlling assets (including information assets) in the presence of incomplete contracts. Given the difficulty of contracting contingencies associated with intellectual property in market transactions, the incomplete contract theory advocates for control mechanisms in addition to legal contracts in order to stimulate information exchanges in the market. It highlights the importance of intellectual property laws as a control mechanism for residual (non-contracted) intellectual property rights. Potential counterparties in an information exchange are more likely to engage in an exchange in the presence of incomplete contracts if intellectual property laws offer additional protection and a mechanism for resolving post-contractual disputes (Walden, 2005).

The intellectual property rights afforded by laws address the exclusive ownership rights in relation to information assets and provide the incentives for market participants to make an investment in information assets (Gould & Gruben, 1996; Helpman, 1993). Information assets, similarly to physical assets, can contribute to value creation through their direct use (referred to as communal rights) or by allowing others access to them (referred to as excludability) (Walden, 2005). The right to control access to information assets and the exclusive right to earn income from them constitute the property rights associated with intellectual property. Since property rights are inherent to owning information assets (Burk, 2004), one can expect that perceived violations of those rights, including in the context of social networks, contribute to the affective and behavioral responses associated with perceived breach according to psychological contract theory.

We define "perceived intellectual property rights breach" as a user's subjective cognitive perception of underperformance by the social network company in relation to intellectual property rights. Importantly, perceived intellectual property rights breach is not a singular event but rather a subjective cognitive perception of the counterparty's performance with respect to intellectual property rights in an ongoing relationship. Further, just because one perceives that an intellectual property breach has occurred does not mean that one actually has. A perceived breach may occur due to one's misinterpreting ambiguous information. We expect that a perceived breach of intellectual property rights will be positively associated with the feelings of anger and betrayal towards the social network company (i.e., the affective experience of a psychological contract violation).

Hypothesis 1: Perceived intellectual property rights breach is positively related to psychological contract violation.

In addition to concerns about intellectual property, information exchanges that involve disclosing personal information may also raise privacy concerns. Privacy has been a topic of research across legal studies, sociology, and information systems (Belanger & Crossler, 2011; Li, 2011; Lowry, Cao, & Everard 2011; Schwartz, 1968; Smith, Dinev, & Xu, 2011), yet it remains difficult to define (Solove 2008). The legal definition of privacy goes back to Warren and Brandeis (1890) who presented an argument that individuals needed a law to protect them from unauthorized portraiture in the media and defined privacy as the right “to be left alone”. Warren’s legal argument laid the foundation for the development of privacy-related tort law. The legal basis for privacy protections continues to evolve in both statutes and legal precedent. In general, individuals are afforded legal protection from other parties who intrude into their solitude, collect information about them without authorization (surveillance), disclose their personal information without authorization, and misappropriate their name or likeness (Kalven, 1966). While privacy encompasses a broad spectrum of rights and associated concerns, in this study, we focus on information privacy as a subset of privacy-related concerns that are relevant to social network users (Dinev, Bellotto, Hart, & Colautti, 2006).

Information privacy refers to an individual’s desire to control personal data collection and use (Belanger & Crossler, 2011). Research has identified concerns about information privacy as a significant impediment to e-commerce transactions, which has led to a wave of publications related to factors that influence the users’ intent to disclose personal information (Chai, Das, & Rao, 2011; Lee, Ahn, & Bang, 2011; Sheng, Nah, & Siau, 2008). Seemingly in contradiction to users’ often-stated concerns about privacy, consumer information disclosure online appears to proliferate rapidly (Berendt, Günther, & Spiekermann, 2005). Research has referred to this counterintuitive observation as the privacy paradox (Awad & Krishnan, 2006), and the privacy calculus theory has evolved to address it (Dinev & Hart, 2006). The privacy calculus model of individual decision making in relation to the disclosure of personal information builds on the calculus of behavior model that Laufer and Wolfe (1977) originally proposed. The calculus of behavior emphasizes individual and environmental dimensions as the drivers of behavioral outcomes (Laufer & Wolfe, 1977), and it involves evaluating risks and benefits. It adopts the risk/benefit perspective and offers an explanation of the privacy paradox phenomenon. In the context of e-commerce, for example, although consumers perceive privacy-related risks online to be high, they perceive the benefits of online information disclosure to be even higher (i.e., as outweighing privacy-related risks), so the volume of e-commerce continues to grow (Awad & Krishnan, 2006).

From a psychological contract perspective, the expected benefits and the perceived risks associated with a disclosure of personal information on a social network form a set of implicit rights and associated obligations between the social network company and the user. Willingness to disclose personal information assumes the user has a certain level of trust in the social network company. The perceived nonfulfillment of trust expectancies associated with a disclosure of personal information can lead to a strong affective response of betrayal (Elangovan & Shapiro, 1998). Betrayal, along with anger and frustration, is the core affective experience associated with a psychological contract violation (Morrison & Robinson, 1997). Following the argument that perceived counter-party performance in relation to specific expectancies is the key predictor of attitudinal and behavior adjustments, we define perceived privacy breach as a user’s subjective cognitive perception that a social network has underperformed in relation to the user’s privacy-related expectancies that help make up the user’s psychological contract with the social network. Similarly to a perceived breach of intellectual property rights, a perceived breach of privacy may occur even in the absence of an actual privacy breach. The perception of a privacy breach is entirely subjective and may occur due to one’s misinterpreting ambiguous information. One possible scenario where such a misinterpretation can occur is when a user’s private information shared through Facebook becomes known to an unintended third party. Although this breach of privacy in actuality may have occurred through other means of communication outside of Facebook service, the user may still feel that Facebook breached their privacy. We expect that perceived privacy breach will constitute a breach of the psychological contract and that it will be positively associated with feelings of anger, frustration, and betrayal (i.e., the affective experience of a psychological contract violation).

Hypothesis 2: Perceived privacy breach is positively related to psychological contract violation.

3.2 Behavioral Outcomes Associated with Psychological Contract Violations

To understand individuals' behavioral adjustments in response to psychological contract violations in social networks, we draw on the exit, voice, loyalty and neglect (EVLN) typology. Researchers have previously applied this typology in the organizational context to understand behavioral outcomes in response to psychological contract violations (Turnley & Feldman, 1999). Hirschman (1970) initially proposed a typology of actions that are associated with a betrayal of expectations in relationships between companies and their customers. The proposed typology included three types of actions classified as exit, voice, and loyalty (Hirschman, 1970). Loyalty refers to one's passively but optimistically waiting for the quality of the relationship to improve. Voice refers to one's communicating disagreement about the terms of an exchange, and exit refers to actions that lead to one's terminating the relationship (Rusbult et al., 1988). Rusbult and Zembrodt (1983) extended Hirschman's typology (1983) by adding neglect to the list. Exit, voice, loyalty, and neglect (EVLN) form a typology of possible behavioral responses that one can organize across two dimensions. The first dimension represents a person's intention to rebuild the relationship: loyalty and voice are consistent with the intention to rebuild, while neglect and exit responses lead to a progressive degradation of the relationship's quality. The second dimension determines whether the response is active or passive. Voice and exit represent active responses, while loyalty and neglect represent passive responses. Researchers have extensively applied the EVLN typology in the organizational context to study factors that affect employment relationships (Farrell & Rusbult, 1992; Rusbult et al., 1988; Withey & Cooper, 1989). In studying psychological contract violations in the organizational context, Turnley and Feldman (1999) found that psychological contract violations led to a decrease in loyalty and an increase in voice, neglect, and exit.

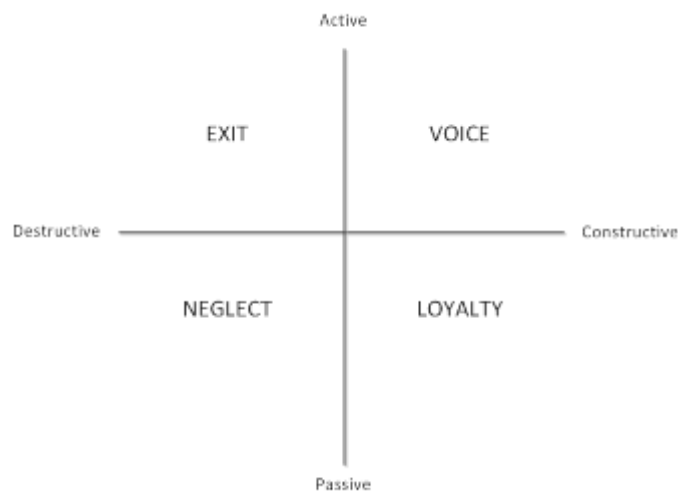


Figure 2. Exit, Voice, Loyalty, and Neglect Framework

We propose that exit, voice, loyalty and neglect represent four potential behavioral outcomes of a psychological contract violation in social networks. Choosing one action does not exclude the others, so a social network user may engage in a combination of behaviors. For example, users may in various combinations voice their disagreement, be less willing to defend the social network company against criticism, decrease their contributions to the social network, and consider other social network alternatives (Farrell, 1983). The relationships between users and social network service providers differ in important respects vis-à-vis the employment context, where research has largely developed the psychological contract theory. For example, one key difference is that there is no monetary exchange between Facebook users and the company, whereas the employment context typically carries monetary rewards. Therefore, the user responses to psychological contract violations in the context of a social networking service may differ from those in the traditional employment context. We discuss the motivations and possibilities for the individual responses to a psychological contract breach in the context of a social network site below.

What behaviors individuals choose depends on what they intend to achieve and how they evaluate the costs and efficacy associated with each behavior (Coleman, 1986). From the perspective of a social

network's sustainability, voice is a preferable behavioral outcome because it provides an opportunity for the social network and its users to resolve conflict and maintain the relationship. However, voice incorporates a broad range of actions that include appeals to external authorities, such as whistleblowing (Near & Miceli, 1995), or, in the case of social networks, the recruitment of other users in protest. In general, we believe that social network users are likely to engage in voice when one perceives its costs to be low and efficacy to be high. We also expect that, consistent with the findings from the organizational context, in the context of social networks, voice will be the most frequent response to a psychological contract violation, particularly when one intends to restore the relationship (Klaas, Olson-Buchanan, & Ward, 2011). We expect that feelings of anger and betrayal triggered by the perceptions of privacy and/or intellectual property rights breach will motivate Facebook users to speak out, particularly given the platform's social nature. At its core, Facebook enables users to share information among themselves, which they often coopt for emotional support (Greene, Choudhry, Kilabuk, & Shrank, 2011). Provided that Facebook encourages users to share how they feel through status updates, we expect that Facebook users will use the communication functions afforded to them to express their feelings about the perceived violations.

Hypothesis 3: Psychological contract violations in social networks are positively related to voice.

When users' attempts to communicate their dissatisfaction with the current state of a social network fail to bring about their desired results, when the costs of voice are prohibitive, or when users want to enhance their voice behavior, they may seek to rebalance the relationship by contributing less and, thus, engage in neglect. Neglect is a common outcome of conflict in relationships when parties believe that voice is unlikely to produce the desired changes (Kammrath & Dweck, 2006; Rusbult et al., 1982). In the organizational context, neglect manifests in individuals' doing less work during work hours, taking longer breaks, and taking more sick days (Turnley & Feldman, 1998). In the context of social networks, lower information contribution, such as fewer posts or comments on other users' posts, would reflect neglect. We expect that the feelings of betrayal that comprise the affective experience of psychological contract violation will motivate individual users to limit the amount of information they disclose on Facebook.

Hypothesis 4: Psychological contract violations in social networks are positively related to neglect.

Lower satisfaction with the quality of the exchange relationship may also be associated with a decline in loyalty towards the counterparty in the exchange (Farrell & Rusbult, 1992). Loyalty reflects a positive but passive intent at restoring the relationship (Turnley & Feldman, 1999). Research in the retail and employment contexts has revealed that a history of positive experiences in an exchange can increase loyalty (DuWors & Haines, 1990). On the other hand, psychological contract violations have a negative impact on loyalty across different contexts. For example, perceived organizational betrayal has a negative relationship with employee loyalty (Turnley & Feldman, 1999). Consistent with the observations from other contexts, we expect that psychological contract violations in social networks will have a negative impact on users' loyalty. In other words, we expect that feelings of anger and betrayal triggered by perceived breaches of privacy and/or intellectual property rights will undermine users' loyalty towards Facebook.

Hypothesis 5: Psychological contract violations in social networks are negatively related to loyalty.

Growing dissatisfaction with the terms of a relationship can lead one to search for alternative counterparties that can deliver the benefits one expects (Lee, 1988). If alternative counterparties are available and if the switching costs are not prohibitive, one may exit from a relationship. Studies on employment relationships have documented parties who terminated relationships in response to a psychological contract violation. Employees who feel betrayed by their employers will seek out alternative employment options (Turnley & Feldman, 1999). Also, terminating an exchange relationship does not preclude other exit-associated outcomes. Parties exiting the exchange may seek reparation through, for example, legal action (Vohs & Heatherton, 2001). Consistent with observations from other contexts, we expect that psychological contract violations in social networks will increase user intention to exit.

Hypothesis 6: Psychological contract violations in social networks are positively related to exit intention.

In the EVLN typology of behavioral outcomes associated with psychological contract violations, exit represents the most critical outcome because, while voice, loyalty, and neglect offer an opportunity to rebuild the relationship, exit signals "irreparable lapses" (Hirschman, 1970). Because user exits from a social network can directly undermine the social network's sustainability (Butler, 2001), we believe it is important to also discuss two contextual factors that moderate exit intention as a response to a

psychological contract violation, particularly in the context of social network service providers: availability of alternatives and lock-ins.

Availability of alternatives is a critical constraint that research has found moderates the impact of betrayal across different contexts (Lydon, Menzies-Toman, Burton, & Bell, 2008). Robinson (1996) found that the availability of alternative employment options affected outcomes associated with psychological contract violations in the organizational context. In times of sparse employment opportunities, employees were less likely to consider leaving the company even when they felt that their psychological contracts had been violated (Robinson, 1996). Whether one participates in a social network depends on whether one attains the benefits expected from it. The availability of alternative social networks that can deliver the desired benefits will extend the range of options available to users. Similar to the findings from the studies of employment relationships, we believe that, in the context of social networks, availability of alternatives will positively moderate the progression to exit in response to a perceived violation.

Hypothesis 7: Availability of alternatives positively moderates the relationship between psychological contract violations and exit intention.

Even when alternatives are available, relationships may involve lock-ins that effectively preclude one from terminating a relationship. In the organizational context, intangible assets, such as friendships with coworkers and job-specific knowledge, can create a relational employment lock-in (Kulkarni & Ramamoorthy, 2005). The costs of losing personal friendships and organization-specific skills that would occur with the transition to a new employer affect considerations about alternative employment opportunities. We expect the lock-in effects in relation to the users' information to have similar effects in social networks. If a social network embeds the information users create and share and users cannot easily transfer it to alternative social networks, then it essentially creates a lock-in that will significantly increase the cost and decrease the likelihood of a user's leaving the social network. The fact that users will lose friendships and other personal connections that they have established on the social network will also create a lock-in effect and decrease the likelihood of their abandoning the social network.

Hypothesis 8: Social network lock-ins will negatively moderate the relationship between psychological contract violations and exit intention.

Figure 3 shows the full research model.

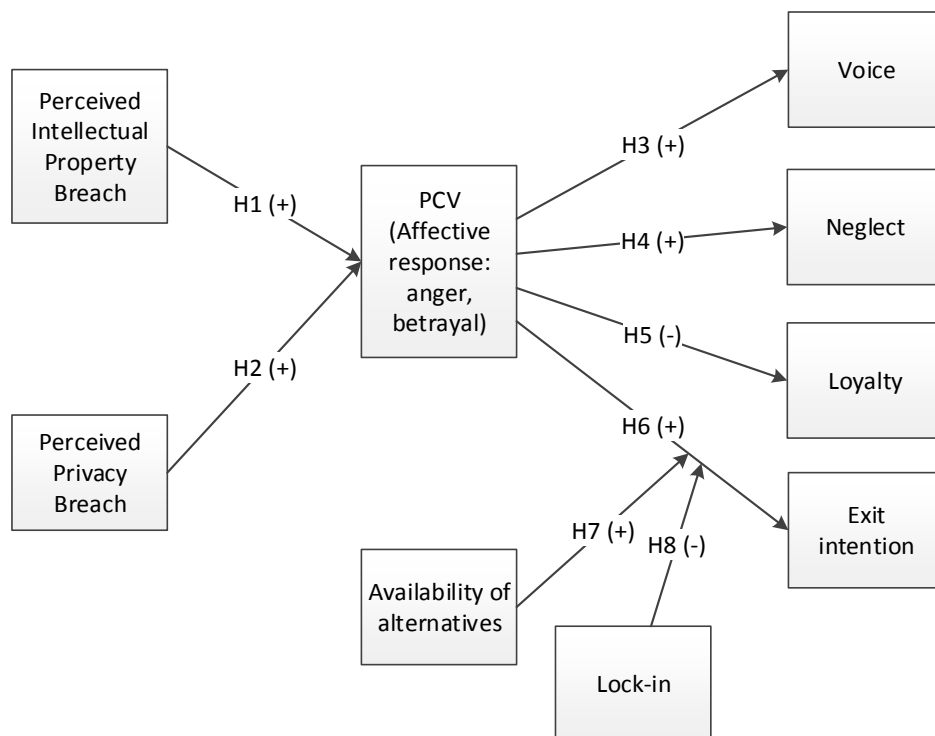


Figure 3. Research Model

4 Methodology

We employed a cross-sectional survey of current Facebook users to examine the hypothesized relationships among the theoretical constructs in our framework. Facebook, the largest online social network, has experienced some of the most significant and visible examples of psychological contract breaches between an SNS provider and its users. Specifically, Facebook has had to repeatedly address conflicts with its users in relation to how it uses the information that users share through the service. In 2006, Facebook launched the News Feed service, which aggregates status posts across friend networks. Although the company did not make any changes to the privacy policy in effect at the time, the implementation of the News Feed service made all status updates visible in a single feed (Hoadley, Xu, Lee, & Rosson, 2010). However, the visibility of negative news, such as break-ups, had a strong negative impact on the Facebook community. A group formed to protest against the News Feed service quickly gathered over 100,000 members (Lampe, Ellison, & Steinfield, 2008). Also, in 2007, Facebook launched the Beacon service in partnership with leading retailers. The service began to broadcast users' purchases made on partner online stores as status updates, which resulted in an immediate uproar among Facebook users (Gürses, Rizk, & Günther, 2008). Facebook shut down Beacon just two weeks after launch and a class-action lawsuit that challenged the legality of the service took several years to settle. Then, in 2010, Facebook users sued the company for violating California's privacy laws following a disclosure about how the company handled information shared by the site's users, which brought the count of class-action lawsuits against the company to four. These repeated instances of conflict between Facebook and its users offer an opportunity to examine the proposed research framework in a natural context and, thereby, increase our results' external validity.

4.1 Measurement

We developed the survey instrument for our study based on previously published scales. We recorded and used age, gender, education, and the length of users' SNS tenure as covariates in evaluating the theoretical model. In line with Diamantopoulos' (2011) recommendations, we measured perceived breach of intellectual property rights and perceived breach of privacy using formative indicators. A properly measured formative construct has to include all indicators that formatively contribute to the construct (Cenfetelli & Basseller, 2009). The indicators for perceived intellectual property rights breach are grounded in the theory of property rights (Demsetz, 1967), which posits that property ownership entails the following rights: 1) the exclusive right to use property, 2) the exclusive right to earn income from property, and 3) the right to exclude others from access to the property. Perceived counterparty underperformance in relation to any of the three rights associated with intellectual property ownership contributes to perceived intellectual property rights breach.

The formative indicators of perceived privacy breach are based on the privacy safe harbor policy (PSHP). PSHP provides the guidelines for American companies doing business with consumers in the European Union. Although PSHP offers no legal protections for the technology users based in the United States, laws and legal frameworks generally evolve to capture social norms, and they reflect common individual expectancies that exist in society (Posner, 2000). Therefore, we use a legal framework as a reference to develop a set of privacy-related expectancies, which comprise the psychological contracts associated with private information disclosures. The PSHP includes the following guidelines regarding what companies should do in relation to gathering and using information: 1) inform individuals about what information they are collecting and how they will use it, 2) provide an opportunity for individuals to opt out of having their information collected, 3) not transfer information to third parties except under certain circumstances, 4) collect data that is relevant and reliable for the purpose for which the company collected it, and 5) provide individuals with access to information that they collect. Perceived underperformance by the social network company with respect to any of these privacy-related expectancies will contribute to perceived privacy breach.

We measured the two perceived breach variables following the guidelines of Turnley and Feldman (1999) who measured psychological contract breach in an organization-employee context. Each formative indicator assessed perceived performance in relation to expectancies concerning intellectual property rights and privacy.

First, we determined the degree of personal significance of each expectancy to each subject. To do so, we asked participants to indicate how important each individual expectancy associated with intellectual property and privacy was to them. For example, subjects read a statement such as "You have the

exclusive right to use the information that you post on Facebook” and reported how important this was to them in the context of using Facebook on a scale of 1 (not at all important) to 10 (extremely important).

Second, we asked the participants to report how well they believed that Facebook actually fulfilled each of those expectancies using a semantic differential scale anchored at -2 (Facebook does much less than expected) and +2 (Facebook does much more than expected). Given that we were interested in perceived breaches, we reversed the scores that the subjects reported.

Finally, for each expectancy, we multiplied the individual importance of the perceived expectancy by the degree to which each subject believed it was unfulfilled. Doing so gave us the values for each formative indicator associated with each expectancy.

To confirm the nomological validity of the formatively measured constructs, we conducted a pilot study. Following Cenfetelli and Basseller's (2009) recommendation, we evaluated the correlation between formatively measured perceived intellectual property rights breach and perceived privacy breach with the responses to questions that measured overall levels of perceived intellectual property rights breach and perceived privacy breach, respectively. This approach is consistent with prior research on psychological contracts (Turnley & Feldman, 1999). Formatively measured perceived intellectual property rights breach was highly correlated with responses to the question concerning overall levels of perceived intellectual property breach ($r = 0.71$, $p < 0.001$). Formatively measured perceived privacy breach was highly correlated with responses to the question concerning overall levels of perceived privacy breach ($r = 0.73$, $p < 0.001$). These findings support the nomological validity of the formatively measured constructs. All other measures are based on previously published scales. We contextualized the seven-point Likert scales (1 = strongly disagree; 7 = strongly agree) where appropriate. The Appendix presents the full questionnaire.

4.2 Participants and Data Collection

We recruited participants through Amazon's Mechanical Turk (MT). MT is an online labor market organized around micro-tasks called human intelligence tasks (HITs) (Buhrmester, Kwang, & Gosling, 2011). Participant recruitment through Mechanical Turk offers the benefits of higher internal and external validity compared to student samples commonly used in research. The internal validity of an MT sample stems from a lower risk of researcher interference—HITs are completed anonymously online and Amazon serves as a financial broker for compensation (Paolacci & Chandler, 2010). The greater external validity stems from a more diverse subject pool available through MT compared to student population pools. The MT subject pool demographics are continually evolving and include subjects from many countries. However, we recruited subjects based only in the United States for our study to avoid possible country-specific effects that may impact our results (Steelman, Hammer, & Limayem, 2014). Limiting the participation to the Facebook users from the United States is particularly appropriate in this study because there are major differences in the legal information protections available to users in different countries that may affect their perceptions about breaches. For example, the European Union offers comprehensive legal privacy protections for technology users, while the United States offers only limited sectoral protections (Heisenberg, 2005). At the same time, Facebook users from the United States contribute nearly half of all revenues to the company (Facebook, 2013) and represent an important user group for it.

Researchers have shown the demographics of MT workers located in the United States to be similar to U.S. census data (Buhrmester et al., 2011).

We provided participants recruited through MT with a link to the survey. Following Downs, Holbrook, and Sheng (2010), we provided each participant who completed the survey with a unique code. We used the code to track survey submissions and assign credit for participation through the MT tracking system. We recruited a total of 635 participants to take the survey. After filtering out 37 surveys in which participants did not follow instructions, 598 usable responses remained. The average age of the participants was 33. The participants were 48 percent male. Table 1 provides other descriptive statistics about the participants.

Table 1. Study Participants' Descriptive Statistics

Age	Mean: 33.35, SD = 11.45, Min = 18, Max = 71
Gender	Male: 48%, Female: 52%
Education	High school diploma: 12% Some college: 39% Bachelor degree: 38% Advanced degree: 11%
Facebook tenure	Less than 1 year: 3% 1-2 years: 11% 2-4 years: 36% More than 4 years: 50%

5 Results

The proposed theoretical model includes 13 latent constructs. Two constructs, perceived privacy breach and perceived intellectual property breach, are formatively indicated, while the rest of the constructs are reflectively indicated. As a first step in our analysis, we evaluated the distributions of the data. The Kolmogorov-Smirnov and Shapiro-Wilk tests for normality showed that none of the measurements in our model were normally distributed. Examination of the histograms and Q-Q plots revealed severe deviations from normality for most of the measurements. Covariance-based structural equation modeling (CB-SEM) techniques assume multivariate normal distribution of the data (Hair, Ringle, & Sarstedt, 2011), while component-based structural equation modeling techniques, such as partial least squares (PLS), do not impose such assumptions. Further, the two formatively measured constructs in our model have only a single path that connects each of the constructs to an endogenous construct in the model. One cannot identify this type of model in CB-SEM. Model identification would require adding either reflective indicators or other dependent variables to the model (Wetzels, Odekerken-Schröder, & van Oppen, 2009). Adding such constructs to the model for the sole purpose of model identification is hard to justify theoretically. Therefore, because of the normality violations in our data and because CB-SEM model identification would require our adding paths in the model that cannot be readily theoretically justified, we employed PLS to analyze the data in our study, which can evaluate models that include formatively and reflectively indicated constructs (Gefen, Rigdon, and Straub 2011). We employed the PLS method via the SmartPLS software package to evaluate our research model (Ringle, Wende, & Will, 2005).

5.1 Measurement Model

We first evaluated the convergent validity, discriminant validity, and construct reliability of the measurement instrument. We measured perceived breach of intellectual property rights and perceived breach of privacy using formative indicators. This approach is consistent with the recommendations for using formative indicators in research (Petter, Straub, & Rai, 2007) and prior research on psychological contracts in information systems (Pavlou & Gefen, 2005). We examined tolerance values and variance inflation factors (VIF) and did not detect significant multicollinearity among the indicators. We also examined the correlation coefficients between individual indicators and their corresponding latent constructs and found that all indicators were significantly correlated with their latent constructs. Table 2 shows the item weights and bivariate correlation coefficients. The key concern in formative construct measurement is inclusion of all potential indicators that may affect the latent variable (Cenfetelli & Basseller, 2009). Following Chin's (2010) recommendations on conducting and reporting PLS analysis and since all indicators had significant correlations with their latent constructs, we retained all formative indicators, including the two indicators of perceived privacy breach with non-significant weights. We did so because, even though some individual formative items may not have had statistically significant weights in the measurement model, if those items are theoretically grounded and they had statistically significant correlations with their latent constructs, they had to be retained (Chin, 2010).

Table 2. Formative Indicators of Perceived Intellectual Property Breach and Perceived Privacy Breach

Construct	Items	Weight	t value	p value	Correlation coefficient
Perceived intellectual property breach	IP_Breach1	0.504	3.42	<0.001	0.76***
	IP_Breach2	0.371	2.77	<0.01	0.62***
	IP_Breach3	0.362	2.79	<0.01	0.58***
Perceived privacy breach	Pri_Breach1	0.050	0.03	n.s.	0.56***
	Pri_Breach2	0.029	0.05	n.s.	0.51***
	Pri_Breach3	0.408	4.16	<0.001	0.92***
	Pri_Breach4	0.423	4.25	<0.001	0.89***
	Pri_Breach5	0.273	2.12	<0.05	0.78***

We assessed the convergent validity of the reflectively measured constructs by item cross-loadings (Fornell & Larcker, 1981). Table 3 shows the results. Individual survey items had loading factors above 0.7 on their respective constructs and the loadings on the respective constructs exceeded loadings on other constructs in the model, which indicates good convergent validity. We assessed discriminant validity by comparing the correlation coefficients between constructs with the square root of average variance extracted (AVE) for each construct. Table 4 presents the results of this analysis. Average variance extracted was above 0.7 in all cases, and the square root of AVE of individual constructs was greater than all correlation coefficients, which suggests sufficient discriminant validity. We confirmed construct reliability with composite reliability and Cronbach's alpha (see Table 3). All values of composite reliability and Cronbach's alpha were above the generally accepted threshold of 0.70 (Fornell & Larcker, 1981), which indicates appropriate internal consistency.

Table 3. PLS Loadings and Cross-loadings

	CR	CA		PCV	Voice	Loyalty	Neglect	Exit intention	Alt	Lock-in
Psychological contract violation	0.94	0.91	PCV1	0.924	0.303	-0.256	0.344	0.498	0.087	0.003
			PCV2	0.925	0.262	-0.244	0.314	0.497	0.016	-0.032
			PCV3	0.924	0.328	-0.248	0.353	0.476	0.041	-0.014
Voice	0.81	0.72	Voice_1	0.283	0.873	0.068	-0.058	0.156	0.192	0.173
			Voice_2	0.228	0.784	0.132	-0.072	0.133	-0.013	0.007
Loyalty	0.90	0.81	Loyal_1	-0.292	0.131	0.937	-0.324	-0.387	-0.165	-0.072
			Loyal_2	-0.192	0.072	0.864	-0.21	-0.247	-0.186	-0.088
Neglect	0.87	0.7	Neglect_2	0.343	0.006	-0.274	0.901	0.461	0.163	0.073
			Neglect_3	0.286	-0.152	-0.272	0.858	0.388	0.132	0.112
Exit intention	0.89	0.8	Exit_1	0.487	0.133	-0.336	0.423	0.907	0.163	0.061
			Exit_2	0.482	0.077	-0.368	0.484	0.903	0.175	0.050
			Exit_3	0.401	0.242	-0.212	0.342	0.732	0.281	0.132
Alternatives	0.87	0.72	Alt_1	0.075	0.141	-0.209	0.168	0.238	0.920	0.566
			Alt_2	-0.013	0.068	-0.122	0.112	0.171	0.831	0.506
Lock-in	0.88	0.82	LockIn1	-0.012	0.094	-0.114	0.104	0.112	0.590	0.961
			LockIn2	0.031	0.143	-0.039	0.068	0.039	0.492	0.703
			LockIn3	-0.062	0.149	-0.012	0.051	0.042	0.447	0.855

Table 4. PLS Loadings and Cross-loadings

	Mean	SD	Alt	Exit intention	Lock-in	Loyalty	Neglect	PCV	Pr_Brch	IP_Brch	Voice
Alternatives	4.33	1.62	0.88								
Exit intention	4.04	1.49	0.24	0.85							
Lock-in	4.18	1.62	-0.61	-0.09	0.84						
Loyalty	4.32	1.21	-0.20	-0.37	-0.09	0.90					
Neglect	4.45	1.40	0.17	0.49	0.10	-0.31	0.88				
PCV	3.29	1.35	0.05	0.54	-0.02	-0.27	0.36	0.92			
Pr_Brch	18.23	8.31	0.04	0.30	-0.09	-0.27	0.15	0.37	n/a		
IP_Brch	21.26	8.58	-0.03	0.28	-0.16	-0.34	0.17	0.31	0.65	n/a	
Voice	3.39	1.46	0.12	0.18	-0.12	0.12	-0.07	0.31	-0.07	-0.11	0.82

5.2 Common Method Variance Analysis

Common method variance (CMV) is a common concern in survey-based research (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To assess the degree of CMV in the current study, we conducted two tests. First, following Lindel and Whitney (2001), we performed a partial correlation test using the second smallest positive correlation among measurement items (0.01) as a proxy for CMV to adjust the correlations between the principal constructs. The adjusted correlations were only slightly lower than the unadjusted correlations and their levels of significance did not change. These results suggest that CMV is unlikely to have spuriously inflated the relationships among the constructs in our study (Lindell & Whitney, 2001). In the second test for potential CMV effects, we followed the guidelines that Chin, Thatcher, Wright, and Steel (2013) provide. We added the construct of equity sensitivity (Sauley & Bedeian, 2000) as a marker variable in our model. We then included the marker variable as a predictor of all endogenous variables in our model and compared the hypothesized path coefficients to the base model without the marker variable. The paths between the marker variable and the endogenous constructs in the model should approximate the effects of common method variance because the marker variable is not theoretically expected to have any effects (Chin et al., 2013). Adding the marker variable did not produce any significant changes in variance explained in any of the dependent variables, which provides further evidence that common method bias did not present a significant problem in the current study. Although the individual negative tests cannot guarantee the absence of CMV (Burton-Jones, 2009), the results of the tests suggest that CMV did not materially affect our results.

5.3 Structural Model

We assessed the hypotheses by examining the parameters using PLS. R² values of the dependent variables reflect the predictive value of the model and standardized path coefficients indicate the strength of the relationships between the independent and the dependent variables (Chin, 1998). We used a bootstrapping resampling procedure with 500 samples to estimate the significance of the paths in the structural model. Table 5 shows the results. Perceived intellectual property breach ($\beta = 0.1$, $p < 0.05$) and perceived privacy breach ($\beta = 0.31$, $p < 0.001$) had significant relationships with psychological contract violation. The R² for the psychological contract violation was 0.17, which indicates that perceived breach of intellectual property rights and perceived privacy breach explained 17%percent of variance in the feelings of anger and betrayal felt by Facebook users towards the company. The relatively low R² is in line with prior research on psychological contracts (Robinson & Morrison, 2000). Another reason for the relatively low R² is the fact that the construct of psychological contract violation captures the feelings of anger, betrayal, and frustration that specific events generally trigger (Zhao, Wayne, Glibkowski, & Bravo, 2007). Since we conducted a cross-sectional measure of these emotions, we may have effectively captured the attenuated lingering emotional consequences of events that took place at some point in the past and were, therefore, not as strong as they were when they were first triggered. It is also possible that we need additional control variables (e.g., the number of friends on Facebook or individual psychographic factors) to better understand individuals' emotional reactions to instances of psychological contract breach.

Evaluating the effects of PCV on EVLN, we found that psychological contract violation had a significant effect on voice ($\beta = 0.31$, $p < 0.001$), loyalty ($\beta = 0.27$, $p < 0.001$), neglect ($\beta = 0.36$, $p < 0.001$) and exit ($\beta = 0.73$, $p < 0.001$). The R^2 for voice, loyalty, and neglect was 0.10, 0.075, and 0.13, respectively. The R^2 for exit was 0.34, which indicates that experiencing a psychological contract violation is a strong predictor of one's considering terminating their relationship with Facebook.

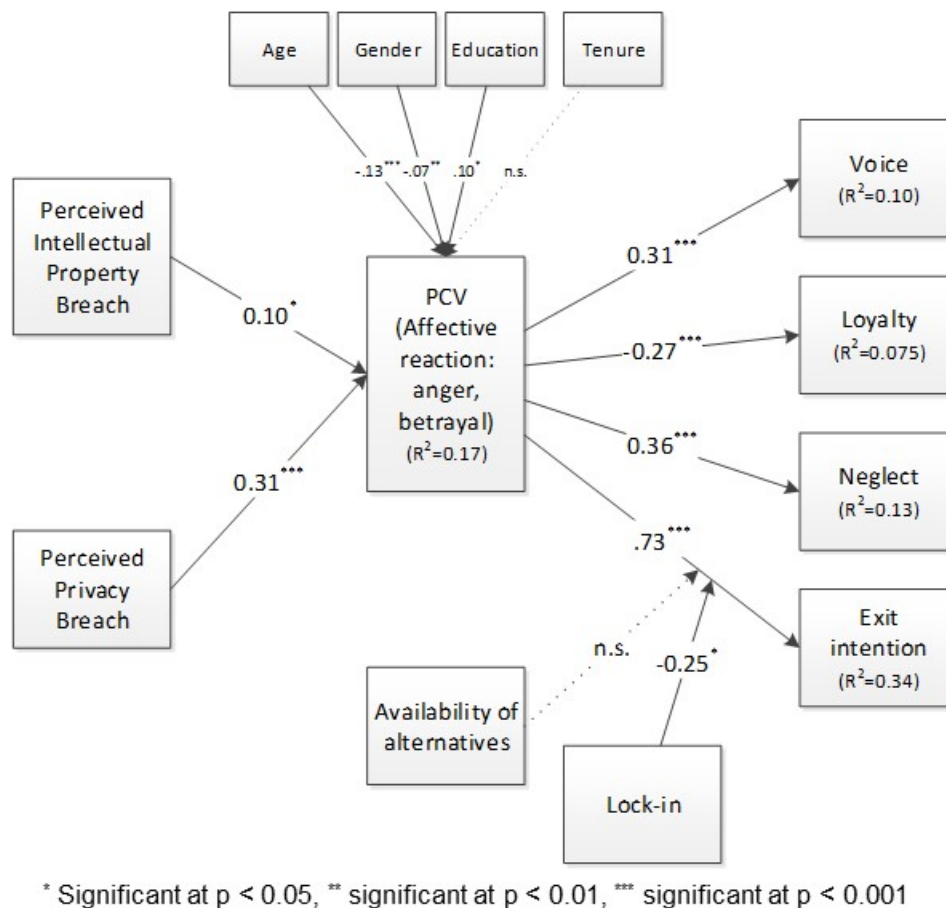


Figure 4. Structural Model Path Coefficients

We evaluated the moderating effects of availability of alternatives and lock-in on intention to exit in response to a psychological contract violation. The availability of alternatives did not show a statistically significant moderation of exit intention in response to a psychological contract violation (which does not support H7). However, consistent with H8, we found lock-in to have a significant negative moderating effect on the relationship between psychological contract violation and exit intention ($\beta = -0.25$, $p < 0.05$). Although we did not hypothesize these relationships, we also conducted a post hoc analysis of the potential moderating effects of availability of alternatives and lock-in on voice, loyalty, and neglect, but we did not find any empirical support for them. Following the recommendations of Gefen, Rigdon, and Straub (2011), we also examined a saturated model that included direct paths from perceived breach constructs to EVLN. Evaluating the saturated model confirmed that the same hypothesized paths remained statistically significant, while none of the newly added paths from perceived intellectual property rights breach and perceived privacy breach to the EVLN constructs were significant in the saturated model. The results support all hypotheses except H7. Figure 4 summarizes the findings.

The effects of control variables (age, gender, and education) were consistent with prior research on psychological contracts. Research has established that people react less emotionally to instances of psychological contract breach with age (Bal, De Lange, Jansen, & van der Velde, 2008). Research has also established gender's effect: women tend to react less emotionally in response to psychological contract breach (Turnley & Feldman, 1999). We also evaluated the effects of the control variables on voice, loyalty, neglect and exit. We found no statistically significant relationships between the control variables and the EVLN constructs.

Table 5. Path Coefficients

	Hypotheses	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	Standard error (STERR)	T statistics (O/STERR)
Property breach -> PCV	H1 (supported)	0.10	0.11	0.05	0.05	2.14
Privacy breach -> PCV	H2 (supported)	0.31	0.31	0.05	0.05	6.30
PCV -> Voice	H3 (supported)	0.31	0.32	0.04	0.04	7.30
PCV -> Loyalty	H4 (supported)	-0.27	-0.27	0.04	0.04	6.44
PCV -> Neglect	H5 (supported)	0.36	0.36	0.04	0.04	9.28
PCV -> exit intention	H6 (supported)	0.73	0.73	0.13	0.13	5.61
Alternatives -> exit intention		0.24	0.25	0.08	0.08	3.08
PCV * Alternatives -> exit intention	H7 (not supported)	-0.01	-0.02	0.14	0.14	0.09
Lock-in -> exit Intention		0.09	0.10	0.09	0.09	1.05
PCV * lock-in -> exit intention	H8 (supported)	-0.25	-0.25	0.13	0.13	2.02
Age -> PCV		-0.13	-0.13	0.03	0.03	4.03
Education -> PCV		0.10	0.10	0.04	0.04	2.66
Gender -> PCV		-0.07	-0.07	0.03	0.03	2.06
Tenure -> PCV		-0.06	-0.06	0.04	0.04	1.53

6 Discussion

We conducted this study based on the observation that many high-profile incidents of conflict between participants and providers of online information exchanges, such as social networks, have occurred despite the presence of legal contracts and terms of service. We specifically focused on the domains of psychological contract related to potential misappropriation of information by the technology provider. By drawing on psychological contract theory and integrating prior research on intellectual property rights and privacy, we developed a theoretical framework of psychological contracts in the context of social networks. The proposed framework posits that two key expectancies by social network users are related to intellectual property rights and privacy. According to psychological contract theory, perceived counterparty underperformance in relation to these expectancies leads to an affective response known as a psychological contract violation, which results in negative behavior that can harm the sustainability of the social network itself. We evaluated our framework with a cross-sectional study of Facebook users and found that the data largely supported our hypotheses.

Perceived breach of intellectual property rights (H1) and privacy (H2) were positively related to the affective experience of a psychological contract violation. In agreement with prior findings from the organizational context, our results show that a psychological contract violation by social network companies was associated with a range of behavioral outcomes that included a higher intention to voice disagreement (H3), lower loyalty as reflected by less willingness to wait for the conditions to improve (H4), reduction in the intent to contribute information (neglect) (H5), and an increase in the intention to terminate the relationship (H6). We also evaluated the moderating effects of available alternatives and lock-ins on exit intention. We found no significant moderation by the availability of alternatives on psychological contract violation's relationship with the intent to terminate the relationship in the context of social networks (H7). One possible explanation for the lack of a moderating effect is that, although the study participants perceive that there are potential alternatives to Facebook in theory, in reality there are no viable substitutes at this time. In addition, although alternatives may exist, switching would entail significant costs and/or difficulty in transferring existing information on Facebook to a new platform.

Consistent with this possibility, our results indicate support for the moderating role of information lock-ins (H8). The experience of a psychological contract violation combined with the moderating effect of lock-ins explained a significant degree of variance in the intention to terminate the relationship with the social network ($R^2 = 0.34$). In order to isolate the impact of PCV, we conducted a post hoc analysis where we examined the direct effect of PCV on exit without the moderators, and we found that PCV explained 25 percent of the variance in exit on its own (Cohen's effect size $f^2 = 0.33$).

6.1 Theoretical Contributions

The present study makes several contributions to theory. First, we develop a novel theoretical lens through which we examine the sustainability of social networks. While prior research has largely focused on understanding participants' motives for sharing information on social networking platforms (Arazy & Gellatly, 2012; Olivera, Goodman, & Tan, 2008; Roberts, Hann, & Slaughter, 2006; Wasko & Faraj, 2005), we examine a different set of factors that may affect these platforms' sustainability. Specifically, our framework posits that expectancies in relation to intellectual property rights and privacy exist inherently in the psychological contract of social network users and that perceived breaches of these expectancies can have a detrimental effect on their relationship with the social network companies. We propose and confirm that perceived underperformance by social network companies in relation to intellectual property and/or privacy expectancies can trigger the affective experience of a psychological contract violation in their users, which can result in complaints (voice), loss of loyalty, an increase in neglect, and, most importantly, an increase in exit intentions. In other words, a failure to account for the expectancies of intellectual property and privacy, the main components of users' psychological contract associated with information disclosure, poses significant risks to the sustainability of social networks. This point is particularly significant in the context of online users who commonly ignore the legal contracts and terms of service made available to them (Finley, 2012). We believe that our framework may also be applicable for understanding the sustainability of other types of technology-enabled information exchanges, such as corporate knowledge management systems, open-source software projects, and crowdsourcing, because they all involve concerns about intellectual property rights and/or privacy.

In addition, our framework integrates prior interdisciplinary research on the legal foundations of privacy and intellectual property protections (Post, 2000; Reichman & Samuelson, 1997), privacy calculus in information disclosures in technology-enabled exchanges (Smith et al., 2011), and the importance of personal privacy to the sense of individual dignity (Meyer, 1989; Pedersen, 1997). Applying the psychological contract lens to understanding these parallel streams of research offers a unified predictive framework that encompasses factors that can undermine the sustainability of social networks. While research in legal studies has emphasized the significant overlap in legal protections of privacy and intellectual property (Litman, 2000) and research in interpersonal psychology has pointed out the importance of control over personal information for psychological wellbeing (Meyer, 1989), we offer an integrated view that indicates that both intellectual property and privacy concerns play an important role in shaping social network users' attitudes and behavioral intentions.

Further, our research findings demonstrate that, in the context of social networks, perceptions of underperformance in relation to privacy dominate over perceptions of intellectual property infringement. We found that Cohen's f^2 effect size of perceived privacy breach on psychological contract violation was 0.06 and the effect size of perceived intellectual property breach was 0.02. In other words, while both perceptions of intellectual property breach and privacy breach contributed to the experience of a psychological contract violation in the context of social networks, the two had independent effects and the effect of perceived privacy breach was more significant. We expected this result given the generally non-commercial nature of exchanges that occur on social networking sites. However, it is important to note that some Facebook users do share professional photography, artwork, original prose, and poetry on Facebook. These types of information can have commercial value and are afforded protection under existing copyright laws. Although Facebook claims a royalty-free license to all content shared by users in its terms of use contract, it is likely that any attempts by Facebook to exercise property rights in relation to original creative content would trigger further instances of conflict with Facebook users.

While currently perceived underperformance in relation to privacy expectancies is the more visible issue on Facebook, intellectual property expectancies may be the dominant factor that contributes to the experience of a psychological contract violation in other contexts. Several related incidents lend support to this claim. The Huffington Post, a free blogging platform, became a target of a lawsuit after AOL bought it (Bercovici, 2011). Bloggers who voluntarily contributed to the Huffington Post sued the company

demanding compensation for their intellectual property following the announcement of the acquisition. Also, Instagram, a mobile photo-sharing application that reached over 30 million users in just 18 months after launch and was acquired by Facebook for US\$1 billion, faced a user revolt in response to changes in the terms of use agreement that expanded the intellectual property rights claimed by the company in relation to the images that users shared through the service (Geron, 2012). The user revolt led to Instagram to quickly reverse course and roll back the changes in the legal contract (Lynley, 2012). These instances of conflict between information owners and companies that facilitate information exchanges clearly indicate the importance of psychological contracts that encompass intellectual property rights. Our framework provides an opportunity to further explore the role of privacy and intellectual property rights across different contexts.

We also contribute to theory by developing the constructs of perceived intellectual property rights breach and perceived privacy breach themselves. It is important to reiterate that, while these constructs include the word breach for consistency with psychological contract theory, they capture perceived counterparty underperformance in relation to the respective expectancies associated with information disclosure. These constructs offer many opportunities for further research on the role of intellectual property and privacy beyond social networks. For example, the theory of information poaching highlights the importance of intellectual property rights in information exchanges (Clemons & Hitt, 2004) but does not offer a construct to guide further research on the topic. Recent studies underscore the importance of intellectual property rights in outsourcing (Walden, 2005) and co-creation projects (Ceccagnoli & Forman, 2012), which provides opportunities to examine the impact of perceived intellectual property breach in those contexts. Privacy is also an important research topic in information systems (Pavlou, 2011), yet virtually all prior studies have focused on privacy concerns (Malhotra, Kim, & Agarwal, 2004; Smith et al., 2011). While privacy concerns are important particularly at the onset of exchange relationships, no research has examined what happens if one party perceives a privacy breach in an ongoing relationship. Researchers can use the perceived privacy breach construct that we have developed for that kind of research.

Our study also contributes to theory by being the first to apply the exit, voice, loyalty, and neglect (EVLN) framework in information systems. While we build on knowledge that originates in social and organization psychology, we also offer some unique insights for interdisciplinary EVLN research. For example, researchers have generally assumed voice to be individuals' first response to problems in exchange relationships (Dowding & John, 2000; Farrell, 1983; Rusbult et al., 1982). However, we found that a psychological contract violation in a social network was most strongly related to exit intentions. The experience of a psychological contract violation predicted the highest degree of variance in exit intentions (psychological contract violation explained 34.7% of variance in exit intentions). A possible explanation may have to do with the unique nature of privacy and related threats to it. Perceived transgressions against privacy impinge on the individual's sense of dignity, pose a threat to self-efficacy, and destroy trust, which is a requisite condition for relationship maintenance (Post, 2000). In other words, while prior research on the behavioral outcomes has suggested that the party who is perceived to have breached a psychological contract is likely to hear about the discontent and have an opportunity to resolve it (Turnley & Feldman, 1999), our findings suggest that violations of pivotal expectancies in relation to privacy in social networks can severely undermine their sustainability due to the increased likelihood that users will terminate their memberships without much warning.

Finally, one could apply our framework to other types of exchanges. For example, we believe that psychological contract theory also applies to economic exchanges because they can involve concerns about intellectual property and privacy. In fact, information exchanges often accompany economic exchanges, which is particularly true of economic exchanges that occur via the Internet. For example, purchasing an item via the Internet requires the buyer to provide a shipping address and payment information. While the primary purpose of the exchange is to procure a product or service, online economic exchanges frequently require information exchanges as well. Therefore, the theoretical framework that we develop in the current study could apply to many different contexts where information or other types of exchanges occur.

6.2 Practical Contributions

In addition to its theoretical contributions, our research also has implications for practice. Information exchanges of all types continue to gain economic importance as many industries undergo a digital transformation. Social media continues to take up a greater slice of everyone's attention away from traditional media. Consumers now buy much of their video and audio content via digital rather than

physical means. Healthcare reform is transforming how parties share medical information. The growth of the Internet of things promises to exponentially increase ambient data collection (Kortuem, Kawsar, Fitton, & Sundramoorthy, 2010). The continually declining costs of communication enable new services and business models. Online search engines and social networks already generate over US\$70 billion in annual revenues. All these contexts involve information exchanges, and the business success of services depends on sustaining the information exchange relationships.

Perhaps the single most alarming indicator of the fact that industry is struggling with managing ongoing relationships is the frequency of lawsuits. Quora (an online repository of questions and answers) has faced a backlash in response to a new feature that revealed the identity of visitors to specific pages and was forced to disable the feature just a week after launch (Taylor, 2012). Netflix (a DVD rental and video streaming service) and Hulu (an online video service) have been sued for retaining customers' viewing histories (Sengupta, 2012). Facebook users have sued the company for privacy violations related to the public disclosure of their purchases (Perez, 2009). The cases involving legal action suggest that perceived privacy violations present a particularly sensitive issue when information exchange is involved and that legal contracts generally fail to address perceived privacy-related obligations. The reported incidents include the telltale signs of affective response to a perceived breach of psychological contract: service users feel betrayed and angry. The extent of perceived breaches is such that one can observe the most extreme form of behavioral response: users not only quit the services but also pursue legal remedies to perceived violations. Our framework of psychological contracts in social networks highlights two factors that may contribute to critical expectancies in other kinds of information exchanges and also offers insight on potential strategies for the prevention of psychological contract violations. One potential way in which companies may be able to prevent perceived misappropriation of information rights would be to explicitly give notice about how they intend to use or what they are allowed to do with users' information and provide an opportunity for technology-users to opt-out. It appears that Facebook has begun to follow precisely this path with the launch of a new service that tracks Facebook users' behavior outside of Facebook (Whitehouse, 2014). The company provided users with a notification of the new service and an opportunity to opt-out.

Our research also has regulatory policy implications. We relied on the privacy safe harbor policy guidelines to develop a measure of perceived privacy breach. All participants in our study came from the United States where PSHP does not apply (Reidenberg, 2000). PSHP only applies to the dealings between American companies and consumers in the European Union. The PSHP guidelines evolved as a stop-gap measure to address the differences in privacy regulation in the European Union and the United States. The European Union has adopted a comprehensive set of protections for private information, which, among other restrictions, prohibits secondary unauthorized commercial data usage (Fromholz, 2000). In contrast, the United States does not have a set of comprehensive protections for consumer privacy, which has led to frequent court battles aimed at defining how organizations can use users' information (Solove, 2008). Our results suggest that, although legislature affords American technology only limited privacy protection, they may nonetheless expect comprehensive privacy protection when they rely on technology for sharing information. A perceived breach of these expectancies may undermine users' sustained participation. Given that legislature evolves to balance public and commercial interests, our findings suggest that a set of comprehensive privacy protections would be beneficial in addressing the gap between public expectations and commercial appropriation of information rights in practice to assure the sustainability of emergent business models that leverage user-shared information.

6.3 Limitations

Although we found support for our proposed theoretical framework, our study has several limitations. First, our focused on developing a set of expectancies that would be invariantly present across different social networks. Theoretical integration of privacy calculus theory and incomplete contract theory provided the foundation for the claim that privacy and intellectual property rights comprise invariant core domains of psychological contracts in social networks. However, Facebook users may possibly also form a set of expectancies in relation to how Facebook facilitates the information exchanges among its users. For example, the users may also have expectancies concerning allowable volume of advertising in the newsfeed and other operating parameters of the service. The users may also hold expectancies in relation to Facebook concerning the company's obligation to protect the information that the users disclose on Facebook from hackers. A perceived failure in relation to such expectancies may trigger the emotions associated with psychological contract violations and consequent behaviors. We did not investigate such

context-specific dimensions of psychological contracts, and this area presents an attractive opportunity for further research.

Second, another limitation stems from our reliance on the survey methodology. While surveys remain a dominant methodology in information systems research, survey results offer a less rigorous evaluation compared to experimental designs. The surveys also rely on self-reported measures that are known to be subject to common method bias. We evaluated the potential impact of common method bias in our study and found no evidence that it affected the conclusions. Further, with the survey methodology allowed, we could examine the theoretical framework in a natural context and, thereby, increase the external validity of our results. We relied on Mechanical Turk for study participants due to our goal to draw a representative sample of Facebook users. While Mechanical Turk does offer a much more demographically diverse subject pool compared to student populations, it is nonetheless subject to other limitations. As we note above, we included users from the United States in our study, which limits the generalizability of our study to users located in other countries or to other social networking platforms. Though the generalizability of our study is limited to the U.S. population, this population is very important for Facebook. While only approximately 20 percent of Facebook users reside in the United States, the company derives more than 45 percent of its revenue from the region (Facebook, 2013).

The limitations of the current study point towards opportunities for further research. First, the proposed theoretical framework promises to be applicable across different contexts where information sharing takes place. It is important that researchers examine the framework across a variety of contexts to identify boundary conditions that may exist. It is also important to examine other factors that may influence perceptions of privacy and intellectual property rights breach, such as the size of a user's social network. Prior research has also suggested that the user awareness of legal contracts and the type of misappropriated information may play a role (Mamonov & Benbunan-Fich, 2015). Though we did not examine these factors, we believe that a more comprehensive study of individual psychographic and perceptual variables would be warranted. Further, there is an opportunity for experimental evaluation of the proposed framework to provide more rigorous support for our results.

7 Conclusion

This study offers a novel theoretical lens for understanding how psychological contracts can impact the sustainability of social networks. The proposed framework of psychological contracts in social networks integrates prior interdisciplinary research and posits that expectancies in relation to intellectual property rights and privacy exist inherently in the psychological contracts of social network users. Perceived breaches of these expectancies trigger the experience of a psychological contract violation, which, in turn, leads to behavioral outcomes that may undermine the sustainability of the social networks. We evaluated the proposed framework in the context of Facebook, and the findings support the core hypotheses. The framework provides the foundation for exploring additional factors that may trigger a psychological contract violation across different contexts, and it also offers insight for practice regarding factors that are essential for the sustainability of various types of technology-enabled information exchanges.

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Appendix A

Survey Items

Perceived Intellectual Property Rights Breach

Psychological contract breach refers to a breach of perceived obligations (Morrison & Robinson, 1997). We followed Turnley and Feldman (1999) in calculating indicators of perceived intellectual property rights breach as the product of individual importance of each expectancy multiplied by individual's belief that that expectancy is being fulfilled.

To measure individual importance of each expectancy, we asked: "In the context of you using Facebook please indicate how important each of the following is to you" (1: not at all important; 10: extremely important).

IP_Imp1	You have the exclusive right to use the information that you post on Facebook.
IP_Imp2	You have the exclusive right to earn income from the information that you post on Facebook.
IP_Imp3	You have the exclusive right to give others access to information you post on Facebook.

To measure the individual belief of each expectancy's fulfillment, we asked: "In the context of you using Facebook please indicate to what extent you feel Facebook fulfills its obligations in relation to each of the following" (-2: Facebook does much less than expected; +2: Facebook does much more than expected). We then reverse-coded the responses to reflect perceptions of breach.

IP_Breach1	You have the exclusive right to use the information that you post on Facebook.
IP_Breach2	You have the exclusive right to earn income from the information that you post on Facebook.
IP_Breach3	You have the exclusive right to give others access to information you post on Facebook.

We calculated each formative indicator for perceived intellectual property rights breach by multiplying each expectancy's importance times fulfillment (e.g., IP_Imp1*IP_Breach1).

Perceived Privacy Breach

We constructed the indicators of perceived privacy breach similarly to those of perceived intellectual property rights breach. We asked two sets of questions to measure the individual importance of each expectancy and the individual belief that the expectancy is being fulfilled. We then multiplied the two measures to obtain the formative indicators of perceived privacy breach.

To measure individual importance of each expectancy, we asked: "In the context of you using Facebook please indicate how important each of the following is to you" (1: not at all important; 10: extremely important).

Pr_Imp1	Facebook should provide notice of what information the company collects about you.
Pr_Imp2	Facebook should not use any personal information for any unintended purpose.
Pr_Imp3	Facebook should not share any information which you post with any third party that you did not authorize.
Pr_Imp4	Information that you post on Facebook should not be sold to any third party without your permission.
Pr_Imp5	Facebook should provide a mechanism to address any privacy-related questions and/or concerns

To measure the individual belief of each expectancy's fulfillment, we asked: "In the context of you using Facebook please indicate to what extent you feel Facebook fulfills its obligations in relation to each of the following" (-2: Facebook does much less than expected; +2: Facebook does much more than expected). We reverse-coded the responses to reflect perceptions of breach.

Pr_Breach1	Facebook should provide notice of what information the company collects about you.
Pr_Breach2	Facebook should not use any personal information for any unintended purpose.

Pr_Breach3	Facebook should not share any information which you post with any third party that you did not authorize.
Pr_Breach4	Information that you post on Facebook should not be sold to any third party without your permission.
Pr_Breach5	Facebook should provide a mechanism to address any privacy-related questions and/or concerns

We calculated each formative indicator for perceived privacy breach by multiplying each expectancy's importance times fulfillment (e.g. Pr_Imp1*Pr_Breach1).

Psychological contract violation_(Robinson & Morrison, 2000)

PCV1	I feel a great deal of anger towards Facebook.
PCV2	I feel betrayed by Facebook
PCV3	I feel extremely frustrated by how I am treated by Facebook

Exit, voice, loyalty, and neglect (Turnley & Feldman, 1999)

Voice1	I have thought of contacting Facebook to try to change policies and/or practices.
Voice2	I would talk to other Facebook members about how WE feel about Facebook actions.
Loyal_1	I would remain on Facebook and wait for the problems to go away.
Loayl_2	I would wait for the problems on Facebook to disappear.
Neglect_1	I would put less effort into contributions on Facebook.
Neglect_2	I rarely contribute to Facebook.
Exit_1	I have frequent thoughts of leaving Facebook.
Exit_2	I frequently think of deleting my profile from Facebook.
Exit_3	I would switch to an alternative social network if there was one.

Availability of alternatives (Robinson, 1996)

Altern_1	There are many online social networks besides Facebook that I can join.
Altern_2	If I left Facebook, I can easy join another social network to maintain connections with my friends.

Lock-in (Shin & Kim, 2008)

LockIn1	If I left Facebook I could easily move my pictures from Facebook to another social network.
LockIn2	If I left Facebook I could easily move my messages from Facebook to another social network.
LockIn3	If I left Facebook I could easily move my videos from Facebook to another social network.

We reverse-coded items measuring lock-in to reflect the lock-in effect.

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