

SNS-induced negative emotions and discontinuance decisions

Completed Research

Jobany Rico

Department of Information Systems and Business Analytics

Florida International University

jhere016@fiu.edu

Abstract

Why people discontinue the use of Social Networking Sites (SNSs) is a topic that has been recently attracting more attention from IS scholars. Although negative emotions are recognized to play an important role in SNSs user's discontinuance decisions, research connecting both concepts has been surprisingly scarce. This theory development paper delineates how negative emotions derived from the use of SNSs may lead users to engage in discontinuance behaviors. Online, retrospective, prospective, and anticipated negative emotions are advanced as four distinct kinds of reactions influencing users' SNSs discontinuance decisions. The association among these kinds of emotions is also described. In contrast to prior works, various individual negative emotions and their potential elicitors are considered. This article's main contribution is the development of a more accurate conceptual description of SNS-induced negative emotions which can serve as better guidance for future empirical studies targeting the discontinuance of this technology.

Keywords

Social networking sites, negative emotions, emotion, discontinuance.

Introduction

Research on the decision to discontinue an information system (IS) has long attracted the attention of IS scholars. IS discontinuance has been shown to depend on factors different from both those shaping the adoption decision (Bhattacharjee 2001) and those influencing the decision to continue using the system after adoption (Furieux and Wade 2011). Parallel to the interest in IS discontinuance, the discontinuance of Social Networking Sites (SNSs) has come within the purview of IS researchers. SNSs discontinuance occurs when users, either temporally or permanently, purposefully decrease the system usage or quit it altogether (Maier et al. 2015b; Ravindran et al. 2014). Discontinuance is a relevant phenomenon in the SNSs context because users have both the motivation (e.g., to avoid both time management issues and system-induced negative emotions) and the ability (e.g., SNSs use is under volitional control) to quit such technology (Turel 2015). Evidence suggests that discontinuance behavior is indeed pervasive among SNSs users. From a sample of 327 participants, Turel (2015) reported that, on average, each user knew around three people (excluding themselves) who had tried to quit these systems.

The intentions and actual discontinuance of SNSs are higher for users who experience stress, dissatisfaction, overload, or fatigue as a result of using this technology (Maier et al. 2015a; Maier et al. 2015b; Ravindran et al. 2014; Zhang et al. 2016). Because negative emotions are intrinsic to stressful, dissatisfying, and in general, upsetting situations (Bhattacharjee 2001; Lazarus and Folkman 1984), they should also be relevant to account for discontinuance decisions. Turel (2016) argues that negative emotions have explanatory power regarding discontinuance decisions because they can increase one's motivation and ability to reflect on relevant considerations while using hedonic SNSs. For instance, moral self-reflective negative emotions (e.g., guilt) can neatly capture the unpleasant reactions users experience when they feel their SNS usage patterns deviate from personal and societal values (Turel 2015). Negative emotions are expected to be instrumental in explaining discontinuance behavior and significantly less helpful in explaining adoption and continuance (Turel 2015).

Research targeting the connection between SNS-induced negative emotions and users' discontinuance decision has been scarce. Existent works have mainly just examined the potential for this technology to bring users negative affective reactions. Feelings of envy, guilt, regret, among others, are associated with SNS usage. Some studies have gone a step further to describe the corresponding impact these emotions have on future user-system interactions, but few have examined how these reactions map to discontinuance. One exception is Turel's (2016) study as it specifically links guilt to the intention to discontinue SNSs. Besides the limited number of studies modeling the association between negative emotions and discontinuance, there are other gaps in the current literature. Existent studies do not describe how different kinds of cognitive assessments result in the arousal of different kinds of emotions. Nevertheless, research in psychology suggests the existence of different kind of emotional phenomena that follow distinct causal principles and influence behavior and decisions making differently (Baumeister et al. 2007; Loewenstein and Lerner 2003). In addition, whereas research in psychology posits that affective responses vary in their arousal time (e.g., while the behavior is occurring versus some time afterward) (Baumeister et al. 2007), existent conceptualizations are lacking a description of when, relative to an episode of user-SNS interaction, each of the pertinent emotion blossoms. This theory development paper draws on psychology theories to articulate a framework to guide future empirical research on the effect of SNS-induced negative emotions on users' decisions to discontinue this technology. This article is directed by the following research questions:

What kinds of negative emotions can be induced by SNSs use?

How do the different SNS-induced negative emotions influence SNSs discontinuance?

After reviewing the literature about SNS discontinuance, SNS-induced emotions, and the psychology of emotion and behavior, a conceptualization of the connection between SNSs use, the emergence of negative emotions, and SNSs discontinuance is advanced. Given the value that IS research has placed on the affordances of social media as a mechanism to explain the effects of these technologies (Karahanna et al. 2018), the paper also proposes how affordances can account for the emergence of negative emotions. The present study is not the final word on how to theorize the role of negative affect on SNSs discontinuance, but an attempt to achieve a more theoretically accurate conception of this phenomenon that can be later refined and use as a reference for empirical work.

Search methodology

The following method was applied to gather studies about how SNSs use could draw users into experiencing negative emotions. Among those studies, finding the ones connecting emotions to discontinuance decisions was of particular interest. Based on the Scimago journals ranking, the three-top ranked IS journals were selected. These journals were MISQ, Journal of Supply Chain Management, and ISR. The Journal of Supply Chain Management was replaced by the Journal of Management Information Systems (the fourth in the ranking) since the former was deemed to be an unlikely source of research about SNSs and emotions. Afterward, the archives of the three chosen journals were searched for papers meeting the following criterion: they had, in either their title, keywords or abstract, a pair of words from any of the possible combinations between the sets "social networking sites/ social media/online social network" and "emotion/emotions/mood/affect". This search yielded only four research works. A backward reference search was performed on these four articles to retrieve more material (i.e., they were scanned to obtain the references they cited). In addition, a Google Scholar search was performed using the keywords, emotion, SNSs, and social media to retrieve other potentially pertinent articles (from 2010 until the present). From the backward and the Google Scholar searches, only papers meeting the criterion used to scan the three initial journals were kept. The outcome of this strategy were 17 new articles.

After reviewing the 21 available papers, 16 were excluded because they did not address the role of SNSs usage on the arousal of negative emotions. These are some of the reasons for excluding this large number of articles: they addressed the relationship between positive emotions and SNSs usage, they examined non-hedonic use of SNSs (i.e. work-related use), they solely focused on the use of SNSs to vent emotions (i.e. SNSs as emotion self-disclosure tools), or they did not discuss any specific emotions (i.e. they studied the construct of affect in general). With the five remaining papers, another search was performed to increase the amount of available material. In this case, the specific emotion (s) addressed in these works and "social networking sites/ social media/online social network" were used as keywords in a Google Scholar search.

For example, because Fox and Moreland (2015) identified disgust as a social media-driven emotion, disgust, together with the other three words, were used as search keywords. Following this strategy, nine new articles were gathered. Overall, 14 papers addressing the connection between SNSs use and the experience of negative emotions were retrieved. Appendix 1 lists these 14 articles and the emotions they cover.

Theoretical background

Research on SNS discontinuance extends the broader research stream on IS discontinuance. After an initial set of studies describing IS discontinuance as the opposite extreme of continuance, the former construct was recognized as fundamentally different from the latter (Furneaux and Wade 2011; Recker 2016). Furneaux and Wade (2011) pointed out that “continuance represents, ... a status quo alternative that can occur in the absence of any conscious choice or planning. In contrast, discontinuance represents a rejection of the status quo that requires conscious commitment of the necessary... resources and effort to [achieve] the associated change”. Research on SNS discontinuance has been premised on the idea that discontinuance requires an independent conceptualization from continuance. Turel (2015) argues that the development of conflicting intentions to simultaneously continue and discontinue use may be more pronounced in the case of a SNS when compared to a more general IS. He remarks that SNSs users may want to spend more time on these systems to satisfy cravings and obtain rewards (which encourages continuance), yet also develop plans to stop using these applications after considering the harms of not doing so, e.g., time management issues. Turel (2015) emphasizes the relevance of discontinuance in the realm of SNSs by noticing that users have in principle total autonomy to engage (or not) with these systems.

Maier et al. (2015a) indicate that “an individual’s discontinuous usage intention is reflected in the intention to decrease SNS usage intensity or to quit the SNS platform and delete accounts.” In Maier’s account, discontinuance intention does not only reflect on the act of stopping the system use, but also on reducing use intensity. Ravindran et al. (2014) observed discontinuance patterns that concur with Maier’s et al. (2015a). They showed that when Facebook users experiment SNS fatigue, their activity level shows discontinuance-related traces such a decline in activity, a temporary break from the site, or permanent activity discontinuation. SNS fatigue (Luqman et al. 2017; Ravindran et al. 2014), SNS overload (Maier et al. 2015a; Zhang et al. 2016), dissatisfaction with the SNS (Xu et al. 2014; Zhang et al. 2016), technostress (Luqman et al. 2017; Maier et al. 2015b), and guilt (Turel 2016), have all been proposed as factors leading users to discontinuance decisions.

SNS-induced negative emotions as triggers of discontinuance

All the aforementioned antecedents of SNS discontinuance have something in common: they all represent negative and undesirable experiences users feel as a result of using the technology. Because these factors represent unpleasant states, one may expect them to be highly correlated to the experience of negative emotions. In fact, when discussing these factors, explicit and implicit references to negative emotions have been made. The clearest example is Turel’s (2015, 2016) articles as they proposed a negative emotion, guilt, as a precursor of SNS discontinuance. Another illustration is Ravindran’s et al. (2014) concept of SNS fatigue, which is defined as a multidimensional experience comprised by negative emotions, e.g., annoyance, anger, and disappointment, and other unpleasant feelings. Dissatisfaction has also been connected to negative emotions. Bhattacharjee (2001) points out that the expectation-performance discrepancy leading to dissatisfaction generates negative affect. Similarly, Zhang et al. (2016) hold that dissatisfaction with a SNS is an experience comprised of some specific negative emotions such as frustration, bitterness, and discontentment. Technostress is also saturated with negative emotions. According to the theory of stress and coping (Lazarus and Folkman 1984), when an individual appraises an event as stressful, s/he may feel threat-related negative emotions such as worry, fear, and anxiety, or harm-related negative emotions such as anger, sadness, disappointment, guilt, and disgust.

Inasmuch as the antecedents of SNS discontinuance capture the cumulative effect of negative emotions, it is argued that it is theoretically valid to model SNS discontinuance using individual negative emotions as predictors. Given how impregnated with negative emotions the antecedents of SNS discontinuance are, one can make the logical leap to connect negative emotions and the discontinuance decision directly. As a matter of fact, some arguments have been made in favor of examining this link. De Guinea and Markus (2009) claim that emotions are important determinants in people’s decisions to stop using technology because they may act in a way that derails previously formed intentions about continuing IT use. Turel (2016) claims that

negative emotions can increase one's motivation and ability to reflect on relevant considerations while using SNS and take corrective action if needed, e.g., stop using the system. Emotions can provide SNS users with the motivation to implement chosen courses of action (Loewenstein and Lerner 2003). For example, if a user notices that using a SNS is detrimental for achieving other goals and decides to discontinue the system use, negative emotions can provide the motivational content to act on this putative reason (Bagozzi 2007).

Various research has documented a direct association between SNSs engagement and the experience of negative affect. The use of SNS may prompt users to feel loneliness (Burke et al. 2010; Ryan and Xenos 2011), anxiety (Labrague 2014; Primack et al. 2017; Woods and Scott 2016), envy (Appel et al. 2016; Krasnova et al. 2015; Lim and Yang 2015), shame (Lim and Yang 2015; Manago et al. 2015), regret (Sleeper et al. 2013; Wang et al. 2011), guilt (Turel 2016), disgust (Fox and Moreland 2015), annoyance (Fox and Moreland 2015) and jealousy (Fox and Moreland 2015). Despite the evidence of a relationship between social media use and negative emotions, current research proves inadequate in explaining how negative affect influences users' discontinuance decisions. Few studies have targeted the role of negative emotions on the decision to discontinue SNSs (Turel 2015; Turel 2016). Given how prevalent both negative emotions and discontinuance behaviors are in the SNSs context, more research should target the association between these factors. Another aspect in need of more theorizing is the explanation of how negative emotions of different types interconnect to influence user-technology interactions. Existent studies have primarily paid attention to the arousal of a single negative emotion and its effects on future use; however, research in psychology submits that describing the behavioral consequences of emotions entails an account of the links among the different kinds of affective phenomena (Baumeister et al. 2007; Loewenstein and Lerner 2003). In addition, whereas research in psychology posits that affective responses vary in their arousal time (e.g., while the behavior is occurring versus some time afterward) (Baumeister et al. 2007), existent conceptualizations are lacking a description of when, relative to an episode of user-SNS interaction, each of the pertinent emotion blossoms.

Different types of affective influences

The theory submitted in this paper is based on Loewenstein and Lerner's (2003) and Baumeister's et al. (2007) frameworks, both of which address the different kinds of affective phenomena and their influence on behavior. Loewenstein and Lerner (2003) posit that there are two affective influences: expected emotions and immediate emotions. Expected emotions are predictions about the emotional consequences of decisions outcomes. They are not felt as emotions per se at the time of decision making, but as expectations about affect that will be experienced in the future (Loewenstein and Lerner 2003). The effect of expected emotions on behavior is explained by people's known tendency to predict emotional consequences associated with alternative choices and select actions that minimize negative emotions (Loewenstein and Lerner 2003). Immediate emotions are feelings experienced at the moment of decision making that shape current decisions about future behaviors (Loewenstein and Lerner 2003). Immediate emotions stem from thoughts about the future consequences of one's behavior (Loewenstein and Lerner 2003). Negative feelings blossom when thinking about the decisions brings the prospect of negative consequences (Loewenstein and Lerner 2003). Expected emotions mediate immediate emotions' influence on behavior, i.e., immediate emotions alter people's expectations of the affect they will experience in the future (Loewenstein and Lerner 2003).

Baumeister et al. (2007) advance conscious (full-blown) emotions and anticipated emotions as two important affective reactions that relate to behavior. An anticipated emotion is equivalent to an expected emotion as defined by (Loewenstein and Lerner 2003). A conscious emotion occurs in the aftermath of behavior once the person observes the outcomes, and it serves to stimulate learning (Baumeister et al. 2007). A contrast between conscious emotions and immediate emotions as defined by Loewenstein and Lerner (2003) reveals a significant difference. Conscious emotions are felt immediately after conducting the behavior and perceiving its outcomes, i.e., they are felt online. Immediate emotions blossom while deciding about engaging in certain behavior in the future, so they are experienced sometime after the last occasion that action was performed. The effect of conscious emotions on behavior is mediated by learning (Baumeister et al. 2007). Episodes inducing negative full-blown emotions foster reflections which usually result in a negative affective residue that gets stored in memory (Baumeister et al. 2007). The affective residue preserves the lessons from previous emotional experiences so that when a decision about doing the same behavior comes up, the automatic affective reaction is activated to lead the person to select a better option than s/he previously did (Baumeister et al. 2007; Damasio 1994). Conscious emotions also shape

behavior indirectly, through their influence on anticipated emotions as they facilitate learning which gradually provides the person the ability to learn to expect what acts will bring which emotions, thus s/he is likely to start selecting actions based on the best anticipated affective outcomes (Baumeister et al. 2007).

Theory development

A conceptualization is proposed for how individual negative emotions driven by SNSs use influence discontinuance. Conceptualizing SNS discontinuance only as a function of individual negative emotions rests on two assumptions. The first one is that the discontinuance of a SNS is a conscious choice based on reflections of prior interactions with the technology. Some authors have uttered their endorsement of this assumption as they claim that users' discontinuance of SNSs is a deliberate and cognitively effortful rather than impulsive decision (Furneaux and Wade 2011; Turel 2016). The second assumption is that appraising the level of negative emotions that a user experiences is sufficient for assessing the user's discontinuance behavior. This premise does not imply that beliefs and evaluations of the technology are no important for the discontinuance decision. The claim is that, given the fundamental intertwining between cognition and emotion (Baumeister et al. 2007; Schwarz 2011), the assessment of the relevant discontinuance beliefs and perceptions can be replaced with an appraisal of the negative emotions experienced as a consequence of SNS use. In cases where the person formulates reasons to discontinue a SNS, these reasons are either informed by negative affect or required negative affect to become effective. The emotion as information theory tells us that negative affective states signal that the current situation is problematic and may elicit cognitive processing that pays attention to the specifics of the problematic situation (Schwarz 2011). Therefore, it is argued that when interactions with a SNS drive a user to systematically feels negative emotions, this will prompt reflection, which in turn may lead to new expectations about using the technology, e.g., that it is better to stop using it. Moreover, when a SNS user forms perceptions of the technology that discourage future use (e.g., perceived impediment to goal achievement (Recker 2016)), these reactions usually need negative emotions to get effectively registered as a behavioral program (Damasio 1994) and to lead the user to act on these putative reasons (Bagozzi 2007).

Four types of emotional reactions related to discontinuance behavior are proposed. They are online conscious emotions, retrospective conscious emotions, prospective conscious emotions, and anticipated emotions. Online conscious emotions, derived from Baumeister's et al. (2007) notion of conscious emotions, represent negative emotions that SNSs users feel while they are using the system and perceiving the use outcomes. Retrospective conscious emotions refer to negative emotions that SNS users feel when they are either deciding about using SNSs or simply reflecting about their past SNS experiences. They may arise from appraisals of the outcomes from prior interactions with the technology that bring new emotions, e.g., retrospective regret and guilt (Zeelenberg and Pieters 2007). They may also arise from memories of the outcomes from prior uses of the technology that activate previously felt emotions (Baumeister et al. 2007). Prospective emotions, derived from Loewenstein and Lerner's (2003) notion of immediate emotions, represent negative feelings users experience when they think about potential negative consequences from future use of SNSs. In contrast to online emotions that blossom while the person is using the technology, retrospective and prospective emotions occur at a later time. Lastly, anticipated emotions represent negative affective reactions that users expect to experience if their past interaction patterns with the technology continued.

Figure 1 presents a model that summarizes the relationship between online, retrospective, prospective and anticipated emotions, as well as their effect on the discontinuance decision. The model breaks the IS discontinuance phenomenon into three phases. In phase 1 the user interacts with the SNS and experiences online emotions. In phase 2 the user reflects about prior SNS interactions (this may trigger retrospective emotions) and considers the consequences of her/his future interactions with the technology (this may trigger prospective emotions). Retrospective emotions not only emerge from appraisals of prior uses of SNSs, but also from memories of the outcomes from prior interactions that activate previously felt emotions (link 1) (Baumeister et al. 2007; Damasio 1994). The negative feelings from experiencing retrospective and prospective emotions may lead the person to consider discontinuance behaviors (links 5 & 7) (De Guinea and Markus 2009; Turel 2016). Feeling retrospective and prospective emotions at this stage may also prompt the user to anticipate having the same bad experiences in the future if s/he repeats the same use patterns (links 3 & 4) (Baumeister et al. 2007; Loewenstein and Lerner 2003). In addition, recalling (without necessarily feeling) online emotions previously felt may also induce the user to anticipate having

these same negative affective reactions in the future (link 2) (Baumeister et al. 2007). Moreover, the anticipation of future negative affect prompts discontinuance behaviors (link 6) (Baumeister et al. 2007). Stage 3 is where discontinuance related signals can be observed. The user may decide to stop using the system permanently, temporally, or to reduce the amount of interaction with it significantly. S/he may also show no traces of discontinuance and continue the same usage patterns as before. When the outcome at phase 3 is anything but permanent termination, the same cycle starting from phase 1 repeats again.

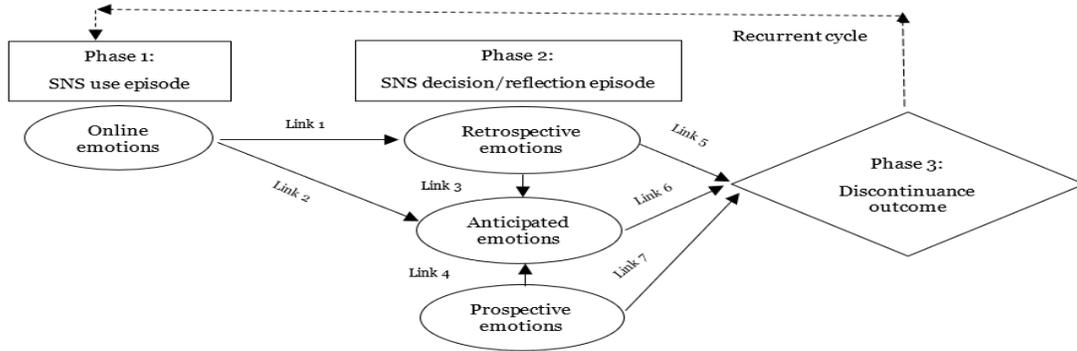


Figure 1. A model for the effect of SNS-induced negative emotions on the discontinuance decision.

Besides the four types of negative emotions, one more dimension is added to the proposed framework: the elicitor of the emotion. Emotions do not only unfold from our own behavior, but also in response to external circumstances and other people’s actions (Baumeister et al. 2007). Whereas agency is fundamental for some emotions, for emotions such as anger and disappointment, agency is either undetermined, in the environment or in another agent (Zeelenberg and Pieters 2007). Therefore, the emotion’s elicitor, either the user or other users, is another dimension to consider.

Proposed SNS-induced negative emotions

The next step is to propose a group of relevant SNS-driven negative emotions that can be classified according to the two dimensions discussed so far. The approach followed in this research to make this choice was to review the pertinent literature and retrieve a set of SNS-driven negative emotions representative of this phenomenon. The retrieved set included loneliness, anxiety, envy, shame, guilt, regret, annoyance, disgust, and jealousy. Although in principle all these emotions can be considered as part of the conceptualization offered in this article, a more in-depth examination suggests otherwise. For instance, because the evidence is inconclusive about whether loneliness increases (Burke et al. 2010; Ryan and Xenos 2011) or decreases (Burke et al. 2010) with SNS use, loneliness is not further considered. Based on Ekman’s (1992) model of the basic emotions, jealousy is discarded as well since it is not an emotion itself, but rather a composite of emotions such as anger and sadness. Similarly, annoyance is a mental state better replaced by anger, a related and more primitive member of the family of basic emotions (Ekman 1992). In short, the set of relevant emotions considered in this paper is formed by SNS anxiety, SNS envy, SNS shame, SNS guilt, SNS regret, SNS disgust, and SNS anger. Table 1 is a two-way matrix that, given a SNS user, classifies possible SNS-driven emotions based on its elicitor and the nature of the appraisal that triggers it.

		Nature of the cognitive assessment			
		Online emotion	Retrospective emotion	Prospective emotion	Anticipated emotion
Elicitor	Own user’s actions	Envy	Shame, guilt and regret	Anxiety	All proposed emotions
	Other users’ actions	Anger and disgust	–	–	

Table 1. Classification of SNS-induced negative emotions.

An explanation of the rationale behind the classification in table 1 and a discussion of the social media affordances enabling these affective reactions are in order. The discussion of affordances focuses on

Facebook because it is the social media app most often used for research purposes. Table 1 offers the most prototypical characterization of each emotion in the SNS context; however, this does not mean that alternative descriptions are not possible. For example, conceptualizing anxiety as a prospective emotion does not imply that SNSs never produce online anxiety to users, it rather suggests that the elicitors of anxiety are more likely activated after usage episodes when users are deciding about future interactions. Another illustration is anger, which given its classification as a vicarious moral emotion (Haidt 2003), is advanced here as a reaction to others' behaviors. Clearly, anger may also arise from a person's actions (e.g., when we feel regret and anger for past behaviors (Zeelenberg and Pieters 2007)), but given the heavy social nature of SNSs, the main route for anger is expected to be reactions to others' actions. As indicated in the last column on table 1, it is posited that users can anticipate any of the emotions they experience as part of their interaction with SNSs (Baumeister et al. 2007; Loewenstein and Lerner 2003).

In this paper, SNS envy is advanced as an online emotion since one of its antecedents, social information consumption, occurs online when users follow updates and interactions of others or examine others' profiles (Krasnova et al. 2015). Envy unfolds because of a user's own actions as s/he navigates Facebook, passively consumes information about others and engages in upward comparisons (Appel et al. 2016; Krasnova et al. 2015; Lim and Yang 2015). When the outcome from these comparisons makes the person believe s/he is in an inferior situation with respect to similar others, the negative feelings of envy may be experienced. One of the Facebook affordances that enables passive social information consumption and comparison is the affordance of visibility (Fox and Moreland 2015) since it allows for the monitoring of others' content without their awareness. A similar affordance, browsing others' content (Karahanna et al. 2018), refers to users' possibility to receive alerts that trigger their attention to others' content and view content provided by others. In addition, the affordance of self-presentation (Karahanna et al. 2018), when actualized by users in one's circle of Facebook contacts, may facilitate upward comparison. The self-presentation affordance allows users to present information related to themselves that portrays them as they actually are or in an altered way perceived to be more socially acceptable (Karahanna et al. 2018).

SNS anger is a moral emotion that blossoms from the condemnation of other users' actions considered insulting or unfair (Haidt 2003). Anger is posited as an online vicarious emotion because this condemnation occurs while a person uses social media, interact with others' content, and process it through his/her social and moral code. Disgust is another SNS-induced moral emotion. Disgust emerges as some class of non-physical objects (e.g., ideas and perceptions) produce feelings of revulsion (Haidt 2003). Disgust is triggered when people violate roles for how to behave (Haidt 2003). The object of disgust is someone else's action; thus it is also a vicarious emotion. Disgust blossoms online as people navigate the SNS and evaluate others' actions through their moral filters. One Facebook affordance possibly related to anger and disgust is the capability of browsing others' content. Passive browsing increases the changes of exposing a user to content that s/he may characterize as morally improper, which in turn raises the likelihood of feeling these emotions. Another relevant affordance is content sharing, defined as users' possibility to distribute content unrelated to self to others in a social media setting (e.g., sharing news or videos) (Karahanna et al. 2018). As other users actualize the content sharing affordance, one may be more likely to interact with content eliciting anger or disgust. Fox and Moreland (2015) neatly summarize the link between the browsing and sharing affordances and the feelings of anger and disgust: "... visibility [i.e., the browsing affordance] can work against users, as they see things they do not want to see [e.g., content triggering anger or disgust]. Furthermore, their friends often share things [i.e., the sharing affordance] that users wish they would not share [e.g., content triggering anger or disgust] ...".

SNS anxiety is posited as a prospective emotion. The thoughts about the gratifications that using Facebook in the future may provide (e.g., maintaining interpersonal connectivity and entertainment value (Fox and Moreland 2015)) may activate users' desires for using it. Not being able to always concede to these desires (given the person's other responsibilities) may trigger the feelings of uneasiness characteristics of anxiety. Feelings of anxiety may also unfold when a user reflects about the risks for the achievement of other important goals that using Facebook may pose. It is proposed that the Facebook affordances more closely related to the generation of anxiety are those keeping users mentally tethered to the app and exposing them to the potential benefits of participation. Two of these affordances are constant accessibility (Fox and Moreland 2015), which enables users to reach social media content at all times, and the possibility of receiving social feedback (e.g., getting likes and comments) (Fox and Moreland 2015), which in case of being positive, makes the user experience self-affirmation.

There is also the set of self-conscious moral emotions: shame and guilt (Haidt 2003). SNS-shame unfolds when a person evaluates past SNS behaviors and concludes that there are failures in his/her character and traits because they do not measure up to social standards (Haidt 2003). SNS-shame emerges when self-reflections motivated by the information consumed in SNSs lead the user to conclude that his/her physical appearance, social relationships, or intellectual achievements, have failed to achieve accepted standards because there is something wrong with his/her core self (Haidt 2003; Lim and Yang 2015). SNS-shame may also be elicited by a user's action when others' feedback suggests the user's self to be compromised (Haidt 2003). For example, if a person uses a SNS to criticize someone and receives disapproval for doing so, s/he may believe her/his self to be insensitive and contemptible, and thus feel shame. Regarding guilt, it is defined from an interpersonal perspective to stress that its standard cause is the infliction of harm on a relationship partner (Baumeister et al. 1994; Haidt 2003). Guilt arises when a person perceives that his/her actions have damaged others, in contrast to shame that is experienced when our behavior signals an issue with the self (Baumeister et al. 1994). SNS-guilt is defined as the unpleasant emotional state that a user experiences when s/he realizes (or presumes) that a relationship with someone has been jeopardized due to his/her usage of SNSs. This definition contrasts with Turel's more general conception of SNS-guilt which proposes guilt as arising from both intrapersonal and interpersonal SNS-related behaviors perceived to be contradictory to moral and social rules (Turel 2015; Turel 2016).

Regret is a self-conscious emotion of self-blame, experienced when people realize (actual feedback) or imagine (counterfactual) that their present situation would have been better had they decided differently in the past (Zeelenberg and Pieters 2007). Regret is a self-conscious emotion but not a moral emotion. Regret does not only arise from situations that signal the self or an action to be socially inappropriate but also when alternative actions are simply perceived as more advantageous. Regret applies to circumstances in which both guilt and shame would be felt and to situations in which they would not (Zeelenberg and Pieters 2007). SNS-regret is defined as the negative emotion that unfolds when a user realizes that had s/he used the SNS differently in the past, her/his current situation could have been better. Users can feel SNS-regret from postings they make that result in critics from others (Sleeper et al. 2013; Wang et al. 2011) or when they realize their time spent with the technology (or the frequency of use) is more than desired (CHT 2018).

Regarding the Facebook affordances that can be linked to the experience of self-reflective emotions (guilt, shame, and regret), one should look for those that offer users the possibility to receive feedback of their actions from others. The affordance of metavoicing refers to users' ability to react online to others' content and activities (e.g., commenting and liking) and seeing how others react to their own content and activities (Karahanna et al. 2018). The affordance of communication enables users to directly communicate with others in private (Karahanna et al. 2018). The actualization of these two affordances provides users with an evaluation of how others perceive what they do in the social network platform. Affordances that allow users to react easily and quickly (with little deliberation) to content shared on this platform are also pertinent for the arousal of self-conscious emotions. One example is metavoicing as it provides an easy reaction mechanism to others' presence, profiles, content, and activities (Karahanna et al. 2018).

Conclusions and future work:

Existent research has shown that SNS discontinuance is strongly determined by the undesirable experiences that users feel as a consequence of using this technology but has fallen short in theorizing the specific role of SNS-induced negative emotions in this phenomenon. The present work proposes online, retrospective, prospective and anticipated emotions as distinct kinds of reactions influencing SNSs users' decisions to discontinue these systems. The temporal association among these four types of emotions is also described. In contrast to prior works, the simultaneous influence of multiple negative emotions is considered. In addition, the definition of all the emotions, contextualized to the SNS phenomenon, is provided. These definitions serve to highlight the difference between some conceptually similar emotions such as regret, guilt, and shame.

The proposed conceptualization is expected to be useful in guiding future empirical research. In this regard, this article suggests that emotions should be modeled in a more comprehensive way. For instance, it is suggested that the effect of emotion on future user-SNS interactions does not only depend on the experience of the negative feelings characteristic of the emotion, but that is also shaped by the anticipation of these feelings in the future. This article also alerts us of the importance of devising measurement items to assess

affective reactions that users have to both outcomes from their own actions and from other users' behaviors. Similarly, the measurement items devised for a given emotion should consider when, relatively to a SNS use episode, it emerges. Researchers should be aware that SNS users' negative emotional reactions should be assessed both with reference to what happens online (while the users navigate the platform) and with respect to what happens after usage episodes (when the users reflect about prior episodes). Finally, the present work provides future research a set of seven theoretically grounded emotions from where to choose to propose research models.

Future work should examine the potential master role that anticipated regret might play in discontinuance decisions. An interesting question that connects anticipated regret and other emotions is to find out what users expect to regret from future interactions with SNSs. Do users anticipate regretting experiencing other negative emotions? In other words, does the anticipation of other negative emotions induce anticipated regret? Do they expect to regret other non-emotional material outcomes (i.e., wasting time and not meeting other goals)? Future studies should also examine the utility of adding other negative emotions to explain discontinuance, for example, sadness and contempt. Regarding the treatment of affordances, it would be interesting to examine not only the role of the general SNS affordances previously identified in IS research, but also to study the function of more granular affordances (probably nested within the general affordances) and their distinctive association with each of the seven proposed emotions.

REFERENCES

- Appel, H., Gerlach, A. L., and Crusius, J. 2016. "The Interplay between Facebook Use, Social Comparison, Envy, and Depression," *Current Opinion in Psychology* (9), pp. 44-49.
- Bagozzi, R. P. 2007. "The Legacy of the Technology Acceptance Model and a Proposal for a Paradigm Shift," *Journal of the association for information systems* (8:4), p. 3.
- Baumeister, R. F., Vohs, K. D., Nathan DeWall, C., and Zhang, L. 2007. "How Emotion Shapes Behavior: Feedback, Anticipation, and Reflection, Rather Than Direct Causation," *Personality and Social Psychology Review* (11:2), pp. 167-203.
- Bhattacharjee, A. 2001. "Understanding Information Systems Continuance: An Expectation-Confirmation Model," *MIS quarterly*), pp. 351-370.
- Burke, M., Marlow, C., and Lento, T. 2010. "Social Network Activity and Social Well-Being," *Proceedings of the SIGCHI conference on human factors in computing systems*: ACM, pp. 1909-1912.
- CHT, C. f. H. T. 2018. "What's the Difference between Apps We Cherish Vs. Regret?", 2018, from <http://humanetech.com/app-ratings>
- Damasio, A. 1994. *Descartes' Error: Emotion, Reason, and the Human Brain*. New York: Putnam.
- De Guinea, A. O., and Markus, M. L. 2009. "Why Break the Habit of a Lifetime? Rethinking the Roles of Intention, Habit, and Emotion in Continuing Information Technology Use," *Mis Quarterly*), pp. 433-444.
- Ekman, P. 1992. "An Argument for Basic Emotions," *Cognition & emotion* (6:3-4), pp. 169-200.
- Fox, J., and Moreland, J. J. 2015. "The Dark Side of Social Networking Sites: An Exploration of the Relational and Psychological Stressors Associated with Facebook Use and Affordances," *Computers in Human Behavior* (45), pp. 168-176.
- Furneaux, B., and Wade, M. R. 2011. "An Exploration of Organizational Level Information Systems Discontinuance Intentions," *Mis Quarterly*), pp. 573-598.
- Haidt, J. 2003. "The Moral Emotions," *Handbook of affective sciences* (11:2003), pp. 852-870.
- Karahanna, E., Xu, S. X., Xu, Y., and Zhang, N. A. 2018. "The Needs–Affordances–Features Perspective for the Use of Social Media," *Mis Quarterly* (42:3), pp. 737-756.
- Krasnova, H., Widjaja, T., Buxmann, P., Wenninger, H., and Benbasat, I. 2015. "Research Note—Why Following Friends Can Hurt You: An Exploratory Investigation of the Effects of Envy on Social Networking Sites among College-Age Users," *Information systems research* (26:3), pp. 585-605.
- Labrague, L. J. 2014. "Facebook Use and Adolescents' Emotional States of Depression, Anxiety, and Stress,").
- Lazarus, R. S., and Folkman, S. 1984. *Stress, Appraisal, and Coping*. Springer publishing company.
- Lim, M., and Yang, Y. 2015. "Effects of Users' Envy and Shame on Social Comparison That Occurs on Social Network Services," *Computers in Human Behavior* (51), pp. 300-311.
- Loewenstein, G., and Lerner, J. S. 2003. "The Role of Affect in Decision Making," *Handbook of affective science* (619:642), p. 3.

- Luqman, A., Cao, X., Ali, A., Masood, A., and Yu, L. 2017. "Empirical Investigation of Facebook Discontinues Usage Intentions Based on Sor Paradigm," *Computers in Human Behavior* (70), pp. 544-555.
- Maier, C., Laumer, S., Eckhardt, A., and Weitzel, T. 2015a. "Giving Too Much Social Support: Social Overload on Social Networking Sites," *European Journal of Information Systems* (24:5), pp. 447-464.
- Maier, C., Laumer, S., Weinert, C., and Weitzel, T. 2015b. "The Effects of Technostress and Switching Stress on Discontinued Use of Social Networking Services: A Study of Facebook Use," *Information Systems Journal* (25:3), pp. 275-308.
- Manago, A. M., Ward, L. M., Lemm, K. M., Reed, L., and Seabrook, R. 2015. "Facebook Involvement, Objectified Body Consciousness, Body Shame, and Sexual Assertiveness in College Women and Men," *Sex roles* (72:1-2), pp. 1-14.
- Primack, B. A., Shensa, A., Escobar-Viera, C. G., Barrett, E. L., Sidani, J. E., Colditz, J. B., and James, A. E. 2017. "Use of Multiple Social Media Platforms and Symptoms of Depression and Anxiety: A Nationally-Representative Study among Us Young Adults," *Computers in human behavior* (69), pp. 1-9.
- Ravindran, T., Yeow Kuan, A. C., and Hoe Lian, D. G. 2014. "Antecedents and Effects of Social Network Fatigue," *Journal of the Association for Information Science and Technology* (65:11), pp. 2306-2320.
- Recker, J. C. 2016. "Reasoning About Discontinuance of Information System Use," *Journal of Information Technology Theory and Application* (17:1), pp. 41-66.
- Ryan, T., and Xenos, S. 2011. "Who Uses Facebook? An Investigation into the Relationship between the Big Five, Shyness, Narcissism, Loneliness, and Facebook Usage," *Computers in human behavior* (27:5), pp. 1658-1664.
- Schwarz, N. 2011. "Feelings-as-Information Theory," *Handbook of theories of social psychology* (1), pp. 289-308.
- Sleeper, M., Cranshaw, J., Kelley, P. G., Ur, B., Acquisti, A., Cranor, L. F., and Sadeh, N. 2013. "I Read My Twitter the Next Morning and Was Astonished: A Conversational Perspective on Twitter Regrets," *Proceedings of the SIGCHI conference on human factors in computing systems: ACM*, pp. 3277-3286.
- Turel, O. 2015. "Quitting the Use of a Habituated Hedonic Information System: A Theoretical Model and Empirical Examination of Facebook Users," *European Journal of Information Systems* (24:4), pp. 431-446.
- Turel, O. 2016. "Untangling the Complex Role of Guilt in Rational Decisions to Discontinue the Use of a Hedonic Information System," *European Journal of Information Systems* (25:5), pp. 432-447.
- Wang, Y., Norcie, G., Komanduri, S., Acquisti, A., Leon, P. G., and Cranor, L. F. 2011. "I Regretted the Minute I Pressed Share: A Qualitative Study of Regrets on Facebook," *Proceedings of the seventh symposium on usable privacy and security: ACM*, p. 10.
- Woods, H. C., and Scott, H. 2016. "# Sleepyteens: Social Media Use in Adolescence Is Associated with Poor Sleep Quality, Anxiety, Depression and Low Self-Esteem," *Journal of Adolescence* (51), pp. 41-49.
- Xu, Y. C., Yang, Y., Cheng, Z., and Lim, J. 2014. "Retaining and Attracting Users in Social Networking Services: An Empirical Investigation of Cyber Migration," *The Journal of Strategic Information Systems* (23:3), pp. 239-253.
- Zeelenberg, M., and Pieters, R. 2007. "A Theory of Regret Regulation 1.0," *Journal of Consumer psychology* (17:1), pp. 3-18.
- Zhang, S., Zhao, L., Lu, Y., and Yang, J. 2016. "Do You Get Tired of Socializing? An Empirical Explanation of Discontinuous Usage Behaviour in Social Network Services," *Information & Management* (53:7), pp. 904-914.