



Audience management, online turbulence and lurking in social networking services: A transactional process of stress perspective

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ABSTRACT

In social networking services (SNSs), users' unclear understanding of the large and invisible audience increases the chances of online turbulence, which is a key source of SNS-induced stress. This growing phenomenon has gained increasing attention in academia and industry due to the undesirable consequences for users and SNS platforms. In this study, we draw from the transactional model of stress to examine how audience management strategies impact online turbulence and lead to neglected unintended audience concern and lurking. We also investigate the role of self-monitoring as a stress inhibitor. We test our model with data collected from 301 SNS users. The results show that the four types of audience management strategies have different effects on online turbulence, which significantly impacts neglected unintended audience concern especially when users have high self-monitoring skills. We believe that this work contributes, both from scientific and practical standpoints, to the understanding of the interventions and stressful responses of online turbulence in SNSs.

1. Introduction

The use of social networking services (SNSs) has received much attention in various disciplines, such as information systems (e.g., Hossain, Dwivedi, Chan, Standing, & Olanrewaju, 2018; Guo, Lu, Kuang, & Wang, 2020; Shi, Cao, Chen, & Chow, 2019), marketing (e.g., Alalwan, Rana, Dwivedi, & Algharabat, 2017; Kizgin et al., 2019), and public administration (Dwivedi et al., 2017; Aladwani & Dwivedi, 2018) among others. Many previous studies note that posting content in SNSs can benefit users as they build and maintain social relations and enhance social capital (Jung, Pawlowski, & Kim, 2017; Shiau, Dwivedi, & Yang, 2017; Shiau, Dwivedi, & Lai, 2018). However, SNS users increasingly report negative experiences resulting from posting information (Dwivedi et al., 2018). Online turbulence is one such major issue (Litt & Hargittai, 2014). Online turbulence refers to embarrassing or regretful situations in the online environment due to problems such as individuals' oversharing of private information or others' inappropriate posts (Litt & Hargittai, 2014). A few prior studies have explored the factors impacting online turbulence (Liu, Gummadi, Krishnamurthy, & Mislove, 2011; Trepte, 2015), and have mainly focused on individual personal traits (e.g., privacy literacy or self-monitoring) (Hagendorff,

2018; Litt & Hargittai, 2014) and others' disclosure (DeGroot & Vik, 2017). Beyond that, individuals' own disclosure behaviors stemming from an unclear understanding of the large and invisible audience in the online context can potentially increase the chances of online turbulence (Bernstein, Bakshy, Burke, & Karrer, 2013; Li, Gui, Chen, Xu, & Kobsa, 2018). However, in the extant literature, understanding of how online turbulence is impacted by individuals' own disclosure behaviors associated with audience management and its subsequent outcomes is limited, especially in the context of SNSs (Liu & Wang, 2018).

Prior research reveals that most individuals have experienced turbulent moments in SNSs (Sleeper et al., 2013; Bernstein et al., 2013), especially when information makes its way to unintended audiences (Wang et al., 2011). Accordingly, audience management in SNSs has been identified as a major concern, the failure of which is linked to online turbulence (Bernstein et al., 2013). Unlike in the offline social context where individuals can usually see their audience face to face, the audience in SNSs is often ambiguous and invisible (Boyd, 2008; Vitak, 2012). Due to the limitation of humans' cognitive ability (Dunbar, 2012), users' imagined audiences in SNSs seldom align with their actual audiences (Litt & Hargittai, 2016a), adding difficulty to audience management and resulting in online turbulence (Patil, Norcie, Kapadia,

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Table 1
Relevant literature on turbulence.

Author	Context	Focus	Antecedents	Outcomes	Relevant findings
Liu and Wang (2018)	Online	Regulating privacy boundaries in SNSs	–	<ul style="list-style-type: none"> • Privacy risk • Self-disclosure 	Boundary turbulence (i.e., role conflicts and role overload) increases privacy risk and in turn decreases self-disclosure.
Hagendorff (2018)	Online	Individual privacy protection	<ul style="list-style-type: none"> • Privacy literacy 	–	Lack of privacy literacy would lead to turbulence.
Smith and Brunner (2017)	Offline	Disclosure in workplace	–	<ul style="list-style-type: none"> • Implicit/explicit rule use • Reiteration of privacy settings to co-owner • Retaliation to co-owner 	People use implicit/explicit rules of co-ownership, reiterate privacy settings, and retaliate to limit and respond to privacy turbulence.
DeGroot and Vik (2017)	Online	Co-owned information on Facebook	<ul style="list-style-type: none"> • Privacy ownership violation 	<ul style="list-style-type: none"> • Emotional response • Fixing the issue • Indifference 	Privacy ownership violation leads to boundary turbulence. Individuals have several reactions to boundary turbulence; they might have an emotional response, fix the issue, or be indifferent.
Steuber and McLaren (2015)	Offline	Privacy recalibration in personal relationships	–	<ul style="list-style-type: none"> • Privacy recalibration 	Individuals who experience confrontation efficacy and feel close to the violators use privacy recalibration to resolve privacy turbulence.
Cho and Sillars (2015)	Offline	Family privacy management	–	<ul style="list-style-type: none"> • Threat of losing face • Facework strategies 	Threat of losing face and facework strategies in boundary turbulence are influenced by cultural differences.
Thorson (2015)	Offline	Family privacy management	<ul style="list-style-type: none"> • Family privacy dilemmas 	–	Adult children’s privacy turbulence emerges as a result of experiencing family privacy dilemmas (i.e., confidant, accidental, illicit, and dishonesty dilemmas) after learning about their parents’ infidelity.
Trepte (2015)	Online	Turbulence caused by social media’s affordances	<ul style="list-style-type: none"> • Social media affordances 	–	The affordances of social media (especially the “cold affordances”) cause turbulence.
Litt and Hargittai (2014)	Online	Exploring turbulence online	<ul style="list-style-type: none"> • Self-monitoring • Internet skills • Privacy and self-monitoring behaviors 	–	Individuals with lower Internet skills, higher self-monitoring skills, and more privacy and self-monitoring behaviors are more likely to encounter online turbulence.
Litt (2013)	Online	Use of privacy tools in SNSs	–	<ul style="list-style-type: none"> • Use of technological privacy tools 	Individuals with online turbulence experiences use more technological privacy tools in SNSs.
McLaren and Steuber (2012)	Offline	Responses and relational consequences of boundary turbulence	–	<ul style="list-style-type: none"> • Emotional response (hurt, anger, and fear) • Communicative response (approach and withdrawal strategies) • Relational consequences (relational damage and relational improvement) 	Individuals’ emotional and communicative responses to boundary turbulence lead to different relational consequences.
Child et al. (2011)	Online	Blog scrubbing	–	<ul style="list-style-type: none"> • Change of privacy settings (i.e., delete blog posts) 	Users who experience privacy turbulence change their privacy settings to enact blog post deletion practices.
Liu et al. (2011)	Online	Privacy settings on Facebook	<ul style="list-style-type: none"> • Incorrect privacy settings 	–	The incidence of incorrect privacy settings might cause turbulence moments.
Metzger (2007)	Online	Communication privacy management in electronic commerce	–	<ul style="list-style-type: none"> • Withhold information • Falsify information 	Individuals’ prior turbulent experiences lead them to withhold or falsify personal information in future online disclosure.

& Lee, 2012; Wang et al., 2011). As a consequence, online turbulence is likely to heighten users’ concern about unintended audiences who are often disregarded (Bernstein et al., 2013; De Wolf & Pierson, 2014). Moreover, the individual might be discouraged from disclosing further information (Li, Sarathy, & Xu, 2011) and subsequently become a lurker—that is, “one of the ‘silent majorities’ in an electronic forum, one who posts occasionally or not at all but is known to read the group’s postings regularly” (Sun, Rau, & Ma, 2014, p. 11).

Despite the undesirable outcomes associated with online turbulence resulting from audience management strategies, academic research is still nascent. Our literature review revealed that there is a need for a holistic and theoretical framework to guide the investigation of the relationships among audience management, online turbulence, and subsequent outcomes. Information systems (IS) researchers have started to pay attention to the tensions among users’ audiences, their concerns, and their behaviors, suggesting the potential impact of audience management on online turbulence (Li et al., 2018; Litt & Hargittai, 2016b; Vitak, Blasiola, Patil, & Litt, 2015). However, most previous studies have been descriptive and have relied mainly on qualitative methods. Therefore, there is a need for a dominant theoretical framework to guide empirical investigations of how different audience management strategies impact online turbulence and thus the subsequent psychological and behavioral outcomes.

Against the backdrop of online turbulence as an SNS-induced negative experience and the research opportunities delineated above, our primary research objective is to develop a holistic understanding of how audience management strategies impact online turbulence and lead to users’ audience concerns and lurking behaviors. One promising approach toward understanding the above relationship is through the transactional model of stress (TMS) (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008). This approach is appropriate as online turbulence has been identified as a key source of SNS-related stress (Litt & Hargittai, 2014). TMS explains that stress is a result of external “stress creators” that impact the individual’s psychological and behavioral strain until the individual intervenes to restore the balance. In adopting TMS, we identify online turbulence as an SNS-induced stressor that is influenced by intervention conditions (i.e., audience management strategies) and that can lead to both psychological strain (i.e., neglected unintended audience concern) and behavioral strain (i.e., lurking behavior). Moreover, recent research on technology-induced stress highlights the importance of personality traits in influencing how individuals cope with the stressor (Maier, Laumer, Wirth, & Weitzel, 2019; Srivastava, Chandra, & Shirish, 2015; Tarafdar, Cooper, & Stich, 2019). We incorporate self-monitoring skill as a specific personality trait and explore how it impacts the relationship between online turbulence and subsequent strain. Accordingly, we aim to address the following

research questions:

RQ1: How do different types of audience management strategies as intervention conditions impact online turbulence in SNSs?

RQ2: How does online turbulence impact users' psychological strain (i.e., neglected unintended audience concern) and behavior strain (i.e., lurking) in SNSs?

RQ3: How do users' self-monitoring skills moderate the relationships between online turbulence and subsequent outcomes?

Our research contributes to the literature in the following ways. First, our work extends the literature on online turbulence by focusing on the impact of individuals' own posting behaviors associated with audience management in SNSs, whereas prior research has mainly concentrated on online turbulence as caused by individuals' personal traits (Hagendorff, 2018; Litt & Hargittai, 2014) and others' disclosure (DeGroot & Vik, 2017). Using the transactional model of stress, we deepen the theoretical understanding of the interventions and outcomes of online turbulence in SNSs. Second, our work broadens the literature on audience management in SNSs by conceptualizing the neglected unintended audience and by developing measures for the neglected unintended audience concern. Third, we enrich the theoretical understanding of how users cope with the stressor of online turbulence in both psychological and behavioral ways by investigating the impact of online turbulence on neglected unintended audience concern and lurking. Fourth, in exploring the moderating role of self-monitoring, this study enriches the understanding of the boundary conditions under which online turbulence translates into psychological and behavioral strain. Finally, we believe our results will provide the necessary guidelines and support for managers who seek to improve user experience and design better audience management tools in SNSs.

2. Theoretical background

2.1. Relevant research on online turbulence

To gain a comprehensive understanding of relevant research on online turbulence, we conducted a systematic literature search. We used various combinations of keywords (e.g., online/privacy/boundary/social media turbulence, turbulent moments/experiences/encounters) to search the literature in major databases such as EBSCO, Springer, Taylor & Francis, and Web of Science, among others. After collecting the literature given by the search results, we manually screened the articles and checked the references of each to identify the most relevant studies. In Table 1, we summarize the key studies related to our research, including studies on turbulence in both online and offline contexts.

The concept of turbulence first received academic attention in relation to privacy and boundary issues in the offline context (Petronio, 2002). According to communication privacy management (CMP) theory, privacy turbulence occurs when privacy rules break down (Petronio, 2013). Following this doctrine, some studies have examined how factors related to privacy and boundary issues induce turbulent encounters in the offline context (e.g., among family members) (Cho & Sillars, 2015; Smith & Brunner, 2017; Steuber & McLaren, 2015). With the increasing popularity of online social networking, turbulence in the online context has attracted further academic attention. Online turbulence can occur when information breaks an information flow norm or infringes on users' desired boundaries in the online context, which can result in embarrassments, misunderstandings, fights, or troubles (Litt & Hargittai, 2014). In the context of SNSs, studies have found that most individuals have experienced turbulent moments (Litt & Hargittai, 2014; Liu & Wang, 2018), especially when they are exposed to unintended audiences (Wang et al., 2011).

Online turbulence can be induced by others' inappropriate disclosure (i.e., other-generated turbulence) or individuals' oversharing of their own private information (i.e., self-generated turbulence) (Litt & Hargittai, 2014). Other-generated online turbulence is mainly related to the co-owner of information issue (DeGroot & Vik, 2017; McLaren &

Steuber, 2012; Thorson, 2015). For instance, DeGroot and Vik (2017) indicated that privacy ownership violations on Facebook (e.g., a secret revealed by a friend) can lead to online turbulence. To date, most of the research on online turbulence has explored turbulence caused by others. As a result, limited attention has been paid to self-generated online turbulence. Moreover, the few studies that have made initial attempts to explore self-generated online turbulence have mainly investigated how individuals' personal traits influence online turbulence (Hagendorff, 2018; Litt & Hargittai, 2014). For example, Hagendorff (2018) found that individuals with low levels of privacy literacy were more likely to encounter turbulent events online. Litt and Hargittai (2014) claimed that individuals with lower Internet skills, higher self-monitoring skills, and more privacy and self-monitoring behaviors were more likely to encounter online turbulence. However, although studies have indicated the potential relevance of audience management in impacting online turbulence (Li et al., 2018; Litt & Hargittai, 2016b; Vitak et al., 2015), there is a lack of theoretical understanding of how online turbulence might be induced by users' own posting behaviors associated with audience management. Against this backdrop, this study draws on the audience management literature to further examine self-generated online turbulence.

With regard to the consequences of online turbulence, previous studies have focused on individuals' emotional responses (e.g., anger or disappointment) (DeGroot & Vik, 2017), their use of technological privacy tools (Litt, 2013), their adjustments of privacy settings (Child, Petronio, Agyeman-Budu, & Westermann, 2011), and their withholding or falsifying of information (Metzger, 2007). For example, Litt (2013) finds that individuals with online turbulence experiences use more technological privacy tools in SNSs. Elsewhere, Child et al. (2011) indicate that users who experience turbulent encounters change their privacy settings and enact blog post deletion practices. Moreover, in the context of SNSs, turbulent experiences increase individuals' perceptions of privacy risks and decrease their intentions of self-disclosure (Liu & Wang, 2018). In light of the undesirable consequences associated with online turbulence, it is important to deepen our theoretical understanding of how online turbulence generates psychological and behavioral outcomes.

2.2. Audience management in SNSs

2.2.1. Types of audiences in SNSs

Users' friends in SNSs who can access the users' profiles and view their daily updates are considered the potential audiences (Marwick & Boyd, 2011; Vitak, 2012). Prior research has mainly focused on four types of audiences in SNSs: imagined audience (Oolo & Siibak, 2013; Vitak et al., 2015), invisible/neglected audience (Bernstein et al., 2013; De Wolf & Pierson, 2014), intended audience, and unwanted/unintended audience (Tufekci, 2008; Wang et al., 2011). First, depending on whether the user notices the existence of certain audiences, the types of SNS audiences can be divided into the imagined audience and the neglected/invisible audience. The *imagined audience* refers to a "mental conceptualizing of the people with whom we are communicating" (Litt, 2012, p. 331). These audiences are pictured in the mind by the users when they post content in SNSs. However, there usually exists a disparity between the users' imagined audiences and their actual audiences in SNSs because of the users' limited cognitive capability and their underestimation of their audience sizes (Bernstein et al., 2013). Consequently, there usually exists a group that is the *neglected audience*, also referred to as the invisible audience (Bernstein et al., 2013; De Wolf & Pierson, 2014).

Second, from the users' perspective of their target audience, the types of SNS audiences can be divided into the intended audience and the unintended audience. The *intended audience* is the group of people with whom you intend to share your information. The *unintended audience* is the group of people to whom you do not want your information to be revealed. Most studies find that users are concerned about

Table 2
The types and definitions of audiences in SNSs.

Types of audience	Definitions	References
Imagined audience	The audience that users are aware of when posting in SNSs.	Litt (2012)
Imagined intended audience	The audience that users are aware of and with whom they intend to share information in SNSs.	
Imagined unintended audience	The audience that users are aware of but with whom they do not intend to share information in SNSs.	
Neglected audience	The audience that users are not aware of when posting in SNSs.	Bernstein et al. (2013)
Neglected intended audience	The audience that users are not aware of but with whom they have no problem sharing information in SNSs.	
Neglected unintended audience (focus of this study)	The audience that users are not aware of and with whom they do not intend to share information in SNSs.	

their information being exposed to the unintended audience (Tufekci, 2008).

Based on the above two perspectives, the audiences in SNSs can be divided into four subtypes: imagined unintended audiences, imagined intended audiences, neglected unintended audiences, and neglected intended audiences (see Table 2 for definitions). Among the four types of audience, users tend not to be concerned about their posts being exposed to the intended audience whether imagined or neglected. Rather, they are mostly concerned about their posts being viewed by the unintended audience (Tufekci, 2008). As such, users adopt certain strategies, such as segmenting and blocking, to limit the access of that part of the unintended audience of which they are aware (Vitak, 2015). However, they have limited knowledge when it comes to identifying the unintended audience, whom they easily neglect. Thus, online turbulence is more likely to serve as a trigger for users' concerns about the neglected unintended audience.

2.2.2. Audience management strategies in SNSs

In the offline context, individuals often maintain separated social circles and use different self-presentation skills accordingly. However, because SNSs integrate users' discrete social circles into the same platform, it is difficult for users to manage self-presentation among the various types of audiences simultaneously (Vitak, 2012). Given that different audiences hold different values and expectations about the appropriateness of information (Nissenbaum, 2009), audience management—that is, the management of audience boundaries for users' posts or profiles—is important in the context of SNSs (Litt & Hargittai, 2016b).

Previous studies have investigated the strategies that users use to manage their audiences to reduce context collapse (Li et al., 2018; Litt, 2012; Vitak et al., 2015). In particular, users often categorize their audiences (e.g., friend lists on Facebook) to direct certain information to specific audiences and rely on several strategies (e.g., shared-community, inner-circle, mutual-friend strategies) (De Wolf & Pierson, 2014). Moreover, audience-reaching and audience-limiting are two major types of audience management strategies that users often use when they post content with specific audiences in mind (Litt & Hargittai, 2016b). Audience-reaching strategies are used to direct information to the desired audience, such as by altering content or language to attract target audiences (Litt & Hargittai, 2016b; Tang, Chou, Drucker, Robertson, & Hancock, 2011) and by using tags (Dhir, Kaur, & Rajala, 2018; Semaan, Faucett, Robertson, Maruyama, & Douglas, 2015) or hashtags (Marwick & Boyd, 2011).

In contrast, audience-limiting strategies are used to exclude the non-target audiences, such as by controlling privacy settings (Litt, 2013), using multiple SNS platforms (Stutzman, Gross, & Acquisti, 2013),

Table 3
Definitions of key constructs in this study.

Constructs	Definitions	References
Lurking	The behavior of only reading others' posts but never or seldom sharing information.	Ortiz et al. (2018)
Neglected unintended audience concern	The users' concerns about their posts being exposed to neglected unintended audiences.	Tufekci (2008)
Online turbulence	Embarrassing or regretful situations in the online environment due to conflict issues such as minor flare-ups, confusion, misunderstandings, full-fledged uproars, etc.	Litt and Hargittai (2014)
Network-based strategies	Letting only certain people into one's network (e.g., refusing someone's friend request).	Vitak et al. (2015)
Content-based strategies	Adjusting the post content in SNSs (e.g., sharing general information).	Vitak et al. (2015)
Platform-based strategies	Using privacy settings provided by SNS platforms to manage audiences (e.g., dividing audiences into several groups).	Vitak et al. (2015)
Multiple-based strategies	Having two or more accounts on SNS platforms to separate self-presentations (e.g., having more than one account on Facebook).	Vitak et al. (2015)
Self-monitoring	A regulation process in which individuals adjust their behaviors to align with the audiences' expectations or norms within a given context.	Turnley and Bolino (2001)

blocking friends (Young & Quan-Haase, 2009), and applying steganographic tactics (Marwick & Boyd, 2011; Oolo & Siibak, 2013). Based on audience management literature, Vitak et al. (2015) identify four major types of audience-limiting strategies in SNSs: network-based strategies (e.g., refusing someone's friend request), content-based strategies (e.g., sharing general information), platform-based strategies (e.g., dividing audiences into several groups), and multiple profile-based strategies (e.g., having more than one account on Facebook). This study focuses on the abovementioned four types of audience-limiting strategies (see Table 3 for definitions) as intervention conditions because audience-limiting strategies, which focus on restricting the audience's access, are more likely to generate negative experiences (e.g., online turbulence) than audience-reaching strategies, which proactively target a specific audience (Vitak et al., 2015).

2.3. The transactional model of stress (TMS)

The TMS was originally proposed by Lazarus (1966) to explain how individuals experience and respond to stress. According to the TMS, stress is a result of external "stress creators"—i.e., environmental pressure that interferes with balance and thus negatively influences an individual's physical and psychological well-being until the individual intervenes to restore the balance (Ragu-Nathan et al., 2008). Later research constructs the TMS as a variance model with four major components (shown in Fig. 1): stressor, strain, inhibitor, and intervention variables. Stressor refers to events or stimuli that induce stress (Ragu-Nathan et al., 2008). Strain, which encompasses both psychological and behavioral strain, is the outcome, manifested in the individual's reactions, of an individual exposed to stressors (Tarafdar, Tu, & Ragu-Nathan, 2010). Interventions are situational variables that interfere with stressors to restore the balance (Ayyagari, Grover, & Purvis, 2011). Inhibitors are factors that mitigate the influence of stressors (Ragu-Nathan et al., 2008). A recent study by Maier et al. (2019) considers technology usage features as the starting point of the transactional process of technology-induced stress, and user personality as the major inhibitor that influences how technology-induced stressors translate into strain.

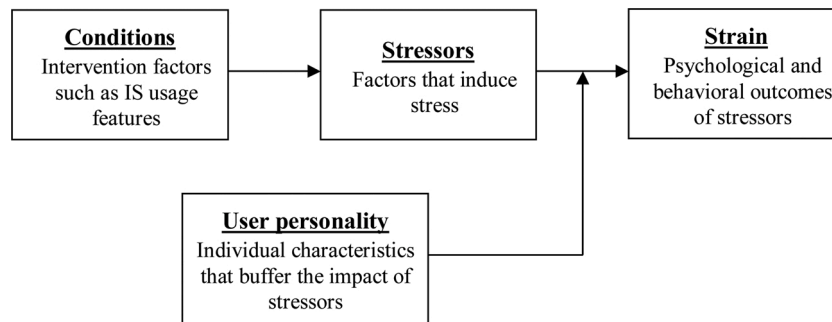


Fig. 1. Transactional process of stress.

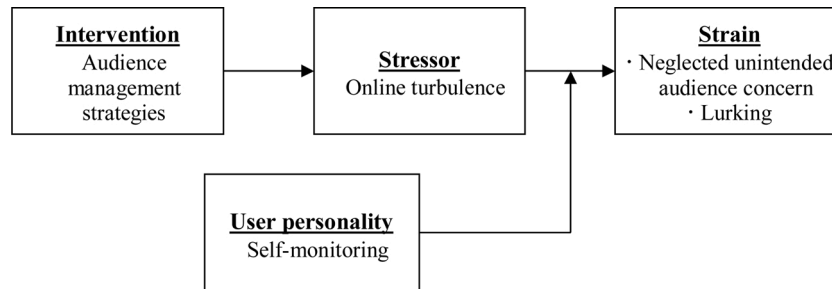


Fig. 2. Research framework based on TMS.

2.3.1. A TMS-based investigation of online turbulence in SNSs

Online turbulence can occur when information breaks an information flow norm or infringes on the users' desired boundaries (Litt & Hargittai, 2014). Such a turbulent experience in SNSs likely induces stress for users (Litt & Hargittai, 2014) and therefore is considered as the stressor in our study's context. We use the TMS-based theoretical framework to guide our understanding of the users' intervention strategies and stressful reactions to online turbulence. Fig. 2 shows our TMS-based framework.

2.3.2. Online turbulence as a stressor

We identify online turbulence as an SNS-induced stressor for two reasons. First, online turbulence is related to regrettable or embarrassing experiences usually caused by unexpected exposures in SNSs that make individuals feel a loss of control (Litt & Hargittai, 2014). Such loss of control is a source of stress because it poses uncertainty and anxiety (Cooper, Dewe, & O'Driscoll, 2001). Second, online turbulence is often associated with conflict and consequences, such as embarrassment, misunderstanding, and trouble (Litt & Hargittai, 2014), that can be stressful for individuals.

2.3.3. Neglected unintended audience concern and lurking as strain

In response to online turbulence as a stressor, users exhibit both psychological and behavioral strain. In terms of psychological strain, as online turbulence is mainly caused by unexpected information exposure in SNSs (Litt & Hargittai, 2014), it is most likely to trigger users' concern about unintended audiences. Previous studies suggest that when users post content with audiences in mind, they tend to neglect less visible audiences who seldom interact with them (Bernstein et al., 2013; Vitak et al., 2015). Therefore, the concern about the neglected unintended audience is especially salient when the privacy settings in SNSs fail to prevent users from suffering online turbulence (Litt & Hargittai, 2016b). In such a context, online turbulence serves as a trigger that reminds users of the existence of neglected unintended audiences. Accordingly, in extending the concepts of previous audience types (e.g., unwanted audience and invisible audience) (Bernstein et al., 2013; De Wolf & Pierson, 2014; Tufekci, 2008), this study conceptualizes the concern

about neglected unintended audiences as the users' concerns about their posts being exposed to neglected unintended audiences.

For behavioral strain, many SNS studies focus on the users' discontinuance of use after negative experiences (Luqman, Cao, Ali, Masood, & Yu, 2017; Maier, Laumer, Weinert, & Weitzel, 2015; Maier, Laumer, Eckhardt, & Weitzel, 2015). However, Tarafdar, Maier, Laumer, and Weitzel (2019) argue that even when users perceive stress from SNS use, they do not discontinue their use but adjust their behaviors. Users might respond to online turbulence arising from their information disclosure by decreasing their posting behaviors in SNSs, but continue to use SNSs to observe others' activities, which is referred to as lurking behavior. Accordingly, this study proposes lurking as the behavioral strain that results from online turbulence.

2.3.4. Audience management strategies as interventions

The literature about interventions on SNS-related stress mainly documents usage characteristics (e.g., extent and pattern of SNS usage) and relationship characteristics (e.g., type of relationship and subjective social support norm) (Laumer, Maier, & Weinert, 2013; Maier, Laumer, Eckhardt et al., 2015). According to the online turbulence literature, users use more privacy-enhancing technologies, such as privacy settings, in SNSs to avoid online turbulence (Litt, 2013). It is noted that online turbulence usually arises from audience management problems in SNSs (Litt & Hargittai, 2016b). Accordingly, this study proposes audience management strategies as the interventions, and investigates their impact on online turbulence.

2.3.5. Self-monitoring as personality trait

Despite the importance of personality traits in stress research (Ayyagari et al., 2011), limited research has explored their effects in the context of SNS-related stress (Maier, Laumer, Weinert et al., 2015, 2019; Srivastava et al., 2015). Previous research finds that users' self-monitoring skill—the tendency of individuals to control and maintain their expressive behaviors according to their external environment (Snyder, 1974)—significantly affects how users perceive online turbulence (Litt & Hargittai, 2014) and privacy concerns (Child & Agyeman-Budu, 2010). Therefore, we use the self-monitoring skill as a

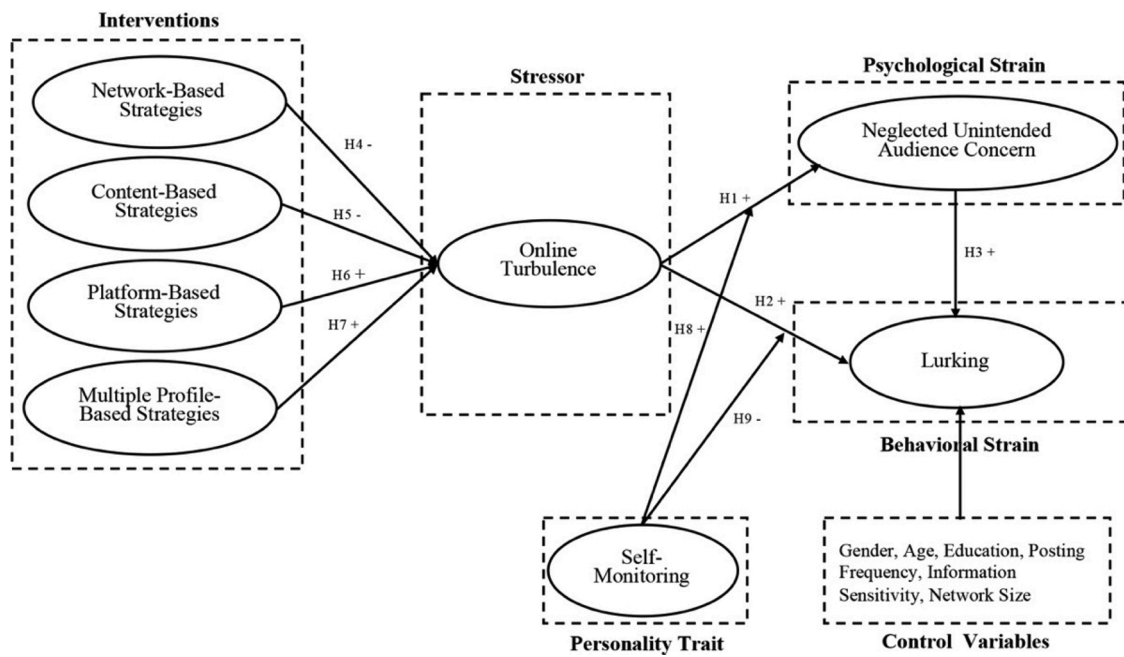


Fig. 3. Research model.

specific personality trait and investigate its moderating effect on the relationships among online turbulence, neglected unintended audience concern, and lurking.

3. Research model and hypotheses development

As discussed in Section 2.2, we draw from the transaction model of stress (TMS) and related research in the IS field (Ayyagari et al., 2011; Maier et al., 2019; Srivastava et al., 2015; Tarafdar et al., 2010) to develop a research model that explains how individuals intervene with and respond to online turbulence, an SNS-induced stressor. Fig. 3 depicts our research model. The definitions of all of the constructs are presented in Table 3.

3.1. Online turbulence and neglected unintended audience concern

In this study, online turbulence refers to embarrassing or regrettable situations in the online environment due to conflict issues such as minor flare-ups, confusion, misunderstandings, full-fledged uproars, etc. In the context of SNSs, online turbulence is mainly caused by the sharing of information beyond the user's desired audience (Litt & Hargittai, 2014). Users feel regret or want to delete the content when their posts are viewed by unintended audiences (Sleeper et al., 2013; Wang et al., 2011). The negative experience creates stress for users. As a result, individuals usually exhibit psychological strain as a stress response (Tarafdar et al., 2010). In particular, prior studies note that past negative experiences increase the individuals' concerns about privacy in both online and offline environments (Nam, 2018; Yang & Liu, 2014). Likewise, the SNS research indicates that exposure to unintended audiences raises the users' audience concerns in SNSs (Tufekci, 2008; Young & Quan-Haase, 2009). These findings imply that individuals who experience online turbulence consider their disclosure behavior inappropriate and become concerned about the unintended audiences that they previously neglected (Litt, 2013). Therefore, online turbulence might serve as a trigger that raises the users' concerns about the existence of neglected unintended audiences. Accordingly, we propose the following hypothesis:

H1. Online turbulence is positively related to neglected unintended audience concern.

3.2. Online turbulence and lurking

As an SNS-induced stressor, online turbulence causes individuals' behavioral strain as a stress response (Tarafdar et al., 2010). Specifically, the experience of online turbulence provokes individuals to adjust their online disclosure behaviors (Ellison, Vitak, Steinfield, Gray, & Lampe, 2011). The existing privacy settings in SNSs are limited and do not satisfy the users' privacy expectations adequately (De Wolf & Pierson, 2014; Vitak & Kim, 2014). Unless users manage their audiences in a very strict way, they are likely to experience online turbulence again in the future. Savage et al. (2014) note that most users find strictly managing audiences time consuming, and most users have difficulty defining their target audience. Therefore, users usually prefer to reduce their sharing of information after online turbulence, rather than apply more strict audience management strategies (Hogan, 2010). Gradually, these users disclose less and less information and become lurkers in SNSs. Accordingly, we expect that users who experience online turbulence are more likely to lurk in SNSs. Thus, we propose the following hypothesis:

H2. Online turbulence is positively related to lurking.

3.3. Neglected unintended audience concern and lurking

Prior research suggests that there exist interactions between psychological strain and behavioral strain (Maier, Laumer, Weinert et al., 2015), indicating the possible relationship between neglected unintended audience concern and lurking. Specifically, the presence of neglected unintended audiences in users' networks can increase the difficulty in controlling who can access posts, and the perception of loss of control might make users feel uncomfortable about posting information online (Marriott, Williams, & Dwivedi, 2017). These uncomfortable feelings might lead to lurking, which is the behavior of only reading others' posts but never or seldom sharing information (Ortiz, Chih, & Tsai, 2018; Osatuyi, 2015). Furthermore, if users detect that others are lurking in SNSs, they are also more likely to reduce their sharing (Garcia, Standlee, Bechhoff, & Cui, 2009). As the neglected audience mainly consists of lurkers who seldom interact with other users, once users have concerns about the presence of neglected unintended audiences, they are more likely to lurk in the future. Based on the above discussion, we propose the following hypothesis:

H3. Neglected unintended audience concern is positively related to lurking.

3.4. Audience management strategies and online turbulence

Stressors can be influenced by interventions (Tarafdar et al., 2010). Past studies have explored both the positive and negative effects of interventions on stressors (Ayyagari et al., 2011; Laumer et al., 2013; Maier, Laumer, Weinert et al., 2015). Our study focuses on the use of audience management strategies as interventions, and examines its impact on the stressor of online turbulence. Specifically, we expect that network-based and content-based strategies can alleviate the possibility of online turbulence, while the use of platform-based and multiple profile-based strategies might increase the possibility of online turbulence.

Network-based strategies are those that only let certain people into one's network, mainly by granting or denying individuals access (Vitak et al., 2015). Network-based strategies allow individuals to refuse friend requests from acquaintances or strangers who are often the unintended audiences (Jeong & Coyle, 2014). By doing so, users could establish more strict privacy boundary to avoid unexpected exposure. Thus, such refusals on unintended audiences may reduce the possibility of online turbulence. Accordingly, we posit the following hypothesis:

H4. Network-based strategies are negatively related to online turbulence.

Content-based strategies refer to adjusting the content of posts in SNSs according to the target audience (Vitak et al., 2015). However, different audiences have different expectations or standards about the information appropriateness (Vitak, 2012). As such, when individuals use content-based strategies, they often self-censor their posts and might only post information that is suitable for all of the audience groups to prevent inappropriate posts (Das & Kramer, 2013; Hogan, 2010). Hence, the possibility of online turbulence is reduced because the information that users post is not likely to be sensitive. Based on the above discussion, we propose the following hypothesis:

H5. Content-based strategies are negatively related to online turbulence.

Platform-based strategies are those involving the use of the privacy settings provided by SNS platforms, especially the settings for audience segmentation (Vitak et al., 2015). Due to individuals' limited cognitive ability, they cannot always effectively manage all of the audience segmentations and direct the right information to the right audience (Dunbar, 2012). In this regard, the more audience segmentations users maintain in SNSs, the more likely they are to feel confused about potential audiences and neglect unintended audiences who are lurkers (Ortiz et al., 2018). Then, the use of these settings regarding blocking someone's accesses may lead to embarrassments or misunderstandings between friends, due to the ambiguity in audiences. Thus, we posit the following hypothesis:

H6. Platform-based strategies are positively related to online turbulence.

Multiple profile-based strategies refer to strategies wherein the users separate their self-presentations into different SNS accounts or platforms to achieve audience segmentation (Vitak et al., 2015). Individuals who use these strategies usually have two or more accounts on one SNS platform or use multiple SNS platforms to post different information to different audiences. However, manipulating two or more accounts or platforms is energy consuming and complex, increasing the possibility of making mistakes when managing different accounts (Vitak et al., 2015). Moreover, if one audience member follows the user on more than one platform, information might disseminate among mutual friends, which can further increase the possibility of online turbulence (Long & Jung, 2015). Based on the above discussion, we propose the following

hypothesis:

H7. Multiple profile-based strategies are positively related to online turbulence.

3.5. The moderating effects of self-monitoring

Self-monitoring refers to "the self-control of expressive behavior" (Snyder, 1974, p. 527) and is one of the most frequently examined personality traits in relation to impression management. Specifically, self-monitoring is a regulation process in which individuals adjust their behaviors to align with the audiences' expectations or norms within a given context (Turnley & Bolino, 2001).

Prior research finds that individuals with high self-monitoring skills are more prone to reduce online turbulence and to set stricter criteria in evaluating turbulence (Litt et al., 2014). Thus, after experiencing online turbulence, individuals with high self-monitoring are more likely to be concerned about the underlying reasons that cause turbulence. As the presence of neglected unintended audiences is among the main issues that cause online turbulence (Litt & Hargittai, 2014; Wang et al., 2011), individuals with high self-monitoring tend to be more concerned about neglected unintended audiences after encountering online turbulence. Moreover, high self-monitors are more conscious of the audiences' perceptions of their posts (Child & Agyeman-Budu, 2010; Litt & Hargittai, 2014) and are therefore more likely to be concerned about the disparity between the imagined audience and the actual audience (Litt, 2012). Based on the above discussion, we propose the following hypothesis:

H8. Self-monitoring positively moderates the relationship between online turbulence and neglected unintended audience concern. Specifically, the positive effect of online turbulence on neglected unintended audience concern is stronger when the level of self-monitoring is high.

In the context of SNSs, individuals with high self-monitoring skills often have a large network size and post frequently (Hall & Pennington, 2013), indicating they are active users of SNSs. Studies also indicate that individuals with high self-monitoring skills are often good at using privacy settings and evaluating their posts carefully to avoid posting inappropriate information (Lankton, McKnight, & Tripp, 2017; Pornsakulvanich, 2018). It follows then that after experiencing online turbulence, individuals with high self-monitoring skills prefer to use audience management strategies to modify self-presentations and reduce online turbulence in the future, rather than disclose less information and lurk in SNSs. Accordingly, we propose the following hypothesis:

H9. Self-monitoring negatively moderates the relationship between online turbulence and lurking. Specifically, the positive effect of online turbulence on neglected unintended audience concern is weaker when the level of self-monitoring is high.

3.6. The mediating effects of online turbulence

Based on previous studies on technostress, stressors can serve as the mediating variables between interventions and strain (Tarafdar et al., 2010). In SNSs, users often adopt audience management strategies to direct certain information to the right audience. However, as discussed in the above sections, audience management strategies impact users' experience of online turbulence, which can further lead to psychological strain (Maier et al., 2019). Particularly, prior research indicated that online turbulence associated with exposures to unintended audiences would raise users' concerns about their audiences as a stress response, especially those they previously neglected before posting content (Litt, 2013; Tufekci, 2008; Young & Quan-Haase, 2009). These imply that online turbulence is a mediator that conveys the relationship between the use of audience management strategies and neglected unintended audience concern. Therefore, we propose the following hypotheses:

H10. Online turbulence mediates the impacts of (a) network-based strategies, (b) content-based strategies, (c) platform-based strategies, and (d) multiple profile-based strategies on neglected unintended audience concern.

Further, the use of audience management strategies affects turbulent encounters, which can lead to subsequent behavioral strain (Maier et al., 2019). Specifically, as turbulent moments in SNSs often arise from inappropriate posts, users would be encouraged to reconsider their disclosure behaviors (Ellison et al., 2011). Since current privacy settings are cumbersome and time-consuming (Vitak & Kim, 2014), they prefer to reduce posting frequency rather than apply utilize these settings after experience turbulence (Hogan, 2010). Then, they will generally become lurkers in SNSs. These suggest that the use of audience management strategies might influence how users lurk in SNSs, as the use of such strategies impact the users' encounters with online turbulence. Accordingly, we posit the following hypotheses:

H11. Online turbulence mediates the impacts of (a) network-based strategies, (b) content-based strategies, (c) platform-based strategies, and (d) multiple profile-based strategies on lurking.

3.7. Control variables

This study uses the following control variables: gender, age, education, posting frequency, information sensitivity, and network size. Gender was included because gender differences are found in individuals' information disclosure behaviors in SNSs (Chang & Heo, 2014; Shi, Chen, & Chow, 2016). Age was included due to its effect on the revealing of personal information (Taddicken, 2014). Education was included because it impacts individuals' attitudes or behaviors in the use of SNSs (Smith, Dinev, & Xu, 2011). Posting frequency was included as it is related to users' behaviors in SNSs (Bohn, Buchta, Hornik, & Mair, 2014). Information sensitivity was included because the more sensitive the information the users post, the more concern about privacy they have (Chang & Heo, 2014) and the less information they disclose (Nosko, Wood, & Molema, 2010). Finally, network size was included because it influences individuals' self-disclosure behaviors in SNSs (Brandtzæg, Lüders, & Skjetne, 2010).

4. Methodology

4.1. Measurement

All of the scales used in this study were adopted and developed based on previous studies, and modified to fit our research context (see Appendix A). Due to the lack of validated measures for neglected unintended audience concern, we developed new items based on the procedures recommended in the literature (e.g., Moore & Benbasat, 1991) (see Appendix B). All of the items were measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Following the back-translation approach (Bhalla & Lin, 1987), we translated the original English measurement items into Chinese and then back-translated them into English.

4.2. Sampling and data collection

The data were collected from the online survey platform Sojump. We identified the most popular SNS platform in China—WeChat—as the target SNS (CNNIC, 2017). WeChat users can share their updates, called Moments, in their friend space. Unlike Facebook where users' profiles can be viewed by everyone in the network, WeChat Moments only allow people in one's friend list to access his or her posts. Through Sojump, we distributed an online survey to individuals who were WeChat users. To increase the response rate, we offered a reward ranging from ¥5 to ¥10 to each participant.

We received a total of 301 valid responses out of 400 participants

Table 4
Demographics of the sample.

Demographic	Category	Count	Percentage
Gender	Male	134	44.52 %
	Female	167	55.48 %
Age	20 or below	3	1.00 %
	21–25	36	11.96 %
	26–30	101	33.55 %
	31–40	136	45.18 %
	41 or above	25	8.31 %
Education	High school or below	10	3.32 %
	Diploma degree	62	20.60 %
	Bachelor's degree	197	65.45 %
	Master's degree or above	32	10.63 %
Occupation	Student	15	4.98 %
	Company positions (such as bank clerk and engineer)	246	81.73 %
	Government or education	36	11.96 %
	Others (such as freelance and nurse)	4	1.33 %

recruited for the survey. We excluded the responses of participants who had not completed the questionnaire, had given duplicate answers, or had completed the survey in an unrealistically short time (less than 2 min). The majority of the participants were aged between 26 and 40; 44.52 % were male and 55.48 % were female. Most respondents posted information in SNSs frequently, and 60.13 % of them viewed others' posts 2–5 times per day. More details about the respondents' demographics are given in Table 4.

5. Data analysis and results

To test our research model, we applied a variance-based partial least squares structural equation modeling (PLS-SEM) method for the following reasons. First, PLS-SEM is more suitable for research on theory development (Astrachan, Patel, & Wanzenried, 2014; Hair, Hult, Ringle, & Sarstedt, 2016). We aim to conceptualize the concept of neglected unintended audience and explore how this specific audience concern occurs and impacts users' lurking behavior. As such, our work involves theory development. Second, PLS has the advantage of fewer restrictions on normal distribution and sample size (Chin, 1998; Kroonenberg, 1989), and is suitable for testing complex models with a range of variables (Chen, Wang, Herath, & Rao, 2011). Hence, the use of PLS-SEM is appropriate for our study. We used the software WarpPLS 6.0. Because of WarpPLS's advantages—such as its capabilities to identify nonlinear relationships between variables, provide factor-based PLS algorithms accounting for measurement error, and allow for the assessment of direct and indirect effects (Kock, 2017)—it has been widely used in IS research (Choden, Bagchi, Udo, & Kirs, 2019; Lemay, Doleck, & Bazelaïs, 2019; Wamuyu, 2018). Following previous research (Koohikamali, Peak, & Prybutok, 2017), we further tested our research model using the three-step method: we assessed the reliability and validity of the measurement model, examined common method bias, and analyzed the structural model.

5.1. Measurement model assessment

We applied the following criteria associated with their thresholds to examine reliability, convergent validity, and discriminant validity. First, we applied composite reliability (CR) and Cronbach's alpha to assess the reliability of our scale (Cronbach, 1971). As shown in Table 5, all of the CR values and the Cronbach's alpha values were above the threshold 0.70 (Chin, 1998), except for those of lurking ($\alpha = 0.649$), network-based strategies ($\alpha = 0.634$), and content-based strategies ($\alpha = 0.647$). Hair, Black, Babin, and Anderson (2010) suggest that it is acceptable if the value of Cronbach's alpha is above 0.60, as it indicates the adequate measurement reliability of the research model. The convergent validity was assessed by three criteria: (1) all of the factor

Table 5
Construct reliability and convergent validity.

Factor	Item	Loading	Mean	SD	CR	Cronbach's alpha	AVE
Neglected unintended audience concern (NAC)	NAC1	0.808	4.432	1.630	0.892	0.839	0.675
	NAC2	0.816					
	NAC3	0.846					
	NAC4	0.815					
Online turbulence (OTB)	OTB1	0.797	3.173	1.737	0.879	0.792	0.708
	OTB2	0.900					
	OTB3	0.824					
Lurking (LUK)	LUK1	0.860	4.967	1.329	0.851	0.649	0.740
	LUK2	0.860					
Network-based strategies (NBS)	NBS1	0.856	5.646	1.253	0.845	0.634	0.732
	NBS2	0.856					
Content-based strategies (CBS)	CBS2	0.860	5.457	1.328	0.794	0.647	0.739
	CBS3	0.860					
Platform-based strategies (PBS)	PBS1	0.871	4.552	1.723	0.855	0.760	0.697
	PBS2	0.869					
Multiple profile-based strategies (MBS)	PBS4	0.724	3.720	1.817	0.847	0.729	0.650
	MBS1	0.728					
	MBS2	0.844					
Self-monitoring (SMT)	MBS3	0.841	5.158	1.203	0.845	0.755	0.576
	SMT1	0.765					
	SMT2	0.732					
	SMT3	0.796					
	SMT4	0.741					

Table 6
Discriminant validity.

	NAC	OTB	LUK	NBS	CBS	PBS	MBS
NAC	0.821						
OTB	0.464	0.841					
LUK	0.129	0.020	0.860				
NBS	0.184	-0.229	0.373	0.856			
CBS	0.155	-0.209	0.303	0.568	0.860		
PBS	0.387	0.239	0.262	0.176	0.219	0.824	
MBS	0.273	0.495	0.036	-0.104	-0.092	0.117	0.806
SMT	-0.017	-0.147	0.134	0.196	0.283	0.132	0.045

Note: The diagonal elements (bold figures) are the square root of the AVE, and the off-diagonal elements are the correlations among constructs. NAC = neglected unintended audience concern, OTB = online turbulence, LUK = lurking, NBS = network-based strategies, CBS = content-based strategies, PBS = profile-based strategies, MBS = multiple profile-based strategies, SMT = self-monitoring.

loadings should be above than 0.707 (Carmines & Zeller, 2008); (2) the composite reliability should be greater than 0.70 (Chin, 1998); (3) the average variance extracted (AVE) should be above 0.50 (Fornell & Larcker, 1981). As shown in Table 5, after we removed two items whose factor loadings were below 0.707—CBS1 (0.636) and PBS3 (0.697)—all of the factor loadings satisfied the remaining criteria. The CRs range from 0.794 and 0.892, and all of the AVEs are greater than 0.50, demonstrating adequate convergent validity.

Finally, we assessed the discriminant validity by examining whether the square root of the AVE for each construct exceeded its correlations with the other constructs (Chin, 1998). The results in Table 6 show that the measurement demonstrates good discriminant validity.

5.2. Common method bias

As our data were self-reported by a common data source, we looked for potential common method bias (CMB) in three ways, following the

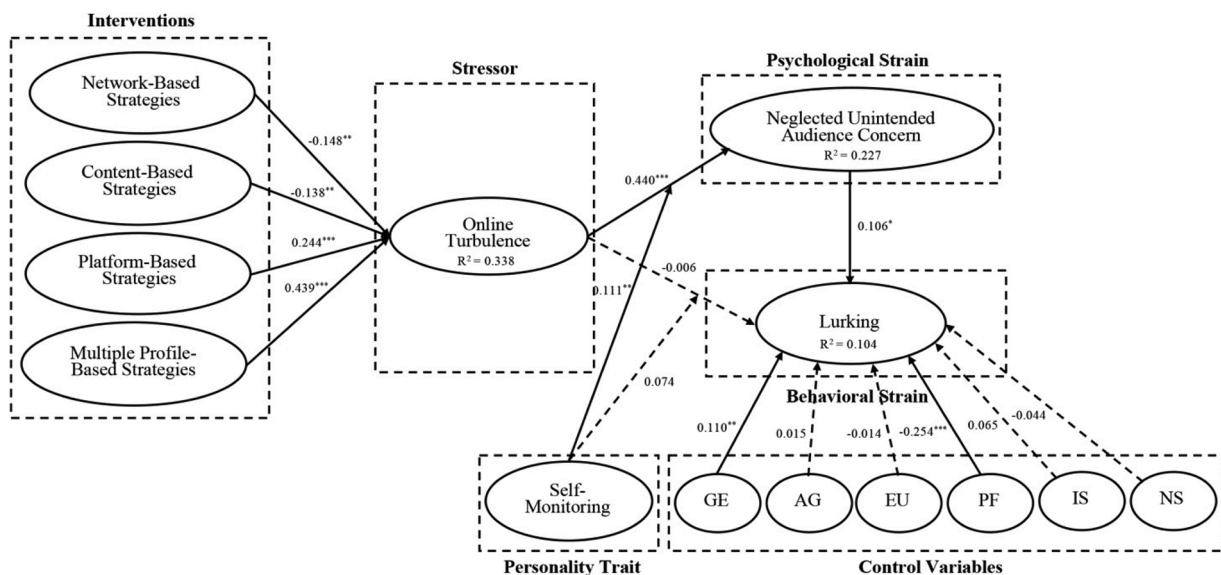


Fig. 4. Results of model testing.

Note: **p* < 0.1; ***p* < 0.05; ****p* < 0.001. GE = gender, AG = age, EU = education, PF = posting.frequency, IS = information sensitivity, NS = network size.

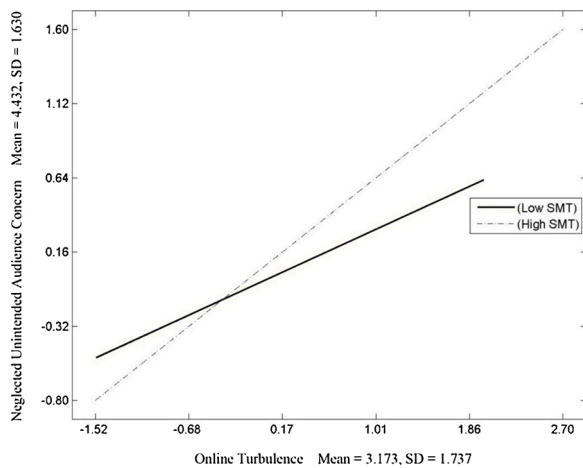


Fig. 5. The moderating effect of self-monitoring.
 Note: SMT = self-monitoring.

relevant literature (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Schwarz, Rizzuto, Carragher-Wolverton, Roldán, & Barrera-Barrera, 2017). First, we applied Harman’s single factor test (Podsakoff et al., 2003) to examine whether a single factor emerged from the unrotated factor approach or whether a single factor accounted for the majority of the variance. The explanatory and unrotated factor analysis resulted in more than one factor, and no single factor accounted for the majority of the variance. The first factor only explains about 20 % of the variance, which is less than 50 % (Ortiz et al., 2018). Second, we assessed common method bias by examining whether the correlations of the constructs were above 0.9 (Bagozzi & Yi, 1991). As shown in Table 6, all of the correlations of the constructs are less than 0.9, with the highest value being 0.495. Finally, we used the unmeasured latent method construct (ULMC) approach (see also Hsia, Chiang, Wu, Teng, & Rubin, 2019; Koohikamali, French, & Kim, 2019; Lin, Luo, Cheng, & Li, 2019) to further assess the issue of CMB, based on procedures suggested by Liang, Saraf, Hu, and Xue (2007). As shown in Appendix C, the average substantively explained variance of the indicators is 0.678, and the average method-based variance is 0.005. The ratio of the substantive variance to the method variance is approximately 136:1. Most of the method factor loadings are insignificant. Based on the above tests, we can conclude that CMB is unlikely to be a concern in our study.

5.3. Structural model assessment

In terms of hypothesis testing, we used PLS to test the significance of the path coefficients and the R square values. As shown in Fig. 4, the research model explains 0.338 of the variance in online turbulence, 0.227 of that in neglected unintended audience concern, and 0.104 of that in lurking.

Online turbulence was found to have a positive effect on neglected unintended audience concern ($\beta = 0.440, p < 0.001$), thus verifying H1. The relationship between online turbulence and lurking was not significant, and therefore H2 was rejected. Neglected unintended audience concern had a positive effect on lurking ($\beta = 0.106, p < 0.1$), supporting H3. Both network-based strategies ($\beta = -0.148, p < 0.05$) and content-based strategies ($\beta = -0.138, p < 0.05$) were found to have negative effects on online turbulence, confirming H4 and H5. Platform-based strategies ($\beta = 0.244, p < 0.001$) and multiple profile-based strategies ($\beta = 0.439, p < 0.001$) had positive effects on online turbulence, verifying H6 and H7. Self-monitoring positively moderated the relationship between online turbulence and neglected unintended audience concern ($\beta = 0.111, p < 0.05$), confirming H8. The moderating effect is plotted in Fig. 5. However, the moderating effect of self-monitoring on the relationship between online turbulence and lurking was not significant, and

Table 7
 Results of mediation analyses.

Paths	Indirect effects	SE	Bootstrapping BC 95 % CI	
			Lower	Upper
NBS-NAC	-0.157	0.046	-0.255	-0.077
CBS-NAC	-0.126	0.038	-0.208	-0.060
PBS-NAC	0.099	0.025	0.053	0.149
MBS-NAC	0.206	0.037	0.137	0.284
NBS-LUK	-0.027	0.015	-0.059	0.001
CBS-LUK	-0.017	0.012	-0.043	0.007
PBS-LUK	-0.010	0.012	-0.034	0.016
MBS-LUK	0.001	0.031	-0.061	0.061

Note: NAC = neglected unintended audience concern, NBS = network-based strategies, CBS = content-based strategies, PBS = profile-based strategies, MBS = multiple profile-based strategies, LUK = lurking, BC = bias-corrected, CI = confidence interval.

therefore H9 was rejected.

We further tested the mediating effects using the bootstrapping approach. According to Preacher and Hayes (2008), the mediating effect is significant when the confidence interval excludes the zero value. As shown in Table 7, the results of mediation analyses confirm that online turbulence significantly mediates the effects of network-based strategies (indirect effect = -0.157, CI = -0.255 to -0.077), content-based strategies (indirect effect = -0.126, CI = -0.208 to -0.060), platform-based strategies (indirect effect = 0.099, CI = 0.053 to 0.149), and multiple profile-based strategies (indirect effect = 0.206, CI = 0.137 to 0.284) on neglected unintended audience concern, respectively. Therefore, H10a, H10b, H10c, and H10d were supported. Nonetheless, the zero values fall in the confidence intervals for the paths between different audience management strategies and lurking, suggesting that online turbulence does not mediate the effects of four types of audience management strategies on lurking. Thus, H11a, H11b, H11c, and H11d were rejected.

In addition, we used f^2 to examine the effect size. Cohen (2013) suggests that values of 0.02, 0.15, and 0.35 reflect small, medium, and large degrees of effect size, respectively. An f^2 value of less than 0.02 indicates that there might exist a very small effect among the relevant variables (Leong, Jaafar, & Ainin, 2018). The results show that online turbulence has a medium effect ($f^2 = 0.260$) on neglected unintended audience concern, and a very small effect ($f^2 = 0.001$) on lurking. Likewise, neglected unintended audience concern has a very small effect ($f^2 = 0.005$) on lurking. In terms of the impacts of audience management strategies on online turbulence, the multiple profile-based strategies have a medium effect ($f^2 = 0.296$), followed by platform-based strategies ($f^2 = 0.099$), network-based strategies ($f^2 = 0.026$), and content-based strategies ($f^2 = 0.008$). Moreover, the effect sizes for the moderating effects of self-monitoring on the relationship between online turbulence and neglected unintended audience concern ($f^2 = 0.018$) and on the relationship between online turbulence and lurking ($f^2 = 0.008$) are relatively small but still adequate (Leong et al., 2018).

6. Discussion

The findings of this study confirm most of our hypotheses. First, we confirm that online turbulence, as a stressor, can lead to neglected unintended audience concern as a psychological strain in users. This finding enriches audience management literature by showing that certain negative experiences in SNSs trigger users to notice neglected unintended audiences and experience concern. Furthermore, our study confirms that individuals who have a high level of neglected unintended audience concern are more likely to lurk in SNSs. This finding is consistent with Ortiz et al.’s (2018) demonstration that users with high privacy-risk belief are more inclined to decrease their information disclosure and become a lurker.

Second, our work demonstrates that the use of audience

Table B1
The results of pilot test.

Factor	Items	Loading	Cronbach's alpha	KMO	Bartlett's test of sphericity		
					Approx. chi-square	Df	Sig.
Neglected unintended audience concern (NAC)	NAC1	0.877	0.794	0.797	105.453	10	0.000
	NAC2	0.622					
	NAC3	0.810					
	NAC4	0.574					
	NAC5	0.815					

management strategies as interventions exerts different impacts on online turbulence. Specifically, individuals who use network-based and content-based strategies are less likely to experience online turbulence, whereas those who use platform-based or multiple profile-based strategies are more prone to encounter online turbulence. Our findings are consistent with previous studies that suggest that users who frequently apply platform-based strategies (e.g., audience segregation) detect turbulence more easily than others (Child & Petronio, 2011; Litt & Hargittai, 2014). We also confirm the “control paradox” effect (Brandimarte, Acquisti, & Loewenstein, 2013) in SNSs. Users who use network-based and platform-based strategies consider themselves as having more control over their personal boundaries, which results in the sharing of more personal content (Stutzman et al., 2013; Vitak, 2012). However, due to the presence of neglected unintended audiences, these intimate disclosures lead to higher chances of online turbulence. The findings support the view that some of the available audience management strategies fail to effectively achieve the users' goal of avoiding stressful experiences from online turbulence, because the strategies require much cognitive effort and often lead the users to overestimate the strategies' effectiveness (Vitak, 2012).

Third, contradictory to our prediction, the relationship between online turbulence and lurking is not significant. This suggests that after encountering online turbulence, users might not exhibit behavioral strain in the form of lurking. One possible explanation is that although some users experience online turbulence, they do not stop their information disclosure immediately because they believe they can avoid turbulent encounters in the future. Our results show that online turbulence can lead to lurking indirectly through the increase in users' concern about neglected unintended audiences. When users have heightened concern about neglected unintended audiences due to online turbulence, they are more likely to lurk because such concern is hard to address and they perceive that many other users are also lurkers in SNSs.

Fourth, we confirm the moderating effect of self-monitoring on the relationship between online turbulence and neglected unintended audience concern. The results show that the effect of online turbulence on neglected unintended audience concern is stronger when the level of self-monitoring is high. This result further supports the notion that high self-monitors care more about how others view them and therefore demand more control over their audience (Lankton et al., 2017; Pornsakulvanich, 2018). However, the moderating effect of self-monitoring on the relationship between online turbulence and lurking is not significant. One possible explanation is that because individuals with high self-monitoring skills are more likely to adjust their behaviors according to social norms (Lankton et al., 2017), they tend to adjust their posting behaviors rather than lurk after experiencing online turbulence.

Finally, we confirm that online turbulence mediates the impacts of content-based strategies, network-based strategies, platform-based strategies, and multiple profile-based strategies on neglected unintended audience concern. The results indicate that the use of audience management strategies affects the users' neglected unintended audience concern by influencing their encounters with online turbulence. Nevertheless, online turbulence fails to mediate the effects of the four types of audience management strategies on lurking. One possible explanation is that when users encounter online turbulence due to the use of certain audience management strategies, they try other strategies

to avoid stressful situations rather than turn to lurking immediately.

7. Implications and limitation

7.1. Theoretical implications

First, our study advances the theoretical understanding of online turbulence by focusing on the impact of individuals' own disclosure behaviors associated with audience management in SNSs, whereas previous studies have mainly focused on the impacts of individuals' personal traits (Hagendorff, 2018; Litt & Hargittai, 2014) and others' disclosure (DeGroot & Vik, 2017). Based on the transaction model of stress, we explore the strategies for intervening in SNSs and their outcomes in terms of online turbulence.

Second, we shed new light on audience management in SNSs by conceptualizing the neglected unintended audience and examining how online turbulence triggers individuals' audience concern. Although some prior studies have documented the concern about invisible audiences in SNSs (Bernstein et al., 2013; De Wolf & Pierson, 2014) leading to negative consequences (e.g., regrettable posts) (Wang et al., 2011), there is a lack of theoretical understanding about the antecedents and consequences of such audience concern. Our work enriches the knowledge on neglected unintended audience concern as a psychological strain resulting from an SNS-induced stressor (i.e., online turbulence), and further confirms this type of concern's positive impact on individuals' behavioral strain (i.e., lurking). In this respect, our work extends prior research (Yang & Liu, 2014) as we examine the impacts of negative experiences on the individuals' concerns in more depth. Our study also responds to the call for more detailed research on the relationship between individuals' concerns and lurking (Sun et al., 2014).

Third, although previous studies have suggested that difficulty in audience management is a major cause of online turbulence, our study systematically examines how various types of audience management strategies exert different impacts on online turbulence. We enrich the literature by verifying that the use of different audience management strategies has both negative and positive effects on online turbulence. Prior research has only discussed the positive influence of privacy-enhancing behaviors on online turbulence (Litt & Hargittai, 2014).

Finally, this study identifies the boundary conditions under which online turbulence influences psychological strain by exploring the moderating role of self-monitoring. Although prior research has discussed the antecedents of audience concerns in SNSs (Tufekci, 2008), little research has been done investigating the boundary conditions that influence the relationship between certain negative experiences and users' audience concerns. By drawing on TMS, this study provides a more comprehensive theoretical framework that explains how individual personality might buffer the impact of online turbulence on audience concern. Prior research has highlighted the role of personality traits (e.g., the Big Five) in moderating the relationship between stressors and strain (Srivastava et al., 2015). We contribute to this stream of research by investigating the moderating effect of self-monitoring as a personality trait on the relationship between an SNS-induced stressor (i.e., online turbulence) and psychological strain (i.e., neglected unintended audience concern).

7.2. Practical implications

Our work offers valuable guidelines and suggestions for SNS practitioners. First, our results can provide guidelines for SNS practitioners to develop effective privacy controls for audience management. Although nowadays most SNSs offer privacy settings for users, the existing audience management tools are accused of being cumbersome and not fulfilling the users' expectations (De Wolf, Willaert, & Pierson, 2014; Vitak & Kim, 2014). Specifically, our results demonstrate that network-based and content-based strategies impede the possibility of online turbulence. Therefore, SNS practitioners should further improve such strategies to aid users in decreasing negative experiences. For instance, SNS platforms can develop features that enable users to control the access of a new friend before accepting the friend request, and to limit visits of potential audience (e.g., future employers) to ensure that inappropriate previously posted content cannot be viewed. SNS practitioners should also provide more freedom for users to modify their content after it is posted so that the users can avoid high levels of regret.

We find that the use of platform-based and multiple profile-based strategies leads users to encounter turbulent moments. Therefore, we suggest redesigning and improving audience segmentation-related strategies. Practitioners should assist users in being cognizant of their actual audiences by, for example, refining the audience display or improving the audience feedback mechanisms, to provide more audience cues or reminders for users. Integrating audience visualizations into SNSs can improve audience awareness and relieve concern about neglected unintended audiences. Likewise, Savage et al. (2014) propose a tool called "Hax" to help users target specific audiences. The tool presents multiple visualizations of the users' audiences based on shared interests, locations, and social connectivity between users and their audiences. We believe our findings can inspire SNS practitioners to design more personalized interfaces and user-friendly privacy settings to help users target the right audiences and thus reduce stress from online turbulence and neglected unintended audience concern.

In addition, our findings can help SNS practitioners to understand why users gradually reduce their disclosure of information and tend to be lurkers in SNSs. We find that users who experience turbulent moments have heightened concern about neglected unintended audiences, and that this concern increases lurking behavior in SNSs. As content sharing plays a key role in the success and sustainability of SNSs (Liu, Shao, & Fan, 2018), SNS practitioners should develop some remedial strategies for users to deal with turbulent moments encountered after they post content in SNSs. For example, SNS platforms can enable users to adjust the access of their audiences for certain posted content, or allow users to edit their content after posting.

Finally, we find that users' self-monitoring skills can moderate the relationship between online turbulence and neglected unintended audience concern, suggesting that users' personality traits impact their concerns after they encounter negative experiences. Therefore, SNS practitioners should design more personalized privacy strategies for users. Specifically, SNS platforms can offer individuals specific user guides according to their different personality traits. For instance, SNS platforms can provide more technical support on how to apply advanced privacy tools for users with high self-monitoring skills.

Appendix A. Measurement items

Constructs	Items	References
Neglected unintended audience concern (NAC)	NAC1. It bothers me when I post information to neglected unintended audiences on WeChat Moments. NAC2. I am concerned that neglected unintended audiences know too much about me through my posts on WeChat Moments.	Developed mainly based on Tufekci (2008); Vitak (2012), and Zlatolas, Welzer, Hericko, and Hölbl (2015)

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7.3. Limitations and future research

A few limitations of this study might constrain its generalizability and can be addressed by future research. First, given that SNSs are worldwide applications, only focusing on WeChat Moments as an example to investigate our research problems limit the generalizability of our findings. Future research should examine online turbulence and SNS-related stress on other platforms such as Facebook and Twitter. Cross-cultural studies are also encouraged to investigate the differences in users' perceptions of stress across different cultures. Second, the majority of our respondents were aged between 26 and 40. Although the sample demographics are consistent with the user profiles of SNSs nowadays, it is worth noting that people of different ages might have different perceptions of stress. Future research should investigate specific age-based user groups, such as adolescents, when studying stress in SNS use. Third, the data in our study were self-reported by the respondents, which limits our understanding of the users' actual stress in their daily use of SNSs. Future studies are encouraged to include secondary data to better represent the users' actual stress in the use of SNSs. Finally, our research model only explains about 10 % of the variance in lurking. Although this result is considered acceptable in behavioral IS research, future studies are encouraged to explore other factors that might impact lurking in SNSs to achieve higher predictive power.

8. Conclusion

The large and invisible audiences in SNS may lead users to experience turbulent encounters, which increasingly capture the attentions of scholars and practitioners. Building upon the transactional model of stress, our work uncovers how audience management strategies exert different impacts on online turbulence, which further leads to users' stressful responses including neglected unintended audience concern and lurking. Our research serves as a valuable guidance for SNS managers to design appropriate audience management settings and mitigate the negative impacts of online turbulence.

CRediT authorship contribution statement

Yun Zhang: Conceptualization, Methodology, Writing - original draft. **Si Shi:** Conceptualization, Validation, Writing - review & editing. **Shijun Guo:** Formal analysis. **Xiaogang Chen:** Supervision. **Zhirong Piao:** Resources, Data curation.

Declaration of Competing Interest

The authors report no declarations of interest.

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Constructs	Items	References
Online turbulence (OTB)	NAC3. I am concerned that neglected unintended audiences can access my profile on WeChat Moments while I think they cannot.	Litt and Hargittai (2014)
	NAC4. I am concerned that unintended audiences who have been restricted by privacy settings on WeChat Moments can learn about my post content through our mutual friends.	
	OTB1. I have felt embarrassed because of some particular content I posted on WeChat Moments.	
Lurking (LUK)	OTB2. Posting some particular content on WeChat Moments has led to trouble at my school or work.	Ortiz et al. (2018)
	OTB3. Posting some particular content on WeChat Moments has caused conflicts with my parents or friends.	
Network-based strategies (NBS)	LUK1. On WeChat Moments, I simply keep up with what is happening in others' lives.	Vitak (2015); Vitak et al. (2015)
	LUK2. I often browse others' posts on WeChat Moments, but I hardly ever post information.	
Content-based strategies (CBS)	NBS1. I usually refuse a friend request on WeChat Moments from someone I am not familiar with.	Vitak (2015); Vitak et al. (2015)
	NBS2. I seldom add someone as a friend on WeChat Moments when we meet in person for the first time.	
	CBS1. I only post information that is suitable for everyone.	
Platform-based strategies (PBS)	CBS2. I am cautious about posting photos of myself on WeChat Moments.	Vitak (2015); Vitak et al. (2015)
	CBS3. I am cautious about posting content about work on WeChat Moments.	
	PBS1. I share some information not meant for certain people by using privacy settings on WeChat Moments.	
	PBS2. I share some information meant only for certain people by using privacy settings on WeChat Moments.	
Multiple profile-based strategies (MBS)	PBS3. I restrict certain people by using time-limited privacy settings (e.g., posts viewable from the last 3 days or 6 months) on WeChat Moments.	Vitak (2015); Vitak et al. (2015)
	PBS4. I delete or hide some old posts on WeChat Moments.	
	MBS1. I have two or more WeChat Moments accounts to post different content.	
	MBS2. I often share information on other platforms (e.g., Sina Weibo) but seldom post on WeChat Moments	
Self-monitoring (SMT)	MBS3. I post some information that I do not want to appear on WeChat Moments on other platforms (e.g., Sina Weibo).	Lennox and Wolfe (1984)
	SMT1. I have found that I can adjust my behavior to meet the requirements of the situation I find myself in.	
	SMT2. Once I know what the situation calls for, it's easy for me to regulate my actions accordingly.	
	SMT3. In social situations, I have the ability to alter my behavior if I feel that something else is called for.	
Information sensitivity (IS)	SMT4. I have the ability to control the way I come across to people, depending on the impression I wish to give them.	Kehr, Kowatsch, Wentzel, and Fleisch (2015))
	IS1. How sensitive do you perceive most of the information you post on WeChat Moments?	
Network size (NS)	NS1. Approximately how many WeChat Moments friends do you have? (1) 100 or below; (2) 101–200; (3) 201–300; (4) 301–400; (5) 401–500; (6) 501–600; (7) 601 or above.	Lankton et al. (2017)

Note: The privacy settings are those available for WeChat Moments at the time of the survey.

Appendix B. The instrument development process

The items for measuring neglected unintended audience concern (NAC) were developed based on the procedure suggested by Moore and Benbasat (1991), including item creation, content validity check, and instrument testing.

First, we created items for NAC based on its definition and the literature. Specifically, five initial items measuring NAC were drawn from the literature related to unwanted audience concerns (e.g., Tufekci, 2008) and privacy concerns (e.g., Vitak, 2012; Zlatolas et al., 2015).

Second, we invited two IS experts and three doctoral students who are familiar with SNS research to conduct a content validity check of the initial items. We compiled the definition and relevant characteristics of NAC prior to conducting the content validity check, and then revised the items based on their comments.

Third, we conducted a pilot test with 66 participants to further assess the validity and reliability of the items (as shown in Table B1). The results indicated that the items had good reliability ($\alpha = 0.794$) (Chin, 1998). The Kaiser-Meyer-Olkin (KMO) value was 0.797 (> 0.7), and Bartlett's test of sphericity was significant ($p < 0.001$), suggesting that our measurement was suitable for factor analysis (Churchill, 1979). Then, we conducted a principal component analysis, and obtained the factor loading matrix using the maximum quadrature rotation of variance. NAC4 was deleted as it had loadings lower than 0.6 (Nunnally, 1978). Finally, we obtained four items with high validity and reliability to measure NAC (as shown in Appendix A).

Appendix C. Common method bias analysis

Construct	Indicator	Substantive Factor Loading (R1)	R1 ²	Method Factor Loading (R1)	R2 ²
Neglected Unintended Audience Concern (NAC)	NAC1	0.856**	0.733	-0.056	0.003
	NAC2	0.854**	0.729	-0.046	0.002
	NAC3	0.853**	0.728	-0.009	0.000
	NAC4	0.723**	0.523	0.109	0.012
	OTB1	0.660**	0.436	0.195**	0.038

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Construct	Indicator	Substantive Factor Loading (R1)	R1 ²	Method Factor Loading (R1)	R2 ²
Online Turbulence (OTB)	OTB2	0.919**	0.845	-0.030	0.001
	OTB3	0.936**	0.876	-0.158**	0.025
Lurking (LUK)	LUK1	0.843**	0.711	0.080*	0.006
	LUK2	0.878**	0.771	-0.083*	0.007
Network-Based Strategies (NBS)	NBS1	0.859**	0.738	-0.002	0.000
	NBS2	0.852**	0.726	0.002	0.000
Content-Based Strategies (CBS)	CBS2	0.856**	0.733	0.020	0.000
	CBS3	0.863**	0.745	-0.020	0.000
Platform-Based Strategies (PBS)	PBS1	0.857**	0.734	0.023	0.001
	PBS2	0.906**	0.821	-0.062	0.004
Multiple Profile-Based Strategies (MBS)	PBS4	0.696**	0.484	0.046	0.002
	MBS1	0.750**	0.563	-0.031	0.001
Self-Monitoring (SMT)	MBS2	0.876**	0.767	-0.064	0.004
	MBS3	0.791**	0.626	0.090*	0.008
Average	SMT1	0.764**	0.584	0.012	0.000
	SMT2	0.733**	0.537	-0.010	0.000
Average	SMT3	0.796**	0.634	0.004	0.000
	SMT4	0.742**	0.551	-0.007	0.000
Average		0.820	0.678	0.000	0.005

Note: * $p < 0.05$; ** $P < 0.01$.

References

- Aladwani, A. M., & Dwivedi, Y. K. (2018). Towards a theory of SocioCitizenry: Quality anticipation, trust configuration, and approved adaptation of governmental social media. *International Journal of Information Management*, 43, 261–272.
- Alalwan, A. A., Rana, N. P., Dwivedi, Y. K., & Algharabat, R. (2017). Social media in marketing: A review and analysis of the existing literature. *Telematics and Informatics*, 34(7), 1177–1190.
- Astrachan, C. B., Patel, V. K., & Wanzanried, G. (2014). A comparative study of CB-SEM and PLS-SEM for theory development in family firm research. *Journal of Family Business Strategy*, 5(1), 116–128.
- Ayyagari, R., Grover, V., & Purvis, R. (2011). Technostress: Technological antecedents and implications. *MIS Quarterly*, 35(4), 831–858.
- Bagozzi, R. P., & Yi, Y. (1991). Multitrait-multimethod matrices in consumer research. *The Journal of Consumer Research*, 17(4), 426–439.
- Bernstein, M. S., Bakshy, E., Burke, M., & Karrer, B. (2013). Quantifying the invisible audience in social networks. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 21–30).
- Bhalla, G., & Lin, L. Y. (1987). Cross-cultural marketing research: A discussion of equivalence issues and measurement strategies. *Psychology & Marketing*, 4(4), 275–285.
- Bohn, A., Buchta, C., Hornik, K., & Mair, P. (2014). Making friends and communicating on Facebook: Implications for the access to social capital. *Social Networks*, 37, 29–41.
- Boyd, D. M. (2008). *Taken out of context: American teen sociality in networked publics*. University of California, Berkeley.
- Brandimarte, L., Acquisti, A., & Loewenstein, G. (2013). Mispliced confidences: Privacy and the control paradox. *Social Psychological and Personality Science*, 4(3), 340–347.
- Brandtzaeg, P. B., Lüders, M., & Skjetne, J. H. (2010). Too many Facebook “friends”? Content sharing and sociability versus the need for privacy in social network sites. *Journal of Human-Computer Interaction*, 26(11–12), 1006–1030.
- Carmines, E. G., & Zeller, R. A. (2008). *Reliability and validity assessment*. Newbury Park, Calif: Sage.
- Chang, C.-W., & Heo, J. (2014). Visiting theories that predict college students’ self-disclosure on Facebook. *Computers in Human Behavior*, 30, 79–86.
- Chen, R., Wang, J., Herath, T., & Rao, H. R. (2011). An investigation of email processing from a risky decision making perspective. *Decision Support Systems*, 52(1), 73–81.
- Child, J. T., & Agyeman-Budu, E. A. (2010). Blogging privacy management rule development: The impact of self-monitoring skills, concern for appropriateness, and blogging frequency. *Computers in Human Behavior*, 26(5), 957–963.
- Child, J. T., & Petronio, S. (2011). Unpacking the paradoxes of privacy in CMC relationships: The challenges of blogging and relational communication on the internet. In K. B. Wright, & L. M. Webb (Eds.), *Computer-mediated communication in personal relationships* (pp. 21–40). New York: Peter Lang.
- Child, J. T., Petronio, S., Agyeman-Budu, E. A., & Westermann, D. A. (2011). Blog scrubbing: Exploring triggers that change privacy rules. *Computers in Human Behavior*, 27(5), 2017–2027.
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, 295(2), 295–336.
- Cho, M. K., & Sillars, A. (2015). Face threat and facework strategies when family (health) secrets are revealed: A comparison of South Korea and the United States. *The Journal of Communication*, 65, 535–557.
- Choden, K., Bagchi, K. K., Udo, G. J., & Kirs, P. J. (2019). The influence of individual values on internet use: A multinational study. *International Journal of Information Management*, 46, 198–209.
- Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16, 64–73.
- CNNIC. (2017). *Report on user behavior of social media in 2016*. <http://www.cnnic.cn/hlwzyj/hlwzxbg/sqbg/201712/P020180103485975797840.pdf>.
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. New York: Routledge Academic.
- Cooper, C. L., Dewe, P., & O’Driscoll, M. P. (2001). *Organizational stress: A review and critique of theory, research, and applications*. Thousand Oaks, Ca: Sage.
- Cronbach, L. J. (1971). Test validation. In R. L. Thorndike (Ed.), *Educational measurement* (2nd ed., pp. 443–507). Washington, DC: American Council on Education.
- Das, S., & Kramer, A. (2013). Self-censorship on Facebook. In *Proceedings of the 7th International Conference on Weblogs and Social Media* (pp. 120–127).
- De Wolf, R., & Pierson, J. (2014). Who’s my audience again? Understanding audience management strategies for designing privacy management technologies. *Telematics and Informatics*, 31(4), 607–616.
- De Wolf, R., Willaert, K., & Pierson, J. (2014). Managing privacy boundaries together: Exploring individual and group privacy management strategies in Facebook. *Computers in Human Behavior*, 35, 444–454.
- DeGroot, J. M., & Vik, T. A. (2017). “We were not prepared to tell people yet”: Confidentiality breaches and boundary turbulence on Facebook. *Computers in Human Behavior*, 70, 351–359.
- Dhir, A., Kaur, P., & Rajala, R. (2018). Why do young people tag photos on social networking sites? Explaining user intentions. *International Journal of Information Management*, 38(1), 117–127.
- Dunbar, R. I. (2012). Social cognition on the Internet: Testing constraints on social network size. *Philosophical Transactions of the Royal Society of London*, 367, 2192–2201.
- Dwivedi, Y. K., Kelly, G., Janssen, M., Rana, N. P., Slade, E. L., & Clement, M. (2018). Social media: The good, the bad, and the ugly. *Information Systems Frontiers*, 1–5.
- Dwivedi, Y. K., Rana, N. P., Tajvidi, M., Lal, B., Sahu, G. P., & Gupta, A. (2017). Exploring the role of social media in e-government: An analysis of emerging literature. *Proceedings of the 10th International Conference on Theory and Practice of Electronic Governance*, 97–106.
- Ellison, N. B., Vitak, J., Steinfield, C., Gray, R., & Lampe, C. (2011). Negotiating privacy concerns and social capital needs in a social media environment. In S. Trepte, & L. Reinecke (Eds.), *Privacy online: Perspectives on privacy and self-disclosure in the social web* (pp. 19–32). New York: Springer Heidelberg.
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 382–388.
- Garcia, A. C., Standlee, A. I., Bechhoff, J., & Cui, Y. (2009). Ethnographic approaches to the internet and computer-mediated communication. *Journal of Contemporary Ethnography*, 38(1), 52–84.
- Guo, Y., Lu, Z., Kuang, H., & Wang, C. (2020). Information avoidance behavior on social network sites: Information irrelevance, overload, and the moderating role of time pressure. *International Journal of Information Management*, Article 102067. In press.
- Hagendorff, T. (2018). Privacy literacy and its problems. *Journal of Information Ethics*, 27(2), 127–145.
- Hair, J. F., Black, W., Babin, B., & Anderson, R. (2010). *Multivariate data analysis: A global perspective*. Upper Saddle River: Prentice Hall.
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage Publications.
- Hall, J. A., & Pennington, N. (2013). Self-monitoring, honesty, and cue use on Facebook: The relationship with user extraversion and conscientiousness. *Computers in Human Behavior*, 29(4), 1556–1564.
- Hogan, B. (2010). The presentation of self in the age of social media: Distinguishing performances and exhibitions online. *Bulletin of Science, Technology & Society*, 30(6), 377–386.

- Hossain, M. A., Dwivedi, Y. K., Chan, C., Standing, C., & Olanrewaju, A. S. (2018). Sharing political content in online social media: A planned and unplanned behaviour approach. *Information Systems Frontiers*, 20(3), 485–501.
- Hsia, T.-L., Chiang, A.-J., Wu, J.-H., Teng, N. N., & Rubin, A. D. (2019). What drives E-Health usage? Integrated institutional forces and top management perspectives. *Computers in Human Behavior*, 97, 260–270.
- Jeong, Y., & Coyle, E. (2014). What are you worrying about on Facebook and Twitter? An empirical investigation of young social network site users' privacy perceptions and behaviors. *Journal of Interactive Advertising*, 14(2), 51–59.
- Jung, Y., Pawlowski, S. D., & Kim, H.-W. (2017). Exploring associations between young adults' Facebook use and psychological well-being: A goal hierarchy approach. *International Journal of Information Management*, 37(1), 1391–1404.
- Kehr, F., Kowatsch, T., Wentzel, D., & Fleisch, E. (2015). Blissfully ignorant: The effects of general privacy concerns, general institutional trust, and affect in the privacy calculus. *Information Systems Journal*, 25(6), 607–635.
- Kizgin, H., Dey, B. L., Dwivedi, Y. K., Hughes, L., Jamal, A., Jones, P., et al. (2019). The impact of social media on consumer acculturation: Current challenges, opportunities, and an agenda for research and practice. *International Journal of Information Management*, Article 102026.
- Kock, N. (2017). *WarpPLS user manual: Version 6.0. ScriptWarp systems: Laredo, TX, USA*.
- Koohikamali, M., French, A. M., & Kim, D. J. (2019). An investigation of a dynamic model of privacy trade-off in use of mobile social network applications: A longitudinal perspective. *Decision Support Systems*, 119, 46–59.
- Koohikamali, M., Peak, D. A., & Prybutok, V. R. (2017). Beyond self-disclosure: Disclosure of information about others in social network sites. *Computers in Human Behavior*, 69, 29–42.
- Kroonenberg, P. M. (1989). Latent variable path modeling with partial least squares. *Journal of the American Statistical Association*, 85(411), 909–911.
- Lankton, N. K., McKnight, D. H., & Tripp, J. F. (2017). Facebook privacy management strategies: A cluster analysis of user privacy behaviors. *Computers in Human Behavior*, 76, 149–163.
- Laumer, S., Maier, C., & Weinert, C. (2013). The negative side of ICT-enabled communication: The case of social interaction overload in online social networks. *Proceedings of the European Conference on Information Systems (ECIS)*.
- Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York: McGraw-Hill.
- Lemay, D. J., Doleck, T., & Bazalais, P. (2019). Do instrumental goal pursuit mediate feelings of envy on Facebook and happiness or subjective well-being? *Computers in Human Behavior*, 91, 186–191.
- Lennox, R. D., & Wolfe, R. N. (1984). Revision of the self-monitoring scale. *Journal of Personality and Social Psychology*, 46(6), 1349–1364.
- Leong, L. Y., Jaafar, N. I., & Ainin, S. (2018). The effects of Facebook browsing and usage intensity on impulse purchase in f-commerce. *Computers in Human Behavior*, 78, 160–173.
- Li, H., Sarathy, R., & Xu, H. (2011). The role of affect and cognition on online consumers' decision to disclose personal information to unfamiliar online vendors. *Decision Support Systems*, 51(3), 434–445.
- Li, Y., Gui, X., Chen, Y., Xu, H., & Kobsa, A. (2018). When SNS privacy settings become granular: Investigating users' choices, rationales, and influences on their social experience. In *Proceedings of the ACM on Human-Computer Interaction* (pp. 1–21).
- Liang, H., Saraf, N., Hu, Q., & Xue, Y. (2007). Assimilation of enterprise systems: The effect of institutional pressures and the mediating role of top management. *MIS Quarterly*, 59–87.
- Lin, J., Luo, Z., Cheng, X., & Li, L. (2019). Understanding the interplay of social commerce affordances and swift Guanxi: An empirical study. *Information & Management*, 56(2), 213–224.
- Litt, E. (2012). Knock, knock. Who's there? The imagined audience. *Journal of Broadcasting & Electronic Media*, 56(3), 330–345.
- Litt, E. (2013). Understanding social network site users' privacy tool use. *Computers in Human Behavior*, 29(4), 1649–1656.
- Litt, E., & Hargittai, E. (2014). A bumpy ride on the information superhighway: Exploring turbulence online. *Computers in Human Behavior*, 36, 520–529.
- Litt, E., & Hargittai, E. (2016a). The imagined audience on social network sites. *Social Media + Society*, 2(1), 1–12.
- Litt, E., & Hargittai, E. (2016b). "Just cast the net, and hopefully the right fish swim into it": Audience management on social network sites. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work and Social Computing* (pp. 1488–1500).
- Litt, E., Spottswood, E., Birmholtz, J., Hancock, J. T., Smith, M. E., & Reynolds, L. (2014). Awkward encounters of an "other" kind: Collective self-presentation and face threat on Facebook. In *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work and Social Computing* (pp. 449–460).
- Liu, Z., & Wang, X. (2018). How to regulate individuals' privacy boundaries on social network sites: A cross-cultural comparison. *Information & Management*, 55(8), 1005–1023.
- Liu, Q., Shao, Z., & Fan, W. (2018). The impact of users' sense of belonging on social media habit formation: Empirical evidence from social networking and microblogging websites in China. *International Journal of Information Management*, 43, 209–223.
- Liu, Y., Gummadi, K. P., Krishnamurthy, B., & Mislove, A. (2011). Analyzing Facebook privacy settings: User expectations vs. reality. In *Proceedings of the 2011 ACM SIGCOMM Conference on Internet Measurement* (pp. 61–70).
- Long, N. H., & Jung, J. J. (2015). Privacy-aware framework for matching online social identities in multiple social networking services. *Cybernetics and Systems*, 46(1–2), 69–83.
- Lugman, A., Cao, X., Ali, A., Masood, A., & Yu, L. (2017). Empirical investigation of Facebook discontinues usage intentions based on SOR paradigm. *Computers in Human Behavior*, 70, 544–555.
- Maier, C., Laumer, S., Wirth, J., & Weitzel, T. (2019). Technostress and the hierarchical levels of personality: A two-wave study with multiple data samples. *European Journal of Information Systems*, 28(5), 496–522.
- Maier, C., Laumer, S., Eckhardt, A., & Weitzel, T. (2015). Giving too much social support: Social overload on social networking sites. *European Journal of Information Systems*, 24(5), 447–464.
- Maier, C., Laumer, S., Weinert, C., & Weitzel, T. (2015). The effects of technostress and switching stress on discontinued use of social networking services: A study of Facebook use. *Information Systems Journal*, 25(3), 275–308.
- Marriott, H. R., Williams, M. D., & Dwivedi, Y. K. (2017). Risk, privacy and security concerns in digital retail. *The Marketing Review*, 17(3), 337–365.
- Marwick, A. E., & Boyd, D. (2011). I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media & Society*, 13(1), 114–133.
- McLaren, R. M., & Steuber, K. R. (2012). Emotions, communicative responses, and relational consequences of boundary turbulence. *Journal of Social and Personal Relationships*, 30(5), 606–626.
- Metzger, M. J. (2007). Communication privacy management in electronic commerce. *Journal of Computer-Mediated Communication*, 12(2), 335–361.
- Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, 2(3), 192–222.
- Nam, T. (2018). Untangling the relationship between surveillance concerns and acceptability. *International Journal of Information Management*, 38(1), 262–269.
- Nissenbaum, H. (2009). *Privacy in context: Technology, policy, and the integrity of social life*. Stanford University Press.
- Nosko, A., Wood, E., & Molema, S. (2010). All about me: Disclosure in online social networking profiles: The case of Facebook. *Computers in Human Behavior*, 26(3), 406–418.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York, NY: McGraw-Hill.
- Oolo, E., & Siibak, A. (2013). Performing for one's imagined audience: Social steganography and other privacy strategies of Estonian teens on networked publics. *Cyberpsychology Journal of Psychosocial Research on Cyberspace*, 7(1), 193–212.
- Ortiz, J., Chih, W.-H., & Tsai, F.-S. (2018). Information privacy, consumer alienation, and lurking behavior in social networking sites. *Computers in Human Behavior*, 80, 143–157.
- Osatuyi, B. (2015). Is lurking an anxiety-masking strategy on social media sites? The effects of lurking and computer anxiety on explaining information privacy concern on social media platforms. *Computers in Human Behavior*, 49, 324–332.
- Patil, S., Norcie, G., Kapadia, A., & Lee, A. J. (2012). Reasons, rewards, regrets: Privacy considerations in location sharing as an interactive practice. In *Proceedings of the 8th Symposium on Usable Privacy and Security* (p. 5).
- Petronio, S. (2002). *Boundaries of privacy: Dialectics of disclosure*. Albany, NY: State University of New York Press.
- Petronio, S. (2013). Brief status report on communication privacy management theory. *Journal of Family Communication*, 13(1), 6–14.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, 88(5), 879–903.
- Pornsakulvanich, V. (2018). Excessive use of Facebook: The influence of self-monitoring and Facebook usage on social support. *Kasetsart Journal of Social Sciences*, 39, 116–121.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891.
- Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., & Tu, Q. (2008). The consequences of technostress for end users in organizations: Conceptual development and empirical validation. *Information Systems Research*, 19(4), 417–433.
- Savage, S., Forbes, A., Toxtli, C., McKenzie, G., Desai, S., & Höllerer, T. (2014). Visualizing targeted audiences. In *Proceedings of the 11th International Conference on the Design of Cooperative Systems* (pp. 17–34).
- Schwarz, A., Rizzuto, T., Carraher-Wolverton, C., Roldán, J. L., & Barrera-Barrera, R. (2017). Examining the impact and detection of the urban legend of common method bias. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*, 48(1), 93–119.
- Semaan, B., Faucett, H., Robertson, S., Maruyama, M., & Douglas, S. (2015). Navigating imagined audiences: Motivations for participating in the online public sphere. In *Proceedings of Computer Supported Cooperative Work* (pp. 1158–1169).
- Shi, S., Cao, Y., Chen, Y., & Chow, W. S. (2019). How social media brand pages contribute to functional conflict: The central role of commitment. *International Journal of Information Management*, 45, 95–106.
- Shi, S., Chen, Y., & Chow, W. S. (2016). Key values driving continued interaction on brand pages in social media: An examination across genders. *Computers in Human Behavior*, 62, 578–589.
- Shiau, W.-L., Dwivedi, Y. K., & Yang, H. S. (2017). Co-citation and cluster analyses of extant literature on social networks. *International Journal of Information Management*, 37(5), 390–399.
- Shiau, W. L., Dwivedi, Y. K., & Lai, H. H. (2018). Examining the core knowledge on Facebook. *International Journal of Information Management*, 43, 52–63.
- Sleeper, M., Cranshaw, J., Kelley, P. G., Ur, B., Acquisti, A., Cranor, L. F., et al. (2013). I read my Twitter the next morning and was astonished: A conversational perspective on Twitter regrets. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 3277–3286).

- Smith, S. A., & Brunner, S. R. (2017). To reveal or conceal: Using communication privacy management theory to understand disclosures in the workplace. *Management Communication Quarterly*, 31(3), 429–446.
- Smith, H. J., Dinev, T., & Xu, H. (2011). Information privacy research: An interdisciplinary review. *MIS Quarterly*, 35(4), 989–1016.
- Snyder, M. (1974). Self-monitoring of expressive behavior. *Journal of Personality and Social Psychology*, 30(4), 526–537.
- Srivastava, S. C., Chandra, S., & Shirish, A. (2015). Technostress creators and job outcomes: Theorising the moderating influence of personality traits. *Information Systems Journal*, 25(4), 355–401.
- Steuber, K. R., & McLaren, R. M. (2015). Privacy recalibration in personal relationships: Rule usage before and after an incident of privacy turbulence. *Communication Quarterly*, 63(3), 345–364.
- Stutzman, F., Gross, R., & Acquisti, A. (2013). Silent listeners: The evolution of privacy and disclosure on Facebook. *The Journal of Privacy and Confidentiality*, 4(2), 7–41.
- Sun, N., Rau, P. P. L., & Ma, L. (2014). Understanding lurkers in online communities: A literature review. *Computers in Human Behavior*, 38, 110–117.
- Taddicken, M. (2014). The “privacy paradox” in the social web: The impact of privacy concerns, individual characteristics, and the perceived social relevance on different forms of self-disclosure. *Journal of Computer-Mediated Communication*, 19(2), 248–273.
- Tang, D., Chou, T., Drucker, N., Robertson, A., & Hancock, J. T. (2011). A tale of two languages: Strategic self-disclosure via language selection on Facebook. In *Proceedings of the ACM 2011 Conference on Computer Supported Cooperative Work* (pp. 387–390).
- Tarafdar, M., Tu, Q., & Ragu-Nathan, T. S. (2010). Impact of technostress on end-user satisfaction and performance. *Journal of Management Information Systems*, 27(3), 303–334.
- Tarafdar, M., Cooper, C. L., & Stich, J. F. (2019). The technostress trifecta—techno eustress, techno distress and design: Theoretical directions and an agenda for research. *Information Systems Journal*, 29(1), 6–42.
- Tarafdar, M., Maier, C., Laumer, S., & Weitzel, T. (2019). Explaining the link between technostress and technology addiction for social networking sites: A study of distraction as a coping behavior. *Information Systems Journal*, 30(1), 96–124.
- Thorson, A. R. (2015). Investigating adult children’s experiences with privacy turbulence following the discovery of parental infidelity. *Journal of Family Communication*, 15, 41–57.
- Trepte, S. (2015). Social media, privacy, and self-disclosure: The turbulence caused by social media’s affordances. *Social Media + Society*, 1(1), 1–2.
- Tufekci, Z. (2008). Can you see me now? Audience and disclosure regulation in online social network sites. *Bulletin of Science, Technology & Society*, 28(1), 20–36.
- Turnley, W. H., & Bolino, M. C. (2001). Achieving desired images while avoiding undesired images: Exploring the role of self-monitoring in impression management. *The Journal of Applied Psychology*, 86(2), 351–360.
- Vitak, J. (2012). The impact of context collapse and privacy on social network site disclosures. *Journal of Broadcasting & Electronic Media*, 56(4), 451–470.
- Vitak, J. (2015). Balancing privacy concerns and impression management strategies on Facebook. In *Proceedings of Symposium on Usable Privacy and Security* (pp. 1–6).
- Vitak, J., & Kim, J. (2014). You can’t block people offline: Examining how Facebook’s affordances shape the disclosure process. In *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work and Social Computing* (pp. 461–474).
- Vitak, J., Blasiola, S., Patil, S., & Litt, E. (2015). Balancing audience and privacy tensions on social network sites: Strategies of highly engaged users. *International Journal of Communication*, 9, 1485–1504.
- Wamuyu, P. K. (2018). Leveraging Web 2.0 technologies to foster collective civic environmental initiatives among low-income urban communities. *Computers in Human Behavior*, 85, 1–14.
- Wang, Y., Norcie, G., Komanduri, S., Acquisti, A., Leon, P. G., & Cranor, L. F. (2011). I regretted the minute I pressed share: A qualitative study of regrets on Facebook. In *Proceedings of the 7th Symposium on Usable Privacy and Security* (pp. 1–13).
- Yang, H., & Liu, H. (2014). Prior negative experience of online disclosure, privacy concerns, and regulatory support in Chinese social media. *Chinese Journal of Communication*, 7(1), 40–59.
- Young, A. L., & Quan-Haase, A. (2009). Information revelation and internet privacy concerns on social network sites: A case study of Facebook. In *Proceedings of the 4th International Conference on Communities and Technologies* (pp. 265–274).
- Zlatolas, L. N., Welzer, T., Heričko, M., & Hölbl, M. (2015). Privacy antecedents for SNS self-disclosure: The case of Facebook. *Computers in Human Behavior*, 45, 158–167.