ORIGINAL ARTICLE

Consciousness and Self-Regulation in Mobile Communication

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The everyday use of mobile devices is sometimes performed in a minimally conscious manner (e.g., automaticity, habits, impulses), whereas other times it is performed in a highly conscious manner (e.g., immersion, presence, absorption). In Study 1, we surveyed individuals (n = 250) to evaluate the seemingly oppositional relationship between automatic (less conscious) and immersive (more conscious) tendencies toward texting. Despite their standard separation, confirmatory factor analyses revealed that automaticity and immersion were actually positively related independent of usage frequency. In Study 2 (n = 526), these consciousness tendencies were related to select facets of trait self-control and mindfulness. Together, these studies underline the importance of media cognition in combination with personality factors for understanding the psychology of mobile device use.

The ways in which people interact with media are often linked to perceptions of consciousness. As an emerging tool becomes situated within everyday life, people sometimes come to use it in a natural and intuitive manner (i.e., less conscious) and other times in an engrossing and deliberative manner (i.e., more conscious). Along with media more generally, mobile media are commonly used in both more and less conscious modes (Bayer & Campbell, 2012; Farman, 2012; Humphreys, Von Pape, & Karnowski, 2013; Rosenberger, 2012). Our lens on the quotidian practices of mobile communication can be distinguished from research on the "addiction" and "disorders" of select phone users (e.g., Bianchi & Phillips, 2005; Choliz, 2010; Rosen, Whaling, Rab, Carrier, & Cheever, 2013; Takao, Takahashi, & Kitamura, 2009). The present article considers how the interplay of two forms of media cognition—deep

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and shallow consciousness—is critical to how all people self-regulate their mobile communication behavior.

Clarifying the cognitive processes at work during media behavior necessitates that we first acknowledge that consciousness is not binary; rather, consciousness exists along a spectrum (Moors & De Houwer, 2006). Both more and less conscious processes have the potential to serve a variety of unique purposes that can both advance and limit the underlying desires and goals of media users (Baumeister, Masicampo, & Vohs, 2011; Saling & Phillips, 2007). The decreased attention of habits (low behavioral consciousness) allows media behaviors to be performed with less mental work (LaRose, 2010), whereas the increased attention of flow (high behavioral consciousness) allows media behaviors to be performed with greater enjoyment (Tokunaga, 2013). In either case, the underlying learned process represents a basic form of media cognition that can occur for all media users to varying degrees.

Accordingly, consciousness has received attention across many areas of media psychology, communication, and information research at both the low end (e.g., LaRose, 2010; LaRose, Lin, & Eastin, 2003; Limayem, Hirt, & Cheung, 2007) and high end (e.g., Busselle & Bilandzic, 2009; Green, Brock, & Kaufman, 2004; Jennett et al., 2008). Although the use of habits and impulses in relation to media is fairly normative for less conscious side, the concepts describing "more conscious" media use are quite diverse, including flow, engagement, transportation, presence, embodiment, absorption, and immersion. Notably, these hyperconscious terms are often based on particular media and outcomes of interest. As a result, they tend to involve a degree of theoretical and contextual specificity that limits their utility across other types of media use. For instance, transportation is typically associated with experience of a virtual world (Green et al., 2004), while flow is associated with pleasure and reaching a peak of performance (Weber, Tamborini, Westcott-Baker, & Kantor, 2009). Nevertheless, the various concepts have a common cognitive underpinning. They all assume increased concentration of attention to a certain media behavior, often at the expense of attending to time passage and the surrounding environment.

Both forms of media cognition thereby represent established foci of inquiry in communication research, yet the two sides are seldom considered together. The current research aims to examine their mutual relationship in the context of mobile text messaging, along with their relevance to the broader concept of dispositional self-regulation. As such, we move past the question of whether the texting is either "conscious" or "unconscious" overall. Instead, our question is whether the person is more conscious or less conscious—or both—in his or her orientation toward texting. First, we assess how automatic texting tendencies and immersive texting tendencies are related to each other (Study 1, $n = 250$). Second, we evaluate how the resulting model of texting consciousness relates to global self-regulation at the personality level (Study 2, $n = 526$). Combined, these studies open up new questions concerning how automatic, immersive, and self-regulatory processes operate with and against one another during the daily practice of mobile communication.

Automaticity of mobile communication

A phone buzzes on a crowded bus; without thinking, a handful of people reach for their mobile devices. The ability to engage in such thoughtless checking illustrates the use of mobile media on the *less conscious* end of the spectrum. The transition to less conscious, and therefore more efficient, processing is a neurological one in which different regions of the brain become more active (LaRose, 2010; Saling & Phillips, 2007). This cognitive rerouting also marks the detour from simple frequency of engaging in an activity to automaticity. The psychological concept of automaticity (Bargh & Ferguson, 2000; Bargh & Morsella, 2010; Orbell & Verplanken, 2010) represents a more general framework for less conscious processes, including both habits and impulses. Automaticity is classically defined as a process incorporating four dimensions of a specific behavior: lack of attention, lack of awareness, lack of intention, and lack of control. These components do not always covary, although most research assumes they do (LaRose, 2010).

Alhough rarely disentangled in dual system frameworks, there are a variety of automatic processes (Evans, 2008). Habits are one type of learned automaticity that depends on the activation of a cue, and may or may not be goal driven (also "habit automaticity"; see Orbell & Verplanken, 2010; Wood, Labrecque, Lin, & Runger, 2014). Following the cue, a response or pattern of responses proceeds with minimal consciousness. In contrast, impulses are a form of automaticity that relate to global, short-term motivations (e.g., thirst, hunger, sex) and encompass an affective component (also "affective temptations"; see Hofmann, Baumeister, Forster, & Vohs, 2012; Moors & De Houwer, 2006; Quinn, Pascoe, Wood, & Neal, 2010). As a result, Hofmann, Friese, and Strack (2009) state that habits should be viewed as "cold" or less emotionally charged behaviors, whereas impulses can be understood as "hot" or more emotionally charged behaviors. Nonetheless, habits can in fact be activated by emotional cues as well as reinforced by emotional rewards (LaRose, 2010; Wood, Quinn, & Kashy, 2002), and some recent theoretical work includes an "impulse" as a dimension of the habitual process (Gardner, 2014). The emotional side of habits is especially evident in the context of media behavior due to its use for mood management (LaRose et al., 2003; Tokunaga, 2013). The above points reveal the complexity in delineating the psychological processes associated with mobile communication.

Separate research shows that communicating over a mobile device can be both habitual (i.e., cue-based, cold) and impulsive (i.e., motivated, hot), but no work so far has explicitly integrated these views on automatic media behavior (Atchley & Warden, 2012; Bayer & Campbell, 2012; Billieux, Van der Linden, & Rochat, 2008; Joël Billieux, Gay, Rochat, & Van der Linden, 2010; Oulasvirta, Rattenbury, Ma, & Raita, 2012). In either case, once behavioral processes have moved into the realm of automaticity, the act of performing the behavior is not a conscious decision each time. Some of the time this act may remain conscious, but other times it may occur with little reflection at all. Measures of behavioral frequency risk incorrectly confounding amount of use with unconscious mental processes (Gardner, 2012). Infrequent behaviors may be highly automatic (such as CPR performed by an experienced paramedic)

while frequent behaviors (such as surgery performed by an experienced surgeon) may remain highly conscious. There is also individual variability in the temporal development and maximum automaticity of a specific behavior (Lally, Van Jaarsveld, Potts, & Wardle, 2010). Thus, frequency and automaticity are often correlated, but may relate to unique processes and outcomes of interest (Gardner, 2012; Verplanken, 2006).

Immersion in mobile communication

A person screams on a crowded bus; without noticing, a handful of people stare unfazed at their mobile devices. The capacity to engage in mobile device activities with such concentration is indicative of the *more conscious* end of the spectrum. The psychological process of immersion refers to "being involved, absorbed, engaged, and engrossed" in media and is associated with the broader construct of presence, or social presence (Lombard & Jones, 2013, p. 34). In other words, immersion has maximal behavioral attention and awareness. Immersion also encompasses a lack of temporal awareness and spatial awareness (Agarwal & Karahanna, 2000; Humphreys et al., 2013; Jennett et al., 2008; Lombard & Ditton, 1997). Because of this, immersed individuals are lost in their own worlds and unable to step back from them (Kross & Ayduk, 2011). Immersion here pertains to the individual's awareness of the behavioral operation, and thus represents a basic process that is comparable to automaticity.

Although little social science research is available on the psychological mechanisms of mobile-mediated immersion, a number of scholars have reported observations and advanced related concepts that help lay a foundation on which this study builds (Fortunati, 2002; Rettie, 2005; Turkle, 2006, 2012). Gergen (2002) posits the notion of "absent presence" as a way of understanding how mobile and other forms of mediated communication give rise to distinctive challenges associated with straddling both virtual and physical environments. This theoretical work argues that dialogic or two-way communication channels can be more immersive than monologic media because of their interactive nature. Unlike users of monologic media, users of dialogic media are mutually engaged in the coconstruction of a virtual social space as they actively attend to one another. Similarly, Spagnolli and Gamberini (2007) find that social presence is developed in text message communication through a shared sense of availability, assumptions, and understandings. More recently, drawing from video-recorded observations of mobile phone behavior, Licoppe and Figeac (2015) advance the similar notion of "absorption," referring to ways that individuals become engrossed in their mobile-mediated interactions while also navigating the copresent environment.

A related line of inquiry has developed from the perspective of embodiment. Rettie (2005), and later Rosenberger (2011) and Farman (2012), theorized that unique affordances of mobile communication technology allow users to embody multiple dimensions of space and time through mediated interaction. Rather than argue that the virtual and the physical are competing with one another for the user's attention, Rettie and Farman asserted that these different realms are actually complementary in the sense that their boundaries are mutable. The virtual and the physical, together,

comprise the larger social domain in which an individual is situated. As Farman noted, certain mobile practices, such as the use of locative applications, can actually help one interface with the physical environment, rather than simply removing attention from it. Nevertheless, experiencing the world through mobile technology may also lead to insularity through "cocooning" in public spaces (Ito, Okabe, & Anderson, 2010). Finally, Humphreys et al. (2013) identified "immersive" and "extractive" mobile Internet use — the former referring to a sustained online experience and the latter more targeted usage. Altogether, the extant literature provides clear evidence for both minimally conscious processes (i.e., automaticity) and highly conscious processes (i.e., immersion) in mobile communication.

Automatic *and* immersive

Recognition that mobile communication can be both automatic and immersive calls for an integrative approach to media cognition. Despite rich literatures describing how one or the other type of cognition relates to media use, there is little empirical evaluation of how these mechanisms relate to one another within individuals. The apparent opposition of these two processes, though, raises questions concerning how and when they operate — in particular, whether they can operate in concert or in conflict. At first, automaticity and immersion would seem to be inversely related, given that they appear to lie on opposite ends of one conceptual continuum. Sometimes, however, processes that appear to be opposed can actually function hand-in-hand. A recent study found that flow (a type of immersion) in Internet gaming was indirectly and positively related to habit formation (a type of automaticity), via deficient self-regulation as a mediator (Tokunaga, 2013). This finding illustrates the potential of connecting more immersive and more automatic processes within empirical models of media behaviors.

In their review of consciousness, Baumeister et al. (2011) concluded that, "most and possibly all human behavior emerges from a combination of conscious and unconscious processes (p. 354)." The questions for researchers studying media cognition, then, concern when and how such combinations occur. The regularity and relative complexity of smartphone behavior suggest that both automatic and immersive processes may be recruited in quick succession. Drawing from Kihlstrom (1987) and Heidegger (1962); Farman (2012) emphasized that mobile behaviors include a "constant interplay between the two realms" of unconsciousness and consciousness. Similarly, Humphreys et al.'s (2013) findings showed that extractive and immersive mobile Internet uses are not necessarily in opposition one another; in fact, they can be complementary. Participants in their study reported instances of accessing the mobile Internet for a specific, extractive purpose — only to lead into a more consuming, immersive experience. Given such past work, there is a foundation for probing whether less conscious (i.e., automatic) and more conscious (i.e., immersive) cognitive processes supporting mobile practices occupy opposite ends of a shared spectrum. In Study 1, we put forth a research question regarding this link in the context of mobile text messaging.

RQ1: Are automatic and immersive orientations toward texting independent?

Behavioral consciousness and self-regulation

In addition to examining media cognition factors, it is important to consider that texting is but one example of a range of daily behaviors that require self-regulatory capacity. The inclusive term "self-regulation" reflects all "goal-directed behavior, typically within at least a minimum temporal perspective" (Hofmann, Schmeichel, & Baddeley, 2012, p. 174). While we could focus on the implications of consciousness for exemplars (such as distracted driving), we choose instead to take a broader view of the implications of these constructs for everyday life. Texting affords a constant chance to interact with others. This "ambient accessibility" allows an individual to feel connected to others beyond the limits of the actual conversation (Ito & Okabe, 2005). Of course, it also allows individuals to act on faraway interpersonal desires in spur-of-the-moment bursts (Licoppe, 2004), and this utility becomes especially relevant in the presence of competing desires or goals. It is quite challenging, not to mention socially dismissive, to text a cousin in Colorado and concurrently chat with a coffee shop barista.

The basic implication is that in order to advance a specific goal (e.g., maintaining a relationship, ordering a coffee), sometimes individuals must do so in the place of other desires or social expectations (Hofmann & Van Dillen, 2012). Usually, multiple desires can be fulfilled in a successful manner through time management (e.g., waiting to text until after signing the check). Over time, however, the management and mismanagement of these short-term options has implications for the success of long-term goals. Recent research using experience sampling found social contact and media goals to be among the most frequent desires—and among the most frequent self-control failures (Hofmann, Vohs, & Baumeister, 2012). The constant presence of mobile devices means that there is little to no environmental control on the behavior; texting does not regulate itself like other media desires that are constrained to the home. Hence, the daily performance of texting requires self-regulation.

For many decades, the idea of consciousness has been tied not only to how we use media, but also to how we self-regulate our short-term and long-term desires. Typically, scholars have thought that greater consciousness, or executive supervision (i.e., self-control), is required to override the temptations, or impulses, of short-term rewards—in the prospect of long-term rewards (Fujita, 2011). Effortful inhibition of impulses allows individuals to focus on temporally far-off desires (Baumeister et al., 2011). Further, elevated attention on a task can drown out the voices of proximal temptations due to raised cognitive load (Hofmann, Schmeichel, et al., 2012; Hofmann, Vohs, et al., 2012; Van Dillen, Papies, & Hofmann, 2013). A number of dual-system theories of self-regulation have supported the separation between fast-paced unconscious processes and slow-paced conscious processes (Evans, 2008; Hofmann et al., 2009; Wood et al., 2014). The value of "slow" consciousness can be seen in the rising trend of research on the benefits of mindfulness for self-regulation (e.g., Feldman, Greeson, Renna, & Robbins-Monteith, 2011). Specifically, mindfulness stresses the central importance of present-moment attention and awareness (Kabat-Zinn, 1994, 2003). In a wider sense, it is characterized as a multi-dimensional

construct that encapsulates not only awareness of present-moment thoughts, feelings, and experiences, but also whether one is accepting, nonjudgmental, and nonreactive in dealing with them (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Mindfulness has even been found to moderate counter-intentional ("bad") habits (Chatzisarantis & Hagger, 2007). Trait mindfulness thus embodies a sort of dispositional counteragent to automatic orientations with specific contexts or objects. At the same time, a growing body of research suggests that long-term goals are also guided through unconscious routes (Dijksterhuis & Aarts, 2010). Certain strategies for self-control can work through unconscious processes, and sometimes do so more effectively than conscious ones (e.g., implementation intentions; Fujita, 2011). Overall, the level of consciousness—both low and high—is essential to the enactment of self-regulation, but classic theory emphasizes more effortful mechanisms.

In spite of the immense role of consciousness in both media-specific orientations and global self-regulation, research on these processes tends to lack direct comparisons. Mobile media, in particular, warrant investigation due to their distinctive nature that blurs situation and disposition. Mobile devices allow for "context-independence" (LaRose, 2010), defying the situational assumption of media use. Therefore, there are two simultaneous processes that demand attention in the self-regulation of texting desires: media cognition (i.e., automaticity, immersion, etc.) and trait self-regulation. On the trait side, the somewhat stable tendencies of an individual (i.e., trait mindfulness, trait self-control) may sway how that person acts in a particular scenario, such as texting. These personality processes will affect what desires the individual attunes to and how the desires are carried out. Within the media context, however, the individual may behave in a certain, conditioned manner independent of the overall personality processes. Nevertheless, self-control and mindfulness frameworks have stressed conscious overrides of behavior, and both have been inversely related to texting behaviors in previous research (Billieux et al., 2008; Feldman et al., 2011). Automaticity and immersion, for their parts, are both perceived to be difficult to regulate and at times disruptive to other goals (Tokunaga, 2013). In Study 2, we predicted that on average greater automaticity and immersion would be inversely related to facets of trait self-control (H1) and trait mindfulness (H2).

> H1a: Texting automaticity will be negatively related to trait self-control.
> H1b: Texting immersion will be negatively related to trait self-control.
> H2a: Texting automaticity will be negatively related to trait mindfulness.
> H2b: Texting immersion will be negatively related to trait mindfulness.

[Correction made after online publication May 13, 2015: Trait labeling (H1 and H2) has been revised.]

Study 1

In Study 1, we tested whether automatic orientations and immersive orientations toward texting were related to one another. We focus on texting because it is the most common form of mobile communication for young people (Lenhart, Ling, Campbell, & Purcell, 2010), and because previous research has linked texting to

behavioral consciousness. The study compares the two by surveying texters on their self-perceptions of cumulative texting patterns. Participants were asked about the separate contexts of starting, sending, checking, and reading text messages throughout the study. Based on the nascent landscape of combined consciousness research, the comparison was framed as a research question (RQ1). Using confirmatory factor analyses (CFAs), we test two hypothesized models that isolate unique dimensions of texting tendencies, with the goal of specifying a fitted measurement model that can be validated in Study 2.

Method

Participants and procedure

A total of 1,100 participants completed online surveys (about 10 minutes in duration) in late 2012. The sample was composed of two convenience sub-samples: undergraduate students from communication studies and psychology classes ($n = 350$) and workers from Amazon Mechanical Turk in the United States ($n = 750$). In recognition of their participation, students received partial course credit and MTurk workers received 80 cents. Participants were required to be mobile phone users and texting (SMS) users to participate in the complete survey of psychological processes. The basic cognitive processes of automaticity and immersion were imperfectly treated as universal given their neurological foundation (Saling & Phillips, 2007). As student convenience samples have very limited generalizability, the large online sample from Mechanical Turk was utilized to provide a more diverse sample for this foundational study (Buhrmester, Kwang, & Gosling, 2011). This is particularly relevant because previous work has linked texting usage to age and life phase (Ling, Bertel, & Sundsoy, 2011), and studies concerning the psychological processes of texting have largely been restricted to undergraduates for credit (Feldman et al., 2011; Walsh, White, Cox, & Young, 2011). After removing individuals who missed simple attention checks (25%), a sub-sample of 250 respondents was randomly selected for Study 1 to test the hypothesized measurement models (RQ1), and a second sub-sample of 526 was randomly selected and set aside to provide the data for Study 2. Such randomized dataset splitting is recommended in structural equation modeling practice (Kline, 2011; van Prooijen & van Der Kloot, 2001), and allows us to test the fit of new measurement models in Study 1, as well as subsequently evaluate the validity of the final model (on a separate subsample) in Study 2. The subsample for Study 1 was 29.3% college participants (vs. MTurk participants), 45.8% male (vs. female), and on average 30.2 years old.

Texting. Participants were instructed to include mobile instant messaging apps (e.g., WhatsApp, Kik, Facebook Messenger), as well as traditional SMS messaging, in their estimates of "texting" behavior. Because the act of texting includes a number of sub-behaviors that vary in complexity, we also sought to divide it into four components. Building on previous research that has differentiated sending and reading texts (Nemme & White, 2010), texting was operationalized in four unique ways: starting texts, sending texts, checking texts, and reading texts. Therefore, for the key study

constructs of automaticity and immersion, each participant completed separate items for each of four phases.

Before answering any of the actual questions, participants were required to match correctly each behavior to a specified definition. This was done so that we could be sure that all participants understood the behaviors in the same way. Starting texts was defined as "reaching for your phone and opening the texting application." Sending texts was defined as "thinking about what you want to say, typing the message, and forwarding it to the person of your choice." Checking for texts was defined as "looking for any new text message notifications on your screen saver, home screen, or texting application." Reading texts was defined as "opening and understanding messages that have been sent to you."

Texting frequency and affect. Texting frequency was collected for each of the four texting subbehaviors, using a 9-point interval scale from previous research that holds advantages over alternative self-report methods (Boase & Ling, 2013). The scale ranges from (1) *Never* to (9) *About every 10 minutes*. Texting affect, or the degree of affective temptation, encompassed 4 items adapted from previous research (Quinn et al., 2010). The 4 items were: "Right now, reading a text would make me feel good," "Reading a text makes me feel better, even if it is only for a moment," "Right now, sending a text would make me feel good," "Sending a text makes me feel better, even if it is only for a moment." Participants responded to the texting identity and affect questions on a scale ranging from (1) *Not at all* to (7) *Just like me*. Separate tests confirmed that both frequency (Cronbach's $\alpha = 0.96$) and affect (Cronbach's $\alpha = 0.92$) items had good reliability. All items for each construct were averaged to form an index.

Texting automaticity. Four item scales of automaticity were used to measure automaticity across the four different texting subbehaviors (16 items total). Automaticity measures were based on the experimentally validated Self-Report Habit Index (Verplanken, 2010; Verplanken & Orbell, 2003), and have been used in the context of texting before (Bayer & Campbell, 2012). Owing to the focus on measurement in Study 1, specific precautions were taken to enhance the validity of underlying constructs based on automaticity theory (see also LaRose, 2010). First, the automaticity items were modified to exclude frequency-dependent items, and the question stem was changed from "Behavior X is something … " to "When I Behavior X … " to remove implicit assumptions of frequency. Since the data were collected, Gardner, Abraham, Lally, & de Bruijn (2012) validated a 4-item frequency-independent version of the SRHI — the Self-Report Behavioral Automaticity Index (SRBAI) — that parallels these measurement considerations. Second, a "lack of intention" item was added so that the measure included all four dimensions of automaticity, in accordance with LaRose's (2010) suggestions for the future study of media habits. Third, the format of the measure was altered to remove the Likert-style range of agreement (see Pasek & Krosnick, 2010), and replaced with a more appropriate range of behavioral extent: (1) *Not at all*, (2) *Slightly*, (3) *Somewhat*, (4) *Mostly*, and (5) *Completely*. The final 4-item measures for automaticity can be seen in Table 1.

Table 1 Auto-Immersion Scale

When I start/send/check/read texts …	Dimension	
… I do it without thinking.	Behavioral attention	Automaticity
… I begin doing it before I realize I'm doing it.	Behavioral awareness	
… I do it without meaning to do it.	Behavioral intention	
… I find it hard to stop myself from doing it.[a]	Behavioral control	
… I'm absorbed in doing it.	Behavioral attention	Immersion
… my eyes are fixed on doing it.	Behavioral awareness	
… it takes me away from what is going on around me.	Spatial awareness	
… I get lost in the moment while I'm doing it.[a]	Temporal awareness	

Note: Response options: *Not at all* (1), *Slightly* (2), *Somewhat* (3), *Mostly* (4), *Completely* (5).
[a]Removed in final models due to cross-loading. Correction made after online publication May 13, 2015: Table 1 has been updated.

Texting immersion. In parallel with automaticity, 4-item scales of immersion were used for each of the texting operationalizations (16 items total). The order of the automaticity and immersion questions was randomized within a texting behavior so participants would not be aware of the two different constructs. Immersion measures were based on a validated scale of video game immersion, as well as conceptions of psychological immersion within presence and self-regulation research (Jennett et al., 2008; Kross & Ayduk, 2011; Lombard & Jones, 2013; Tokunaga, 2013). Immersion items were adjusted to the current context of text messaging, and matched in formatting to the measure of automaticity, so that participants would not be able to differentiate the items. Five response options were given in line with the items for automaticity: (1) *Not at all*, (2) *Slightly*, (3) *Somewhat*, (4) *Mostly*, and (5) *Completely*. The final 4-item measures for immersion can be seen in Table 1.

Data analysis plan. First, a Repeated Measures Factorial ANOVA (RM-ANOVA) was performed to test within-subjects differences in automaticity and immersion across the four phases of texting (starting, sending, checking, and reading). Second, CFAs were conducted through AMOS using covariance matrices and Maximum-Likelihood estimation. The factor analyses were used in order to test whether our measures of automaticity and immersion represented independent factors. Finally, a path analysis was conducted to determine how the resulting texting model related to two other basic dimensions of texting behavior—overall frequency of use and affective temptation to text (i.e., degree of reward). In doing so, the path analysis was meant to test the discriminant validity of the factor structure.

Results
The repeated measures factorial ANOVA (Figure 1) tested mean differences in subbehavior type (starting, sending, checking, reading) and cognitive orientation (automaticity, immersion). Results showed a significant effect for sub-behavior type,
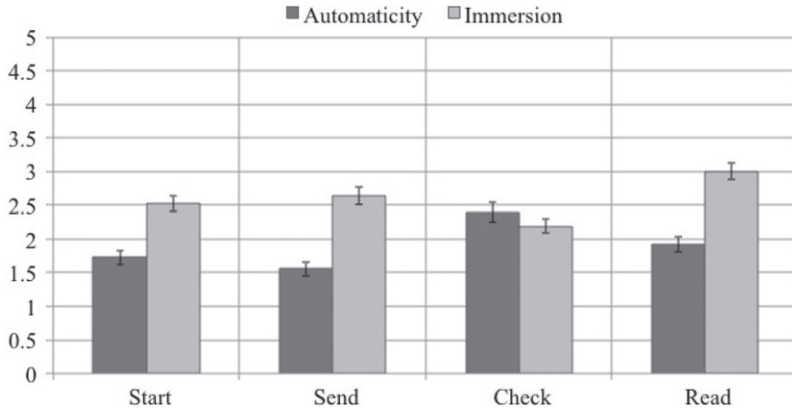
Figure 1 Within-subjects repeated measures ANOVA comparing automaticity (dark) and immersion (light) across subbehavior type. Error bars represent confidence intervals.

Wilks' Lambda $= 0.72$, $F(3, 246) = 32.08$, $p = .000$, as well as a significant effect for cognitive orientation, Wilks' Lambda $= 0.54$, $F(1, 246) = 214.61$, $p = .000$. Additionally, there was a significant interaction effect between behavior type and cognitive orientation, Wilks' Lambda $= 0.49$, $F(3, 246) = 84.25$, $p = .000$. These findings showed that immersion was reported at higher levels than automaticity overall, and that both automaticity and immersion differed as a function of subbehavior type. In spite of the differences observed in the ANOVA, measures were shown to be reliable across all four subbehavior types for both automaticity ($\alpha = 0.74$–0.83) and immersion ($\alpha = 0.77$–0.81). Therefore, we collapsed (i.e., averaged) across behavior type for all further analyses. However, CFAs were run for the four behaviors individually to confirm the same pattern existed across behavior type.

For the CFA analyses, two competing models were hypothesized: a one-factor solution and a two-factor solution. In all models, indicator disturbances were left uncorrelated. The first model included all eight dimensions of automaticity and immersion in a single factor, and demonstrated very poor fit, $\chi^2(20) = 607.37$, $p = 0.00$, CFI $= 0.68$, RMSEA $= 0.34$ (CI 0.32–0.37), AIC $= 655.37$. A second model specified separate automaticity and immersion factors, and allowed these two latent variables to correlate. This model evinced better fit, $\chi^2(19) = 99.77$, $p = 0.00$, CFI $= 0.96$, RMSEA $= 0.13$ (0.11–0.16), AIC $= 655.37$, but still failed the exact-fit test, close-fit test, and confirmed the poor-fit hypothesis (Kline, 2011). After investigation of the modification indices, it was revealed that one dimension of automaticity (lack of control, "A4") and one dimension of immersion (lack of temporal awareness, "I4") cross-loaded highly on each other's factor. As a result, the second model was respecified to exclude these dimensions, producing a final model with two factors, each with three indicators. The respecified model (Figure 2) exhibited excellent fit, $\chi^2(8) = 10.59$, $p = 0.23$, CFI $= 0.99$, RMSEA $= 0.04$ (0.00–0.09), AIC $= 48.59$, supporting the utility of a two-factor solution for auto-immersion (Kline, 2011). The latent automaticity and immersion factors displayed a moderate positive
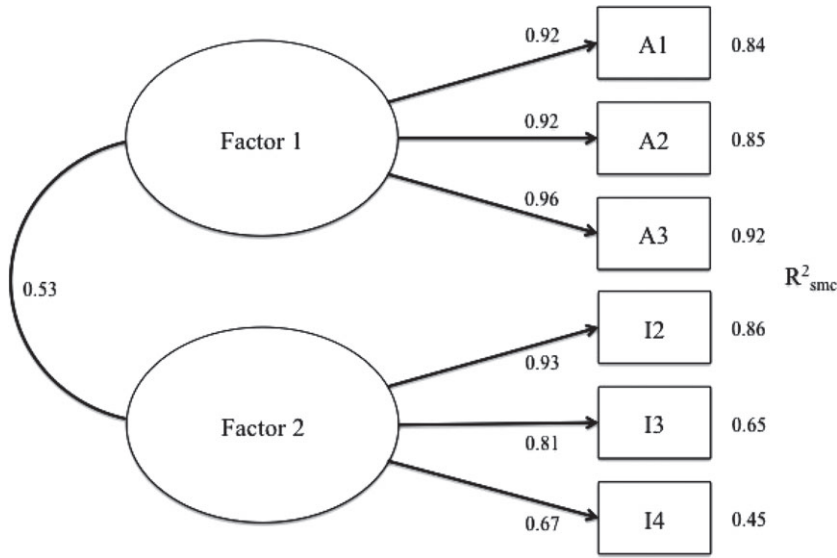
Figure 2 Two-factor CFA. $\chi^2(8) = 10.59$, p $= 0.23$, CFI $= 0.99$, RMSEA $= 0.04$ $(0.00 - 0.09)$, AIC $= 48.59$. Factor loadings are standardized. Error terms are excluded from the figure.

correlation ($r = 0.53$), suggesting that the two orientations toward texting are actually complementary.

As a final analysis in Study 1, a path analysis was used to test the discriminant validity of the two factors within the domain of texting. We tested the reliability of the automaticity (Cronbach's $\alpha = 0.95$) and immersion (Cronbach's $\alpha = 0.85$) factors based on the final CFA model, and then computed mean scores for both factors to use in the path analysis. Automaticity and immersion were entered as observed predictors and allowed to correlate, with texting frequency and texting affect as outcome variables. The path analysis (Figure 3) revealed that automaticity—but not immersion—is significantly related to overall texting frequency ($b = 0.46$, $t = 7.21$, $p < .001$), and that both automaticity ($b = 0.37$, $t = 5.84$, $p < .001$) and immersion ($b = 0.17$, $t = 2.66$, $p < .01$) were positively related to affective temptation to text. Hence, this provides evidence for the unique contributions of separate automaticity and immersion factors.

Discussion

Some behaviors are simply more automatic or immersive than others. In large part, this depends on the complexity of the behavior itself. More complex behaviors require more conscious engagement to perform with success. The act of texting represents a multifaceted set of behaviors including starting, sending, checking, and reading. The within-subjects ANOVA confirmed expectations that the subbehavior that required the least cognitive power (i.e., attention)—checking for texts—was most automatic and least immersive. The more surprising realization within this initial analysis was
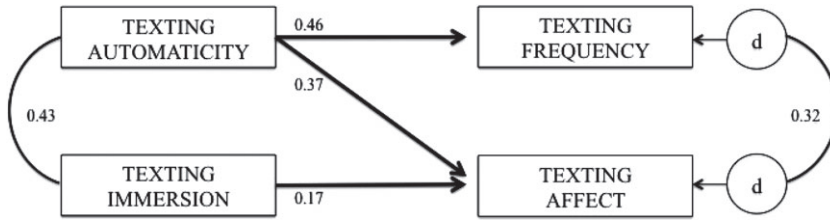
Figure 3 Texting path analysis. Significant standardized regression coefficients (beta weights) are displayed.

that the other behaviors (starting, sending, reading) involved a mix of the two disparate processes according to our participants. These subbehaviors accentuate the unique relationship between the mobile media and consciousness, in which immersion can be brought on, automatically, at any moment. Texting allows for quick flips in behavioral consciousness from low (automaticity) to high (immersion) and vice versa.

Some people are also more automatic or immersive than others. Moving beyond the behavioral level, we now turn our attention to differences in participants' proclivity toward more automatic and immersive processing of texting. Although some texting behaviors may appear on the surface to be either automatic or immersive, this was not the case. For most people, there was some degree of both processes for each stage. Analyses revealed that individuals' levels of automaticity and immersion correlated across all four stages. Hence, it is not just whether the stage of behavior is automatic or immersive, but also whether the person doing the behaviors is automatic or immersive in their orientation toward this type of media. The results support a two-factor model of automaticity and immersion, or "auto-immersion." People who report texting with a more automatic orientation also do so with a more immersive orientation. The finding that two dissimilar orientations toward texting are actually related—independent of frequency—suggests that an underlying relationship to this behavior exists. These individuals were not simply automatic users or immersive users; they were both. Their stream of cognition was tied to texting at both high and low levels of attention.

That said, the results of the path analysis also revealed clear differences between the two factors. Automaticity, but not immersion, was moderately related to the overall frequency of texting. This relationship supports previous research and theory on habit automaticity, which is formed originally through repetition of a behavior. Automaticity and immersion were also both related to affect, or the short-term, emotional reward of texting. As both concepts have been linked to positive affect in other contexts, this finding also extends previous research and theory. In addition, this confirms the impulsive or "hot" element of texting habits; degree of automaticity (habit strength) and affective temptation (impulse strength) are linked within people (cf. Gardner, 2014). In future research on mobile communication, habits and impulses should be integrated theoretically, despite their common separation in the psychological literature.

Indeed, Baumeister et al. (2011) noted that "Future research should focus more on how conscious and unconscious processes interact and complement each other rather than trying to label each behavioral outcome as due to conscious or unconscious processes" (p. 354). Likewise, within the study of media habits, LaRose (2010) stated, "Recognizing that dual conscious and nonconscious processes determine media consumption behavior, it is likely that there is a habitual component in many repeated media behaviors. But also, no media consumption behavior is purely habitual because 'executive control' may intervene at any time and the extent of influence exerted by habit depends on individual experiences and contexts" (p. 215). Such calls for integration between more conscious and less conscious processes apply to all types of behavior, but are especially relevant for mobile media. While other media may also feature their own versions of auto-immersion, mobile media allow for this chain of processes to be instigated at any moment in everyday life. At the same time, there is some need to expand this dual perspective to media behavior overall. The two separate strains of media cognition (habits, impulses, etc. vs. immersion, flow, etc.) may not warrant separation. Instead, they represent two smaller processes making up a more general orientation of media consciousness.

Study 1 sheds light on how people are able and unable to perform their *texting behavior* in line with their *texting intentions*. Both automaticity and immersion may limit an individual's ability to monitor their behavior in the moment. This was observed in the cross-loading between two indicators of auto-immersion in the second model. That is, modification indices showed that there was significant overlap in one dimension of each factor: lack of control in automaticity and lack of temporal awareness in immersion. Tokunaga (2013) pointed out that certain features of immersion (e.g., cognitive absorption, lack of temporal awareness) also lead to a behavioral outcome of deficient self-regulation: lack of control (i.e., automaticity). At the same time, it is important to keep in mind that both automaticity and immersion may actually facilitate self-regulatory goals in other circumstances. Indeed, automaticity appears to underlie many forms of "self-control" (Fujita, 2011), and flow is studied as a state of optimal human performance. Therefore, understanding the complete picture of how texting operates in daily life requires an examination of how auto-immersive tendencies may arise from more ingrained self-regulatory abilities (Study 2).

Study 2

Study 2 had two primary goals: (a) to confirm the statistical validity of the two-factor model of texting consciousness from Study 1 on a separate subsample, and (b) to examine how this model relates to global self-regulation tendencies. In shifting the focus to more long-term patterns of behavior in the person, we consider how the media-specific processes may mirror, or differ from, self-regulation at the personality level. This is important considering that self-regulatory success is moderated by dispositional factors such as self-control and mindfulness (Chatzisarantis & Hagger, 2007; Friese & Hofmann, 2009; Hofmann, Baumeister, et al., 2012). If differences

in auto-immersion simply reflect personality differences (e.g., Billieux et al., 2010; Billieux, 2012; Feldman et al., 2011), then we should expect to see large relationships between the two-factor model and trait self-control (H1a and H1b) and trait mindfulness (H2a and H2b). *[Correction made after online publication May 13, 2015: Trait labeling (H1 and H2) has been revised.]*

Method

A separate subsample ($n = 526$) of participants was utilized in Study 2 to validate the measurement model specified in Study 1. The subsample for Study 2 was 34.7% college participants (vs. MTurk participants) and 40.6% male (vs. female), and on average 28.8 years old. Because the final auto-immersion model in Study 1 was fit according to the modification indices observed in the first subsample, and thereby partially data-driven, a different sample was needed to confirm the observed factor structure (van Prooijen & van der Kloot, 2001).

Additionally, we evaluated the relationship of the two-factor automaticity and immersion model to dispositional self-regulation. Trait or dispositional variables did not reference texting, but instead dealt with more global aspects of personal behavior. Self-control was measured using the validated two-factor version of the Brief Self Control Scale (BSCS; Maloney, Grawitch, & Barber, 2012; Tangney, Baumeister, & Boone, 2004). Four items from each factor were summed to create variables for "restraint" and "impulsivity."

Facets of mindfulness were assessed using 15 items from the Five Factor Mindfulness Questionnaire (FFMQ; Baer et al., 2006). To identify the facets of this overarching construct, Baer et al. conducted a factor analysis of items from all known mindfulness scales, which yielded a five-factor solution: (a) nonreactivity to inner experience; (b) attending to sensations, perceptions, thoughts, and feelings; (c) acting with awareness/no distraction; (d) describing/labeling perceptions and feelings with words; and (e) nonjudging of experience. For each of the five factors, the items with the top three component loadings were appropriated, including nonreactivity to inner experience, attending to thoughts and feelings, acting with awareness, labeling perceptions and feelings, and nonjudging of experience. Three items from each factor were combined into additive indices. Both self-control and mindfulness included the same 7-point responses scale from (1) *Not at all* to (7) *Just like me*.

Results

As hypothesized, the respecified model from Study 1 outperformed the one-factor and two-factor hypothesized models in the new 526-person subsample, providing further evidence for its validity. Therefore, we once again created summary variables by averaging the three remaining components of automaticity ($\alpha = 0.95$) and immersion ($\alpha = 0.88$). Two more path analyses were conducted to test the discriminant validity of auto-immersion across core personality measures related to self-regulation. Automaticity and immersion were entered as observed predictors and allowed to correlate for both the self-control model and mindfulness model.

Figure 4 Self-control path analysis. Significant standardized regression coefficients (beta weights) are displayed.

For the self-control path analysis (Figure 4), texting automaticity (H1a) showed small to moderate relationships with both the restraint facet ($b = -0.22$, $t = -4.62$, $p < .001$) and impulsivity facet ($b = 0.40$, $t = 8.80$, $p < .001$), whereas texting immersion did not. Therefore, H1a is supported while H1b is not supported.

For the mindfulness path analysis (Figure 5), results uncovered negative relationships between automaticity (H2a) and three facets of mindfulness: nonjudging, describing, and acting aware. Most notably, the acting with awareness component of mindfulness demonstrated the strongest inverse relationship with texting automaticity ($b = -0.45$, $t = -10.03$, $p < .001$), and concurrently, a significant positive relationship with texting immersion ($b = 0.15$, $t = 3.35$, $p < .001$). In addition, texting automaticity was negatively related to nonjudging ($b = -0.27$, $t = -5.61$, $p < .001$) and describing of one's current state ($b = -0.23$, $t = -5.61$, $p < .001$). Similar to the first set of hypotheses, H2a is supported and H2b is not supported.

Post hoc tests were run to evaluate the contrast between the two factors in a more stringent manner. Examination of bootstrapped confidence intervals for the regression paths confirmed that the paths for automaticity and immersion did not overlap. Finally, we used the chi-square difference statistic to measure detrimental effects to model fit when constraining automaticity and immersion paths to be equal. For all significant paths displayed in Figures 4 and 5, the overall χ^2 model fit was significantly worsened when automaticity and immersion were forced to yield equivalent influences on the outcomes. Altogether, these analyses verified the discriminant validity of the two-factor model, as significantly different relationships occurred for automaticity and immersion in spite of their moderate correlation ($r = 0.53$).

Discussion

The purpose of the second study was to place the individual tendency toward "auto-immersion" in texting into the larger context of self-regulation. Auto-immersion represents a behavior- and media-specific orientation toward low-and-high consciousness. Given that research on self-regulatory mechanisms has established links to both unconscious and conscious processes, it is imperative to consider how media cognition emerges from the person. Results of the first path analysis demonstrated a significant negative relationship between the automatic factor (H1a) of auto-immersive tendencies and perceived self-control. This paralleled more general
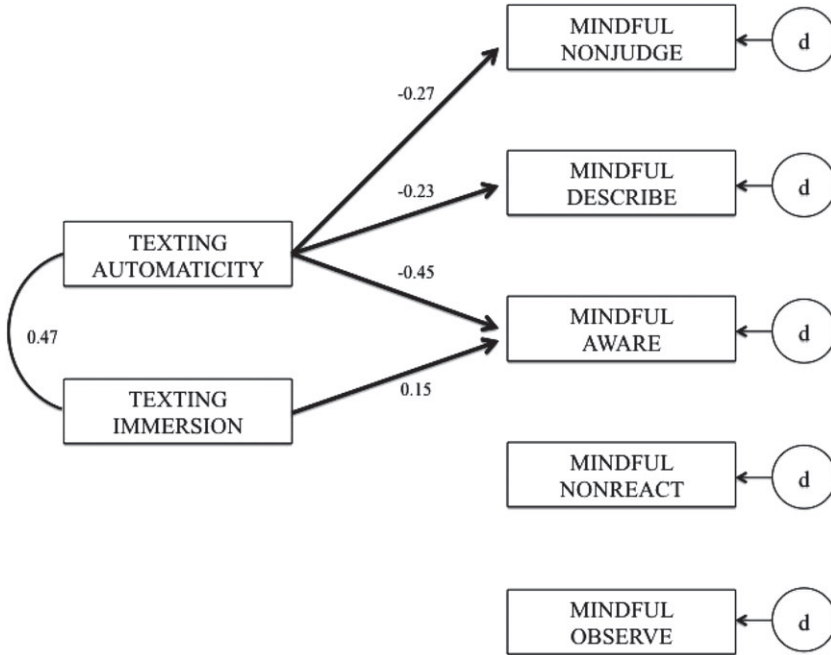
Figure 5 Mindfulness path analysis. Significant standardized regression coefficients (beta weights) are displayed.

models of media habits, in which habitual processes, depending on the degree of automaticity, take over in the absence of executive supervision (Hofmann et al., 2009; LaRose, 2010). However, the stronger relationship for the impulsivity facet of self-control, as opposed to the restraint facet, suggested that automatic texting was more closely linked to emotional urgency (see Billieux et al., 2010) than to a lack of conscious decision-making ability. Notably, immersive tendencies (H1b) did not relate to the self-report measure of self-control.

The second path analysis also demonstrated differences between the two factors of the auto-immersion model. Whereas automatic tendencies (H2a) were negatively related to the present-moment attention aspect of mindfulness, immersion (H2b) was actually somewhat positively related. Moreover, automaticity—but not immersion—negatively predicted both the "nonjudging" and "describing" components of mindfulness (see Baer et al., 2006, for a review). These path coefficients suggested that texting was more automatic for those are unable to accept and articulate one's feelings at the present moment, and provide some connections to past research. For instance, Feldman et al. (2011) observed a link between mindfulness and using texting for emotion regulation in their study concerning texting while driving. However, that study utilized a generalized measure (CAMS-R) to capture overall individual differences in mindfulness, as opposed to a measure that differentiated a diverse set of underlying tendencies.

As Baer et al. note, "Use of a single total score for the target construct can obscure these relationships if facets of the target construct are differentially correlated with the other variables" (p. 32). The most consistent and meaningful facet of mindfulness for auto-immersion, acting with awareness, came from the unidimensional Mindful Attention Awareness Scale, or MAAS (Brown & Ryan, 2003). The MAAS has been shown to moderate the behavior-intention link, as well as counter intentional habits (Chatzisarantis & Hagger, 2007). Consequently, it seems to be this facet of mindfulness that is the most relevant to auto-immersion, as well as the most promising counterweight to unwanted behavior.

Previous work and theory supports the idea that trait self-control and mindfulness can moderate the self-regulatory success of specific habits and impulses (Chatzisarantis & Hagger, 2007; Hofmann et al., 2009). The automaticity of texting, a portable habit with endless potential to be cued, also appears to be related to more impulsive and mindless personality processes. Alternatively, the findings of Study 2 show that immersion operates differently from automaticity when compared to standard measures of trait self-regulation—despite the observed relationship between the two. At the same time, the null relationships on the part of immersion must be viewed in light of the current operationalization. As shown in Figure 1, automaticity was tied most to the commencement (i.e., checking) of behaviors, and immersion was tied most to the commitment to behaviors (i.e., reading). However, the personality measures utilized in this study, along with the overarching literature, did not treat the starting and stopping aspects of behavior equally. Both self-control and mindfulness tend to focus on whether the individual engages in a behavior or not—as opposed to whether the individual disengages from it. Future research should continue to compare and contrast these two forms of media cognition while accounting for both the starting and stopping of the behavior.

More generally, new research should clarify how mindfulness and self-control relate to each other in terms of their influences on mobile media behavior. Since trait processes represent hypothetical factors at all times, more studies are needed to explain the overlap between concurrent self-regulation and media cognition. Our findings suggest that overall tendencies toward automaticity, immersion, self-control, and mindfulness are connected—yet it is crucial to disentangle if and how these processes operate simultaneously.

General discussion

A growing number of psychological studies have looked at how people control, monitor, or regulate their use of mobile devices. Many of these studies have focused on understanding the negative outcomes that arise from frequent phone usage, including distracted driving, financial costs, and sleep disruption. In general, the various studies tend to fall under two primary perspectives of self-regulation: cognitive models and personality models. Most research on the psychology of mobile phone usage has taken the latter approach with an emphasis on clinical implications (see Billieux, 2012, for a

review), though some studies have emphasized the role of basic socio cognitive processes relating to media (Atchley & Warden, 2012; Bayer & Campbell, 2012; Oulasvirta et al., 2012).

The gap between the two broad perspectives is best understood in terms of scope. Personality models attempt to understand the extreme or problem users of mobile media, whereas cognitive models attempt to understand the mobile media usage of all people. Both approaches have revealed important dimensions of mobile phone behavior, but the potential for overlapping mechanisms requires some level of theoretical integration moving forward. This study takes a step forward in reconciling these two pictures of mobile communication. The findings of Study 2 show that basic cognitive tendencies (i.e., auto-immersion) toward texting are tied to established personality factors of self-regulation. More impulsive and less mindful people are more likely to be automatically oriented toward text messaging. Hence, our findings provide further verification for the significance of personality factors such as impulsivity (Billieux et al., 2010) and mindfulness (Feldman et al., 2011) for more basic media cognition within people. The relationships also suggest the need for meditational analyses in future research. It is possible that consciousness tendencies mediate some of the mobile phone outcomes associated with trait impulsivity and trait mindfulness.

Nonetheless, the moderate relationships in the path analyses (0.20–0.45 beta weights; see Figures 4 and 5) demonstrated that personality was related to but distinct from texting consciousness. The combined implication of the two studies is not that auto-immersion is "bad"—nor that people who tend to auto-immerse are inherently less regulated people. By integrating Studies 1 and 2, we see how different forms of media cognition are linked and, at the same time, how they differ from each other in their relationships to overall self-regulation. We provide evidence here that certain people are more likely to interact automatically while texting with their devices. But regardless of whether someone has an impulsive or mindless predisposition, automatic and immersive processes are germane to the outcomes of mobile communication. From a social cognitive standpoint, automaticity and immersion can be both adaptive and maladaptive. The same media-specific mechanisms that produce distracted driving have the potential to produce social support or capital over the long-term. In sum, consciousness tendencies must be viewed in the context of all users, not just those low in self-control and mindfulness.

The potential for automatic and immersive processes to predict good and bad outcomes can be juxtaposed with research on problematic phone behavior alone. Billieux (2012) notes in his review of clinical models that heavy use and problematic use of the mobile phone should not be conflated. Unfortunately, some confusion arises when personality perspectives and cognitive perspectives overlap in their dependent variables of interest. Indeed, distinct narratives emerge from the two corners of extant research. From the perspective of personality models, certain people are at risk for negative outcomes of phone use. From the perspective of social cognitive or media cognitive models, negative outcomes are produced through forms of cognition that can occur in all people. One situation in which this may play out is

texting while driving. In this scenario, an overconcentration on abnormal personality predictors can overlook the normal processes, such as automaticity and immersion, which produce negative outcomes in normal users (e.g., Bayer & Campbell, 2012).

In addition to these concerns, more clinical viewpoints risk overgeneralization of the danger associated with mobile phone usage. This is not to say mobile device behavior cannot be individually problematic, or that select individuals cannot evince pathological signs. Although many individuals report they are "addicted" to their phones (Billieux, 2012), this does not mean their behavior is indicative of true addiction. The lack of finite borders between problematic and unproblematic phone behavior raises a number of theoretical issues. For example, some studies have drawn from normal populations with minimal negative consequences—and then label the outliers in a pathological light (LaRose, Kim, & Peng, 2011).

This debate is by no means unique to texting, mobile media, or mobile communication. LaRose et al. (2011) argue in relation to social networking that, "the appropriateness of the term 'addictive' and related constructions, including compulsive, pathological, and problematic, are themselves problematic" (p. 65). Likewise, Atchley and Warden (2012) argue, "Rather than focus on whether the behavior [texting] is 'addictive' in nature, it might be more useful to understand the underlying dynamics of the decision making process … " (p. 230). Recently, Billieux et al. (2014) acknowledged that the clinical perspective on mobile phone use began as an "atheoretical perspective" with a priori assumptions about pathological symptoms. Even from a treatment standpoint, the utility of addiction models of negative "symptoms" are now being questioned due their inability to confront the sources of maladaptive behavior (Billieux et al., 2014).

Overall, research on the psychology of mobile devices tends to omit the cognitive, as well as societal (Campbell, Ling, & Bayer, 2014), processes at work in the background. The failure to account for these perspectives can lead to incomplete explanations for mobile communication outcomes, whether those outcomes are problematic or prosocial. Our studies support the idea that models of mobile communication should account for processes of media cognition (e.g., automatic and immersive tendencies), as opposed to symptomatic approaches. The two-factor auto-immersion model of texting validated in this paper demonstrates the potential of a process-based approach. Models that only account for media factors in the outcome variable (i.e., symptoms of addiction) may obfuscate how basic cognitive processes interact with media to cause behavior. The observed relationship between automaticity and immersion demonstrates how media cognition can appear "addiction-like" without the addiction in normal populations. Indeed, both processes are characterized in part by a lack of volitional control, and these processes work in concert during the performance of texting. Yet the underlying mental workings are normal—even if more impulsive and mindless individuals are more inclined to use them.

Going forward, research on mobile media cognition may benefit from separating the self-observation (lack of attention, awareness) and self-reaction (lack of intention, control) sides of automaticity. Although the two halves are clearly linked, research

has shown that deficient self-reaction is more predictive of problematic outcomes (albeit minimal in most cases), while self-observation is not (LaRose et al., 2011). Since self-reactive questions confound process and undesired outcomes (i.e., times when a participant did not intend/control the behavior), self-report measures of self-reaction may suppress the link to positive outcomes. In doing so, researchers can avoid the pitfalls of predicting negative outcomes alone.

A broader implication of the current studies is that psychological theory on mobile communication must be more integrative in its next steps. The research at hand focused on integrating two basic cognitive processes that have been commonly studied (separately) across other media behaviors. There is certainly potential for the automatic and immersive tendencies observed in this study to correlate with other concepts measured in past research. Outside of the current article, the ways in which some people relate to their phones has been conceptualized in a number of ways. These media-specific concepts include "identity," "attachment," "involvement," "dependence," and others (e.g., Hall & Baym, 2012; Walsh, White, & Young, 2010; Walsh et al., 2011; Weller, Shackleford, Dieckmann, & Slovic, 2013). All of these operationalizations speak to one or more aspects of a psychological connection between user and device. Of course, the idea of a media-specific psychological orientation is something that is commonly used in research practices. Still, it is also something that warrants clarification in this newer domain. Most media behaviors are highly situational. Mobile media, however, blurs the lines between situation and disposition due to its constant companionship. Emerging research on the psychology of mobile devices must account for these theoretical complications.

Some limitations also warrant attention. One limitation is the cross-sectional nature of the data, which makes it impossible to confirm directionality of the observed relationships. However, previous work would suggest that the general personality factors (self-control and mindfulness) precede the learned media cognition tendencies (automaticity and immersion). Another limitation is the generalizability of the findings due to the reliance on a convenience sample composed of undergraduates and MTurk workers. Future research is needed to ensure these trends hold up with a more representative sample. Also, our study was limited in its narrow focus on the generalized behaviors of starting, sending, checking, and reading texts. There is a need to consider how contextual and motivational factors (e.g., who one is texting and why) may change the observed relationships between automaticity, immersion, and self-regulation.

A final limitation is the indirect measurement of automatic and immersive forms of cognition. In line with the established literatures related to media psychology, we measured behavioral tendencies across situations via self-report. Our self-report questions concerned the perceived tendency to auto-immerse in degree (to what extent), as opposed to the rate of auto-immersing (how often). Hence, we treated texting automaticity and texting immersion as behavioral tendencies or orientations toward these media processes (not to be confused with traits or dispositions)—as opposed to the discrete cognitive processes on their own. That is, a more automatic

or immersive individual in the present studies tends to use texting, on average, in a manner consistent with that form of cognition.

Nonetheless, in raising the current research question about individual texting tendencies, the larger implication is for research to understand how the underlying automatic and immersive processes may be related within an instance of texting (i.e., independent of the texter). Although our self-report measures of automaticity have been validated as a proxy for the degree of automatic processing using implicit measurement (Orbell & Verplanken, 2010), researchers can make use of implicit methods to tease apart these processes more fully. For these reasons, situational perspectives should be adopted in future designs in order to compliment the findings of the current study. For instance, it is possible that individuals perceive that they are more automatic and immersive texters (i.e., Study 1 results), when in fact they misidentify their own behavioral tendencies. Follow-up studies should thus compare self-perceptions of consciousness to actual attentional allocation in specific situations.

Conclusion

Mobile media brightens a human inclination toward connectivity once constrained by the demands of space. This social inclination manifests in how all people are consciously and unconsciously oriented toward their mobile devices. However, current research on the psychology of mobile media and communication often overlooks the core factor of behavioral consciousness. The two studies in this research article represent an attempt to understand individual behavior in light of this societal change in human interaction.

The findings from Study 1 suggested that automatic and immersive tendencies are positively connected to one another at a more basic level. Further, the results of Study 2 showed that texting consciousness tendencies are related to—but distinct from—dispositional forms of self-regulation. Altogether, the present studies help to reconcile cognitive and personality perspectives on mobile device use. If mobile communication looks like addiction and buzzes like addiction, then it is probably classic media cognition in a new domain with personality moderators.

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