DOI: 10.1177/00222437221120404

JOURNAL of MARKETING RESEARCH

Phone and Self: How Smartphone Use Increases the Preference for Uniqueness

Journal:	*Journal of Marketing Research*
Manuscript ID	JMR.19.0612.R5
Manuscript Type:	Revised Submission
Topics and Methods:	Soc/Cognitive Psychology < Theoretical Foundation, Consumer behavior < Theoretical Foundation, Lab experiments < Method of discovery, Electronic commerce < Substantive area

Phone and Self: How Smartphone Use Increases Preference for Uniqueness

Camilla Eunyoung Song

Aner Sela

Camilla Eunyoung Song (eunysong@cityu.edu.hk) is an assistant professor at City University of Hong Kong, 83 Tat Chee Avenue, Kowloon Tong, Kowloon, Hong Kong. Aner Sela (aner.sela@warrington.ufl.edu) is Professor of Marketing, Warrington College of Business, University of Florida, Gainesville, FL 32611-7155. They are grateful for helpful feedback from Chris Janiszewski, Rich Lutz, Yang Yang, and workshop participants at Dartmouth College, Ohio State University, UC Riverside, the Winter Decision Making Symposium, and Yale University. The authors contributed equally.

Abstract:

One of the most dramatic shifts in recent years has been consumers' increased use of smartphones for making purchases and choices, but does using a smartphone influence what consumers choose? This paper shows that, compared with using a personal computer (PC), making choices using a personal smartphone leads consumers to prefer more unique options. The authors theorize that because smartphones are considerably more personal and private than PCs, using them activates intimate self-knowledge and increases private self-focus, shifting attention toward individuating personal preferences, feelings, and inner states. Consequently, making choices using a personal smartphone, compared with a PC, tends to increase the preference for unique and self-expressive options. Six experiments and several replications examine the effects of personal smartphone use on the preference for unique options and test the underlying role of private self-focus. The findings have important implications for theories of self-focus, uniqueness seeking, and technology's impact on consumers, as well as tangible implications for many online vendors, brands, and researchers who use mobile devices to interact with their respective audiences.

Keywords: smartphones, online shopping, mobile marketing, uniqueness seeking, self-expression, customization, self-focus

More and more consumers use smartphones for online shopping. Smartphones now account for the majority of global website traffic (Statcounter 2020) and an increasing share of online transactions (PwC 2020). Emerging evidence suggests that consumers behave differently on their smartphones, compared with other common devices such as personal computers (PCs). For example, compared with PC users, smartphone users tend to complete their shopping journeys faster and visit fewer websites before making a final decision (McKinsey & Co. 2015). They use more conversational (Google 2018) and emotional language (Melumad, Inman, and Pham 2019), and self-disclose more willingly (Melumad and Meyer 2020). But might smartphones also change what consumers actually choose? If so, how and why?

We propose that, compared with a PC, making choices using one's personal smartphone increases the preference for unique and self-expressive options. We argue that this occurs because smartphones are considerably more personal than other devices, saturated with private self-related content and associations. Consequently, using them increases private self-focus (Gibbons 1990), or the salience of individuating inner states, private self-views, and personal attitudes. This elevated state of private self-focus increases the preference for unique options such as unconventional and individually customized offers.

Our research makes several contributions. Little is known about the causal influence of smartphone use on consumer choice. Because private self-focus has far-reaching implications on consumer behavior, including product evaluation (Dagogo-Jack and Forehand 2018), service satisfaction (Pham et al. 2010), and context effects (Goukens et al. 2009), the effect of smartphone use on private self-focus has the potential to influence the same breadth of outcomes. Our work also makes a secondary contribution to research on uniqueness seeking and self-

expressive consumer choice (e.g., Ariely and Levav 2000; Levav and Zhu 2009), by underscoring the role of private self-focus on such behaviors.

PRIVATE SELF-FOCUS AND PERCEIVED DISTINCTIVENESS

The extent of self-focus varies across situations (Gibbons 1990). Theories of self-focus (or self-awareness) distinguish between public and private self-focus, which are considered independent of one another (Carver and Scheier 1981; Prentice-Dunn and Rogers 1982). Public self-focus entails being aware of how one is seen from other people's perspective. It is often triggered by social cues, such as the presence of an audience, and typically results in an increased tendency to conform to social expectations and engage in self-presentation, rather than rely on inner attitudes and states (Froming and Carver 1981). In contrast, private self-focus entails an increased focus on private aspects, such as private self-knowledge, attitudes and beliefs, values, self-views, and other internally generated information (Gibbon 1990; Hull et al. 1988).

Private self-focus is often intentional, where people deliberately direct their thoughts toward the private self, but it can also be evoked by situational cues associated with the private self, such as one's reflection in a mirror (Eidelman and Silvia 2010), autobiographical memories (Sujan, Bettman, and Baumgartner 1993), and even one's first name (Silvia and Phillips 2013). Such cues have been shown to increase the cognitive salience of personal preferences, individual attitudes, and private feelings, and the tendency to behave in ways that express these same inner states (Chang and Hung 2018; Froming and Carver 1981; Goukens et al. 2009). While diverse, these cues have all been shown to increase the salience of private aspects of the self, making personal preferences, individual attitudes, and private feelings more focal and cognitively

accessible. These, in turn, increase people's tendency to behave in ways that express these individual inner states: people high in private self-focus tend to choose options that express their feelings (Chang and Hung 2018), privately endorsed attitudes (Scheier, Buss, and Buss 1978) and personal attribute weights (Goukens et al. 2009), choose more bold and unconventional options (Maimaran and Simonson 2011), and dissent more from others (Froming and Carver 1981; Froming, Walker, and Lopyan 1982; Pitesa and Thau 2013; Santee and Maslach 1982).

Furthermore, private self-focus begets a sense of individuation because it entails focusing on "the unshared idiosyncrasies of [people's] particular experiences" (Buss 1980, p. 122), the unique features that make people distinct from others, and their individual rather than social identities (Cheek and Briggs 1982). Increased private self-focus leads to a more individuated self-view and decreases collective and deindividuated representations of self (Ickes et al. 1978; Prentice-Dunn and Rogers 1982). Accordingly, cues that activate private self-focus, such as seeing oneself in the mirror, writing self-descriptive statements, or concentrating on inner thoughts and feelings, have also been shown to increase a sense of distinctiveness and the salience of personal at the expense of collective identity (Diener 1979; Eidelman and Silvia 2010; Ickes et al. 1978; Prentice-Dunn and Rogers 1982). The individuating effect of private self-focus is further amplified by a perceptual tradeoff that appears to exist between individual and social mental representations of the self, such that greater salience of private identity overshadows social identity, increasing a sense of uniqueness and distinctiveness at the expense of perceived similarity to others (Mullen et al. 2003; Pahl and Eiser 2006).

Taken together, this large body of research indicates that private self-focus is tightly linked to the perception that the self is unique and distinct from others, and that cues known to

activate private self-focus also increase the perceived distinctiveness and individuality of the self. Next, we elaborate on how smartphone use may activate private self-focus.

HOW SMARTPHONES INCREASE PRIVATE SELF-FOCUS

Although smartphones are functionally similar to PCs in many ways, they can change consumer behavior. Their smaller size, for example, increases the physical and cognitive cost of acquiring and generating information, which may decrease information search (Ghose, Goldfarb, and Han 2013) and lead consumers to write shorter online reviews (Melumad et al. 2019), compared with bigger-sized devices such as PCs.

We propose that using a personal smartphone, rather than a PC or a smartphone belonging to someone else, increases private self-focus (and, consequently, a sense of distinctiveness), which in turn increases the preference for uniqueness and self-expression as discussed above. We theorize that the effect of smartphone use on private self-focus is driven by two forces. First, personal smartphones are strongly associated with private self-knowledge, such as inner states and feelings, which is likely to become salient specifically when people use their personal device. Second, evidence suggests that using a personal smartphone has an insulating, inward-focusing effect, which is likely to amplify activation of private self-knowledge. Both these forces are specific to using one's personal device, rather than a generic smartphone. We next review evidence supporting these two premises.

Growing evidence suggests that personal smartphones play a special role in people's lives, different from other common devices and generic smartphones belonging to others (Lurie et al. 2018). Personal smartphones are significantly more physically (Conner 2013), functionally

(Verizon 2015), and emotionally (Melumad and Pham 2020) inseparable from their owners. They typically contain rich and intimate personal information and identity-relevant details, such as private messages, photos, and other self-knowledge that is not always shared with others, leading their owners to perceive them as significantly more personal, private, and intimate than other personal devices (Hatuka and Toch 2016). Consequently, consumers often see their smartphone as representing or extending their identity (Clayton et al. 2015; Park and Kaye 2019). Corroborating this notion, movement toward one's personal (but not someone else's) smartphone has been shown to have an equivalent effect on memory encoding as that of movement toward the self (Oakes and Onyper 2017). Indeed, a preliminary survey we conducted among owners of multiple devices (reported in detail in Web Appendix A) lends validity to the notion that consumers view their personal smartphones as an extension of their private self more than other commonly used devices such as PCs and tablet computers.

Because personal smartphones are so strongly associated with private aspects of the self and individuating self-knowledge, such as private emotions, beliefs, and self-views, we propose that using them increases the cognitive accessibility of such self-knowledge (Förster and Liberman 2007; Kay et al. 2004), more so than other personal devices. This, in turn, should activate private self-focus. Just like recalling autobiographical memories (Sujan et al. 1993), directing attention to inner thoughts and feelings (Prentice-Dunn and Rogers 1982), looking in a mirror (Eidelman and Silvia 2010; Mullen et al. 2003), or seeing one's name (Silvia and Phillips 2013) increases private self-focus, we argue that using a personal smartphone may activate private self-focus due to its strong association with private aspects of the self.

This effect of smartphone use on private self-focus is likely to be amplified by the immersive and insulating qualities of personal smartphone use. Using a personal smartphone,

even in a public space, creates a feeling of being in a private territory, shielded from the external environment as if inside a bubble (Chen and Pai 2018; Hatuka and Toch 2016; Lin and Huang 2017). Indeed, consumers derive psychological comfort from their personal smartphone and often use it to insulate themselves from stressful contexts (Melumad and Pham 2020). These immersive and insulating qualities are likely to contribute to the activation of private self-focus because they create conditions that facilitate self-reflection and a focus on internal states rather than external cues, distractions, and demands. Such conditions are conducive to associative knowledge activation (Petty et al. 2008; Wheeler, DeMarree, and Petty 2007). Because using a personal smartphone draws people's attention inward, we argue that private self-focus is most likely to be activated when people actually use their device, rather than merely think about it.

To emphasize, we predict that the associative effect of smartphone use on private self-focus activation is specific to one's personal device and may not generalize to other similar smartphones. Specific stimuli, with which people have personal associations, have been shown to uniquely activate knowledge in other contexts: interacting with a specific, personally meaningful individual, for example (but not other similar people), can increase the cognitive salience of private self-knowledge (Andersen and Chen 2002), self-evaluations and schemas (Baldwin 1994), and personal goals (Fitzsimons and Bargh 2003) with which that individual is associated. Using a similar logic, we propose that using a specific, personally meaningful device that is strongly associated with private self-knowledge (rather than a generic device) may activate such self-knowledge.

The Current Research

Drawing all these conceptual pieces together, we propose that using a personal smartphone, rather than a PC or a smartphone belonging to another, increases private self-focus due to the private self-related associations attached to the device as well as the immersive and insulating qualities of smartphone use. Private self-focus, in turn, begets a sense of distinctiveness which increases the preferences for unique options. This is because consumers generally choose options that reflect and are consistent with salient aspects of their self-concept (LeBoeuf, Shafir, and Bayuk 2010; Prentice 1987). It is well-established that consumers tend to choose options that are congruent with their self-perceptions (Sela, Berger, and Kim 2017) and avoid options that appear incongruent with who they are (Park and Sela 2018). Because smartphone use increases private self-focus and, consequently, a sense of distinctiveness, it should lead people to prefer more distinctive options.

Our proposition differs from prior work suggesting that uniqueness seeking in public group settings may reflect self-presentation (Ariely and Levav 2000). Our conceptual analysis indicates that choices made on a smartphone are different from choices in a public group setting (e.g., while seated with friends at a restaurant) in multiple ways (i.e., privacy, social and attentional insulation, psychological comfort, and knowledge accessibility). Therefore, we see no reason to expect the same psychological processes that govern a public group setting to manifest in the private context of using one's smartphone. We argue that when using a personal smartphone, perceived distinctiveness (due to private self-focus) may lead to uniqueness seeking (Nail 1986). Our findings thus extend existing research on uniqueness seeking by examining the role of a different process (private self-focus rather than self-presentation) in a new context

(private smartphone use rather than a public group setting). We test a self-presentation alternative account in several of our studies and find no evidence that it plays a role in our effect.

A preference for uniqueness may manifest through a variety of concrete choice strategies that express one's individuality and independence (Baumeister 1982; Maimaran and Simonson 2011). One such strategy is to shun mainstream and majority-endorsed options and brands in favor of less popular alternatives (Berger and Heath 2007). Second, uniqueness seeking may manifest in a preference for options framed as rare or special, such as choosing a "limited edition" item over a mass-produced or commonly available option (Lynn and Harris 1997). Third, consumers may express their individuality by choosing options that they believe have been tailored to their unique idiosyncratic tastes (Lee, Gregg, and Park 2013; Sela, Simonson, and Kivetz 2013; Simonson 2005). In sum, we propose the following hypotheses:

H1: Compared with a personal PC, choosing using a personal smartphone (but not a generic smartphone) increases the preference for unique options (i.e., non-mainstream, unique, or individually customized options).

H2: The effect of smartphone use on uniqueness seeking is mediated by private self-focus.

We theorized that using a personal smartphone activates private self-focus, but a generic smartphone or one borrowed from another person is unlikely to have the same effect because it is not associated with the same private self-knowledge and does not have the same insulating effect as a personal device (Melumad and Pham 2020).

We do not predict that the effect of personal smartphone use on uniqueness seeking depends on the degree of consumers' emotional attachment to their device. We theorized that the effect of smartphone use is associative and attentional in nature, reflecting everyday usage rather

than emotional attachment or "love" toward the device. While emotional attachment may contribute to our effect in some cases, it is not a necessary part of our proposed account.

We test our propositions in six main experiments, summarized in Table 1, and several ancillary studies reported in the Web Appendix. We first report a pilot study which sheds preliminary light on the relationship between smartphone use, private self-focus, and perceived distinctiveness. The experiments that follow test the effect of smartphone use on the preference for unique options, the mediating role of private self-focus, and the moderating effect of device ownership. Experimental materials and stimuli for each study are included in the Web Appendix.

Pilot Study: Personal Smartphone Use Activates Private Self-Focus and Distinctiveness

As a preliminary test of our hypothesis that smartphone use activates private self-focus and, consequently, a subjective sense of distinctiveness, we randomly assigned 112 American Mturkers (49% females, M_{age} = 35.4) to use either their personal smartphone or PC.

Method. We advertised that we were recruiting participants who had both their personal smartphone and PC (desktop or laptop) ready to use and told participants that they would be asked to use a specific device to take the survey. Once in the study, we randomly assigned participants to a device condition. Those in the smartphone condition used their device to scan a QR (Quick Response) code which seamlessly opened a browser window on the smartphone, where they completed the main study. We used this method because an estimated 92.5% of MTurkers use a PC by default (Casey et al. 2017), so it was important to make accessing the study on a smartphone as streamlined as possible. Participants in the PC condition were asked to type a very short web URL into their PC browser (Web Appendix A), which redirected them to the main study. We prevented participants from reloading the page and thereby choosing their

device condition. Participants who did not follow the device assignment instructions were detected using Qualtrics's meta-information and Branch Logic functions and returned to the previous page, where they were asked to use the assigned device. We verified device information using an embedded UserAgent HTTP string. Two responses were omitted after failing a reCAPTCHA task designed to reveal bots, leaving 110 responses for the analysis. We used the same recruitment and assignment methodology in all our online studies reported elsewhere in the paper. Our lab experiments use a modified procedure, which is described in later studies.

Participants in both device conditions first performed a simple sentence completion task, whose purpose was to engage them in a generic task, and then rated their feelings during the study. They completed an established measure of private self-focus (Matheson and Zanna 1988; Joinson 2001), which captures both cognitive and attentional aspects of this multi-faceted construct (Prentice-Dunn and Rogers 1982), and measures of perceived distinctiveness. The private self-focus measures were "During the study, I've been very aware of myself, my own perspective and attitudes" and "My mind has been distracted by what is going on around me, rather than thinking about myself" (reversed coded). Measures of distinctiveness included the four items: "I feel unique," "My taste and preferences are a bit different from those of others," "I often think a bit differently from other people," and "I am different from others." All measures used 7-point scales (1 = *strongly disagree*; 7 = *strongly agree*). A principal components analysis with varimax rotation revealed that the private self-focus and distinctiveness items loaded on two orthogonal factors explaining 64.9% of the variance (Web Appendix A). Consequently, we averaged them to form a distinctiveness index ($\alpha = .80$) and a private self-focus index ($r = .30$, $p = .001$). The correlation between the two private self-focus items is similar in magnitude, and

slightly higher, than in the original paper by Matheson and Zanna (1988; $r = .17$) from which they were adapted.

Results and Discussion. Consistent with our conceptualization, respondents who used their smartphone rated themselves as both more privately self-focused and unique than those who completed the study on their PC ($M = 3.80$ vs. $M = 4.24$; $F(1, 108) = 6.73$, $p = .011$, $\eta_p^2 = .059$; and $M = 5.16$ vs. $M = 5.54$; $F(1, 108) = 4.40$, $p = .038$, $\eta_p^2 = .039$, respectively). A bias-corrected bootstrapping mediation analysis with 5,000 samples (Hayes 2013; Model 4) suggests a significant indirect effect of device (smartphone vs. PC), through private self-focus, on perceived distinctiveness ($a \times b = .109$, 95% CI [.006, .254]). These findings are consistent with our hypothesis that using a personal smartphone activates private self-focus, which in turn increases perceived distinctiveness. In the next studies, we examine how smartphone use influences the preference for uniqueness and the role of private self-focus in these effects.

Insert Table 1 about here

STUDY 1: PERSONAL (BUT NOT GENERIC) SMARTPHONES INCREASE UNIQUENESS SEEKING

Study 1 examines whether personal smartphone use increases the preference for less-popular options that appear to deviate from the mainstream, and tests the moderating effect of device ownership. We hypothesize that personal smartphones increase private self-focus (and,

consequently, preference for uniqueness) because they are associated with intimate private self-knowledge. If our hypothesis is correct, then this should hold when consumers use their personal device but not when they use an equivalent device that belongs to another person.

In addition to supporting our theorizing, contrasting the effect of own- vs. other's-smartphone tests several important alternative accounts. First, one may wonder if the effect of smartphone use on the preference for uniqueness is caused by smartphones' physical characteristics, such as their small size, touch-based interface, or mobility. Second, it is possible that smartphones are generally associated with individuality, so using any smartphone may increase the preference for uniqueness. Third, if smartphones are indeed associated with individuality, perhaps demand effects lead participants to believe they are expected to choose more unique options in the smartphone condition. Note that all these alternative accounts predict only a main effect of device type (smartphone vs. PC), regardless of ownership, and would have difficulty explaining our predicted device type × device ownership interaction.

To test several other alternative accounts, we also measured task difficulty, annoyance, and mood, which may vary across devices and, potentially, influence uniqueness seeking.

Method

Undergraduate students (N = 231, 64.9% females, M_{age} = 19.5) completed this study as a part of a lab session in exchange for extra course credit. To ensure random experimental assignment, we asked students in advance to bring both their own smartphone and laptop to the lab, and only complying students were admitted to the study. All admitted participants started the session working on a lab desktop computer and completed unrelated tasks by multiple researchers. When they reached the current experiment, we randomly assigned them to a

condition in a 2 (device type: smartphone vs. laptop PC) × 2 (ownership: own device vs. lab device). Participants assigned to a lab device condition were instructed to ask the lab manager for the assigned device (smartphone or laptop) and those in the own-device condition were instructed to turn on their own respective device. Once they had their assigned device, participants were instructed to follow the same instruction described in the pilot study in order to enter the main experiment using their assigned device.

We used a variety of available lab devices made by Samsung, Apple, Acer, and Lenovo. Critically, the appearance, user interface, and all visual and functional aspects of the study, within each device type condition (smartphone or laptop), were the same regardless of device ownership or the specific device brand used, so there was no difference between the two ownership conditions on these dimensions. Two participants who did not follow the instructions were excluded from further analysis ($N = 229$, 65.1% females, $M_{age} = 19.5$).

Participants responded to a "Preference Survey," adapted from Griskevicius et al. (2006), which included three product pairs (i.e., candy bars, car brands, and color combinations. See Web Appendix B). Next to the option in each pair, participants saw information about which one was allegedly preferred by the majority of previous survey takers. Specifically, one option in each pair was labeled as "Chosen by the majority of the previous participants." For each pair, participants indicated their preferred option on a 7-point scale (1 = *definitely option A*, 7 = *definitely option B*), and we combined these ratings to calculate an index where higher numbers indicate a greater overall preference for uniqueness. We counterbalanced which option was framed as "popular" within each pair and the order of all pairs, neither of which interacted with device condition (p's > .50). Finally, participants rated task annoyance, difficulty, and mood.

Results

Preference for uniqueness. Consistent with our theorizing, a 2 (device type) × 2 (ownership) ANOVA on the preference for less-popular options revealed a significant interaction ($F(1, 225) = 5.38$, $p = .021$, $\eta_p^2 = .023$), with a significant main effect of ownership ($M_{own} = 4.11$ vs. $M_{lab} = 3.67$, $F(1, 225) = 6.25$, $p = .013$, $\eta_p^2 = .027$) and no main effect of device ($M_{smartphone} = 4.01$, $M_{PC} = 3.82$, $F(1, 225) = .84$, $p = .36$).

Among participants who used their own devices, smartphone users preferred less-popular options more than did PC users ($M_{smartphone} = 4.41$, $SE = .17$ vs. $M_{PC} = 3.84$, $SE = .16$; $F(1, 225) = 5.81$, $p = .017$, $\eta_p^2 = .025$). Consistent with our moderation hypothesis, this effect disappeared when participants used the lab's devices ($M_{smartphone} = 3.55$, $SE = .18$ vs. $M_{PC} = 3.80$, $SE = .19$; $F(1, 225) = .89$, $p = .34$). The contrasts within device condition provide convergent validity: participants using their own smartphone preferred less-popular options more than those using a lab smartphone ($F(1, 225) = 11.47$, $p < .001$, $\eta_p^2 = .049$), further suggesting the effect was driven by the own-phone condition. There was no difference between PC conditions ($F(1, 225) = .02$, $p = .90$). See Figure 1.

Insert Figure 1 about here

Alternative explanations. We tested whether task difficulty, annoyance, or mood could explain the results, but none of these accounted for the effects. See Web Appendix B for details.

Discussion

In addition to supporting our theory regarding the effect of personal (but not generic) smartphone use on preference for uniqueness, the findings of Study 1 rule out alternative accounts based on display size, touch interface, and mobility, as well as an experimental demand and a generic "smartphone priming" account. None of these can explain the device type × ownership interaction effect found. The fact that mood, task annoyance, and difficulty do not appear to play a role casts doubt on the possibility that awkwardness or differences in familiarity with functional aspects of the device, due to ownership differences, played a role in the result.

Replications and Extensions (see Web Appendix B)

We conceptually replicated Study 1 in Study W1, using a different type of unique choice, namely, preference for individually customized options. This bolsters the generalizability and construct validity of our findings. Additionally, we used the same materials from Study 1 to test if simply thinking about one's phone is sufficient for the effect to emerge. This study (labeled Study W2) supports our suggestion that merely thinking of one's smartphone may not necessarily produce the same effect on choice as does using the device itself. Although priming the abstract notion of one's smartphone may activate private self-focus in some cases, our theorizing suggests the immersive and insulating qualities of (actual) smartphone use should produce more pronounced effects.

Lastly, Study W3 uses the same choice paradigm to test whether differences in emotional attachment toward a personal smartphone vs. PC mediate our effect. Consistent with our conceptualization, the findings do not reveal a significant effect of emotional attachment.

STUDY 2A: MODERATION BY PRIVATE SELF-FOCUS

Study 2A uses an incentive-compatible design to test the role of private self-focus (H2) using a moderation-of-process approach (Spencer, Zanna, and Fong 2005). If smartphone use leads people to prefer more unique options due to heightened private self-focus, then a manipulation that increases private self-focus should increase the preference for uniqueness for PC users but have an attenuated effect on smartphone users (because they are already high in private self-focus to begin with).

We also tested an alternative explanation based on device brand. Prior research suggests that Apple products may activate a "think different" goal (Fitzsimons, Chartrand, and Fitzsimons 2008), which could potentially influence uniqueness seeking, so we collected data about device brand to account for any potential differences in the share of Apple products across conditions.

Method

Participants ($N = 450$, 45.3% females, $M_{age} = 37.7$) completed the study on MTurk. The recruitment and assignment procedures were identical to our pilot study. Participants were randomly assigned to a condition in a 2 (device type: smartphone vs. PC) × 2 (private self-focus: baseline vs. elevated) between-subjects design. Two participants in the smartphone condition did not follow the assignment instructions and were excluded from further analysis ($N = 448$, 45.3% females, $M_{age} = 37.6$).

The main task was incentive compatible. Participants were asked to shop and browse through products on a mock website selling lifestyle products (see Web Appendix C). Before entering the website, participants read one of two messages, adapted from prior research (Ellis

and Holmes 1982), which constituted the private self-focus manipulation. In the elevated private self-focus condition, participants read that "this survey is concerned with how you make choices based on who you are" and were asked to "focus on yourself, especially your inner states such as how you feel and think" during the survey. In the baseline condition, participants read that "this survey is concerned with how people make choices" and were instructed to "keep focusing during the survey." A pretest, reported in Web Appendix C, validated that this manipulation increased transient private self-focus ($F(1, 118) = 8.71$, $p = .004$, $\eta_p^2 = .069$) but not public self-focus ($F(1, 118) = .54$, $p = .46$, $\eta_p^2 = .005$).

While browsing, we asked participants to click on any products they liked so that the website could later provide them with personalized recommendations based on their individual taste. Browsing time and the number of products clicked did not interact with the device and private self-focus conditions (p's > .63).

After browsing for a few moments, participants received recommendations for two new products not seen before on the website. One of the recommendations was framed as individually customized especially for the participant (i.e., "Based on your browsing history... Especially for you: [option]"). The other recommendation was framed as a popular option favored by many others (i.e., "Based on other people's browsing history… Bestseller: [option]"). The two recommended options were presented vertically. We counterbalanced presentation order and which product was framed as personally customized vs. the bestseller, and neither interacted with device condition in the main analysis (all p's > .35). To make the decision incentive-compatible, we told participants that one randomly selected person would receive their chosen option. At the end of the study, participants rated task annoyance, difficulty, and mood, and we collected data on device brands as discussed earlier.

Results

Preference for uniqueness. A 2 (device type) × 2 (private self-focus) binary logistic regression on the preference for the individually customized option revealed a significant interaction (B = -.94, $\chi^2(1) = 5.94$, p = .015) and main effects of device (B = .61, $\chi^2(1) = 5.49$, p = .019) and private self-focus (B = .83, $\chi^2(1) = 10.00$, p = .002).

In the baseline condition, 57.5% of smartphone users preferred the individually customized option, whereas only 42.3% of PC users chose that option ($\chi^2(1) = 5.53$, p = .019). However, when private self-focus was experimentally evoked, preference for the customized option did not differ across devices (smartphone = 54.7% vs. PC = 62.7%; $\chi^2(1) = 1.35$, p = .25) and was similar to the baseline smartphone condition (57.5%). See Figure 2.

Insert Figure 2 about here

Alternative explanations. As in Study 1, analyses revealed that difficulty, annoyance, and mood could not explain the effects (see Web Appendix C for details).

In all, 24.6% of participants used Apple devices (7.3% in the PC condition and 45.8% in the smartphone condition), but device brand did not interact with device type (p = .31). The effect of device on the preference for uniqueness was independent of device brand.

Discussion

Study 2A used the moderation-of-process approach to test the underlying role of private self-focus in our effect. A manipulation known to elevate private self-focus increased the preference for uniqueness among PC users, but had no effect on smartphone users, who tended to prefer the more unique option regardless of the manipulation.

STUDY 2B: MODERATION BY DISPOSITIONAL PRIVATE SELF-FOCUS

Study 2B accomplishes three goals. First, it extends our previous studies by testing the preference for a "limited edition" option rather than one that is commonly available, using an incentive-compatible choice. We predicted that participants using their personal smartphone would be more likely to choose the limited-edition option.

Second, we measured individual differences in private self-focus (Scheier and Carver 1985) to further test the role of private self-focus. If using a personal smartphone increases uniqueness seeking by momentarily elevating private self-focus, as we hypothesize, then this effect should be pronounced among participants who are not already high on private self-focus at the baseline and attenuated among those who are chronically high in private self-focus.

Third, in addition to private self-focus, we also measured individual differences in public self-focus, to test an alternative account based on self-presentation. One may wonder if smartphones activate an impression management goal, which has been shown to increase uniqueness seeking in public group settings (Ariely and Levav 2000). Impression management reflects public self-focus (Froming and Carver 1981; Joinson 2001), so if our effect is driven by

self-presentation motives, it should be moderated by differences in public self-focus. Our conceptualization, however, does not predict such an effect.

Method

Participants (N = 248, 27.4% females, M_{age} = 34.4) completed a survey on MTurk and were randomly assigned to one of two between-subjects conditions (smartphone vs. PC). We used the same assignment procedure described in the pilot study. Eight participants did not follow the device assignment instructions and were excluded from the analysis (N = 240, 28.3% females, M_{age} = 34.4).

Participants completed two sub-scales measuring dispositional (rather than situational) private and public self-focus, adapted from prior research (Buss 1980; Scheier and Carver 1985; see Web Appendix D). A principal components analysis on the three private self-focus and three public self-focus items revealed two factors, pertaining to dispositional private and public self-focus, respectively, which accounted for 72.2% of total variance. Each sub-scale was averaged to an index (α = .72 and α = .87, respectively). Device had no significant effect on either the private ($F(1, 238) = 2.38$, p = .13) or public ($F(1, 238) = .26$, p = .61) self-focus measure.

Participants rated their task annoyance, difficulty, and mood as in previous studies. At the end of the survey, we told participants that we would randomly select one person to receive a free bag of Lindt Lindor chocolate truffles, as an additional token of appreciation. Participants chose between two options: a "Strawberries and cream (limited edition)" flavor and a commonly available "Milk chocolate" flavor (Web Appendix D). Choice options were presented vertically, and the counterbalanced presentation order did not interact with device condition in any of the main analyses (p's > .43). We also collected data on device brand.

Results

A device × dispositional private self-focus binary logistic regression on choice revealed a main effect of device, replicating our previous findings: smartphone users were generally more likely than PC users to prefer the "limited edition" option (47.2% vs. 32.8%, respectively; B = 4.70, SE = 1.93, p = .015). Consistent with our theorizing regarding private self-focus's effect on uniqueness seeking, there was also a positive main effect of dispositional private self-focus on preference for the unique option (B = .52, SE = .26, p = .047). These main effects were qualified by the predicted interaction (B = -.70, SE = .33, p = .032). Specifically, the effect of device on choice was significant *except* when the dispositional level of private self-focus was already high at the baseline (i.e., higher than the Johnson-Neyman point of 5.94, or .16 *SD* above the mean point of 5.77). See Figure 3.

Insert Figure 3 about here

A similar analysis using dispositional public self-focus as a moderator did not reveal a significant main effect of public self-focus (B = .05, SE = .13, p = .42) or a device × public self-focus interaction effect on choice (B = -.005, SE = .19, p = .98). This casts doubt on the possibility that the effect of device on preference for uniqueness was driven by public self-focus, impression management, or self-presentation. Ancillary analyses on task difficulty, annoyance, mood, and device brand suggests these factors do not explain the effect (Web Appendix D).

Discussion

Using an incentive-compatible design, Study 2B provides convergent evidence for the role of private self-focus: the effect was attenuated among those whose baseline level of private self-focus was already high to begin with. The absence of an interaction effect involving public self-focus casts doubt on the possibility that self-presentation motives were driving the effect.

STUDY 3A: MEDIATION USING IMPLICIT PRIVATE SELF-FOCUS MEASURES

Study 3A uses an incentive-compatible design to test the mediating role of private self-focus. We predicted that using a personal smartphone rather than a PC would increase the preference for uniqueness and that this effect would be mediated by private self-focus. In this study, we measured the mediator using the Linguistic Implications Form (LIF; Wegner and Giuliano 1983), a widely used implicit measure of momentary private self-focus where changes in the frequency of first-person singular pronoun use (e.g., *I*, *me*, *my*, or *mine*) reflect differences in private self-focus.

Method

Undergraduate students (N = 205, 54.6% females, M_{age} = 19.9) completed this study in the lab in exchange for extra course credit, as a part of an experimental session that included several unrelated studies. The recruitment and assignment procedures were identical to Study 1. All participants had both their personal smartphone and laptop with them. Eight participants did not follow the assignment instructions and they were excluded from the analysis (N = 197, 54.8% females, M_{age} = 19.9).

Adapting a manipulation from prior research on offer customization (Sela et al. 2013), participants first filled out a "Charity Navigator" questionnaire where they answered questions about their typical donation behavior, such as how often they donate to charity and what goals they have when doing so. The same materials were used in Study W1 (see Web Appendix B).

Then, in an alleged follow-up survey titled "Charity Survey," we told participants that the university was collaborating with local charity organizations and was encouraging students to show their support for one charity by joining its Facebook group. To increase the realism of the decision, we told participants that they would select a local charity organization and then have the option to show their support for that charity on their Facebook page.

Participants received recommendations for two charities they could support: *Action for Healthy Kids* and *StandUp for Kids*. Unbeknownst to participants, these charities were fictitious. One of the recommendations was framed as individually customized (i.e., *"Based on your unique values and preferences, we recommend for you ___"*). The other recommendation was framed as the popular option (i.e., *"Based on what other participants chose, we recommend for you ___"*). We counterbalanced which charity was framed as customized vs. popular, which did not interact with device condition in the main analysis ($p > .76$). A pretest ($N = 113$) confirmed that device had no significant effect on participants' likelihood of correctly recalling which option had been individually customized vs. popular ($\chi^2(1) = 1.11$, $p = .29$).

After choosing their preferred option, participants continued to a task designed to unobtrusively capture self-focus, our hypothesized mediator. We used a Linguistic Implications Form (LIF; Wegner and Giuliano 1983), a widely used measure of momentary private self-focus (Web Appendix E). Consistent with prior research (Davis and Brock 1975; Silvia and Gendolla 2001), the frequency of first-person singular pronoun use (e.g., *I*, *me*, *my*, or *mine*) can be

interpreted as a measure of private self-focus, whereas first-person plural (e.g., *we*, *our*) and third-person pronouns (e.g., *hers*, *them*) are interpreted as reflecting public self-focus. Finally, participants rated task annoyance, difficulty, and mood, and we collected data on device brand.

Results

Preference for uniqueness. Replicating previous studies, participants were more likely to choose the charity framed as customized especially for them when they used their personal smartphone rather than personal laptop PC (52.8% vs. 37.4%; $B = .63$, $\chi^2(1) = 4.68$, $p = .03$).

Private self-focus. First-person singular pronoun selections (out of 20 possible) were summed to provide an overall index of private self-focus. AS one-way ANOVA showed that smartphone users selected first-person singular pronouns more ($M = 9.06$, $SE = .30$) than did PC users ($M = 7.63$, $SE = .32$; $F(1, 195) = 10.55$, $p = .001$, $\eta_p^2 = .051$), reflecting elevated private self-focus. A bias-corrected mediation analysis with 5,000 bootstrap samples (Hayes 2013; Model 4) supports our hypothesis that private self-focus mediates the effect of smartphone use on the preference for unique options ($a \times b = .19$, $SE = .11$, 95% CI [.039, .476]).

These results also cast doubt on a public self-focus account, because the mediator simultaneously reflects both relatively higher private self-focus (more first-person singular pronouns) and lower public self-focus (fewer third person and plural pronouns). Ancillary analyses confirmed that perceived difficulty, annoyance, mood, and device brand cannot explain the effects, either (see Web Appendix E).

STUDY 3B: MEDIATION USING AN EXPLICIT PRIVATE SELF-FOCUS MEASURE

Study 3B conceptually replicates Study 3A, using an incentive-compatible design, but tests the mediating role of private self-focus using an explicit rather than implicit measure. We also test several alternative mediators, including public self-focus, general attentional focus, involvement, interest in the task, and effort. Although using a personal smartphone, rather than a persona; PC, may influence some of these psychological states, we predict that private self-focus has a unique mediating role in our effect.

Method

Participants (N = 122, 53.3% females, M_{age} = 35.3) completed the study on MTurk. We recruited participants and assigned them to a between-subjects device condition (smartphone vs. PC) using the same procedure described in the pilot study. Because this study uses wine as the focal decision domain, we set the minimum participation age to 21, the legal drinking age in the US. All participants followed the instructions, and none was removed.

We told participants that they would choose a wine based on a recommendation. To make the experiment incentive compatible, we told them that they would enter a raffle in which they would have a one-in-ten chance to receive their chosen bottle of wine, as an additional reward. Participants first filled out a questionnaire, adapted from a wine-pairing website, in which they answered questions about their preferences for various foods, allegedly to help them discover what red wine would match their individual preferences (see Web Appendix F).

Participants then received two recommendations for a wine they could win: a *Joel Gott Blend No. 815 Cabernet Sauvignon* and a *1865 Selected Vineyards Cabernet Sauvignon*. One of

these recommendations was framed as customized for the participant based on their unique taste (i.e., *"Based on your unique values and preferences, we recommend ___"*). The other recommendation was framed as the popular option (i.e., *"This is what most of the other participants chose"*). The options were presented vertically. We counterbalanced which recommendation was framed as customized vs. popular, which did not interact with device condition in the main analysis ($p > .26$). The dependent variable was choice.

Participants completed measures of private and public self-focus adapted from prior research (Matheson and Zanna 1988; Joinson 2001; Web Appendix F). The private self-focus measure consists of two items, measured on 7-point scales, pertaining to an inward focus on private thoughts and attitudes during the study, "While completing this survey, I've generally been very aware of myself, my own perspective and attitudes" and "My mind has been distracted by what is going on around me, rather than thinking about myself" (reversed coded). The public self-focus measure consists of two items pertaining to self-presentation concerns and how the self is viewed by others during the study, "In this survey, I have wondered about the way I've responded and presented myself in comparison to other people" and "In this survey, I have been thoughtful of how well I may get along with other people" (factor analysis reported below).

On a separate page, we tested additional alternative mediators, including the level of focus ("How much were you focused on the survey?"), personal involvement ("How involved were you in completing the survey?"), interest ("How interesting do you think this survey was?") and effort ("How much effort did you spend in completing this survey?"), all using a 7-point scales (1 = *not at all*, 7 = *very much*).

Participants also indicated their subjective expertise in wine ("In general, how knowledgeable do you feel about wine?"; 1 = *I know very little*, 7 = *I know a lot*, "Compared to

the average consumer, how much do you know about red wines?"; 1 = *Much less*, 7 = *Much more*, $r = .84$, $p < .001$; Sela et al. 2019) and rated task annoyance, difficulty, and mood. We collected data on device brand as in previous studies.

Results

Preference for uniqueness. Replicating our previous findings, a binary logistic regression on choice revealed that smartphone users were more likely than PC users to choose the unique option, namely, the wine framed as customized especially for them based on their unique taste (88.5% vs. 73.8%; $B = 1.01$, $\chi^2(1) = 4.14$, $p = .04$).

Private and public self-focus. A confirmatory factor analysis on the private and public self-focus items revealed two factors pertaining to private and public self-focus, respectively, accounting for 74.2% of total variance (see Web Appendix F). Consequently, we averaged each pair of items, to form indexes of private ($r = .40$, $p < .001$) and public ($r = .46$, $p < .001$) self-focus. These correlations are similar in magnitude or higher than in the original research by Matheson and Zanna (1988), from which they were adapted ($r = .17$ and $r = .41$, respectively). Private and public self-focus were negatively correlated with each other ($r = -.33$, $p < .001$).

Our factor analysis validates our contention, which is rooted in prior research, that private self-focus reflects a shift toward private inner states and, simultaneously, away from the surrounding environment (Matheson and Zanna 1988; Silvia and Abele 2002). This notion of private self-focus seems particularly valid in the context of smartphone use, which often insulates users from their surroundings, as previously discussed.

A one-way ANOVA on the hypothesized mediator revealed that participants using their smartphone reported a heightened degree of private self-focus ($M = 6.30$, $SE = .15$) compared

with those using their PC (M = 5.69, SE = .15; $F(1, 120) = 8.73$, p = .004, η_p^2 = .068). There was no corresponding effect of device on public self-focus ($F(1, 120) < .01$, p = .96). A bias-corrected mediation analysis with 5,000 bootstrap samples (Hayes 2013; Model 4) supports our hypothesis that private self-focus mediates the effect of smartphone use on the preference for uniqueness ($a \times b$ = .30, SE = .18, 95% CI [.012, .705]).

Public self-focus did not mediate the effect of device on choice ($a \times b$ = .004, SE = .10, 95% CI [-.195, .235]). Further, including both public and private self-focus in a simultaneous mediation analysis revealed a nonsignificant indirect effect through public self-focus ($a \times b$ = .0024, SE = .08, 90% CI [-.114, .141]), while the indirect effect through private self-focus held ($a \times b$ = .26, SE = .178, 90% CI [.021, .581]).

Alternative mediators. A series of ANOVAs on interest and effort did not reveal a significant effect of device (all p's > .70). We found a marginally significant effect of device on level of focus ($M_{smarthpone}$ = 6.85 vs. M_{PC} = 6.61; $F(1, 120) = 3.80$, p = .054, η_p^2 = .031) and a significant effect on involvement ($M_{smarthpone}$ = 6.85 vs. M_{PC} = 6.49; $F(1, 120) = 9.35$, p = .003, η_p^2 = .072), which may not be surprising considering their nomological relationship with private self-focus. However, a principal components analysis revealed that these measures did not load on the same factor with private self-focus, and mediation analyses testing the indirect effect of smartphone use on choice did not reveal a significant mediating effect of either focus ($a \times b$ = .10, SE = .11, 95% CI [-.046, .382]) or involvement ($a \times b$ = .17, SE = .16, 95% CI [-.081, .517]). Moreover, the mediating effect of private self-focus remained marginally significant when tested simultaneously with focus and involvement ($a \times b$ = .28, SE = .19, 90% CI [.003, .616]), while neither focus nor involvement was significant (both $a \times b < .04$, $SE > .20$, 90% CI [-.262, .352]).

Finally, ancillary analyses on task difficulty, annoyance, mood, and device brand suggest these cannot explain the effects (Web Appendix F).

Discussion: Studies 3A and 3B

Studies 3A and 3B provide convergent evidence for the mediating role of private self-focus, using both implicit (Study 3A) and explicit measures (Study 3B). Both studies also include additional evidence against a public self-focus account, which casts further doubt on the possibility that impression management or self-presentation were driving the effect.

Lastly, Study 3B does not find evidence supporting several alternative mediators, including differences in interest, effort, involvement, or focus. Although some of these constructs may play a role in other cases, they do not appear to be driving the current effects.

GENERAL DISCUSSION

Smartphones have become a key medium for making purchase decisions, alongside PCs and other electronic devices. Although emerging evidence suggests that the type of device used may influence how consumers decide, the exact causal nature of this influence is still largely unknown. The current research indicates that using a personal smartphone rather than a personal PC may lead consumers to choose more unique and self-expressive options. This effect appears to be driven by elevated private self-focus when using a personal smartphone.

We first reported a pilot study supporting our theorizing regarding the relationship between smartphone use, private self-focus, and perceived distinctiveness. We then tested the effect of personal smartphone use on the preference for uniqueness in five main experiments and

several additional extension studies reported in the Web Appendix. The preference for uniqueness was captured using options customized based on the consumer's individual taste, less-popular options that deviate from the mainstream, and special or rare options. This illustrates the robustness and generalizability of the effect. We tested the moderating effect of device ownership, which underscores our conceptualization while also ruling out multiple alternative accounts based on physical and ergonomic differences between smartphones and PCs. Finally, we demonstrated the underlying role of private self-focus in these effects, using both moderation-of-process and mediation analysis.

Across studies, we tested multiple alternative accounts, including annoyance, difficulty, and device brand, but we consistently found no evidence that such factors were driving our effects. We also tested alternative accounts based on public self-focus and self-presentation, focus, involvement, interest, and effort. While such processes may contribute to the effect in certain cases, they do not appear to play a significant role in the current research. Our moderation and mediation studies cast doubt on the possibility of experimental demand, which would have difficulty explaining those results.

Theoretical Implications

This work makes several theoretical contributions. First, we extend the budding literature on smartphone use and consumer decision making. Most previous research on smartphone use has focused either on modeling consumer behavior at an aggregate level (Andrews et al. 2016; de Haan et al. 2018; Grewal et al. 2018; Raphaeli, Goldstein, and Fink 2017; Wang, Malthouse, and Krishnamurthi 2015) or consumer content generation and evaluation (Grewal and Stephen 2019; Melumad et al. 2019; Ransbotham, Lurie, and Liu 2019). Our research shows that smartphone

use can change what consumers choose, and examines a novel explanation for this effect, namely, private self-focus.

Second, this research extends the private self-focus literature by showing that it increases preferences for uniqueness. Although decades of research suggest that private self-focus begets individuation and perceived distinctiveness, our research is the first, to the best of our knowledge, to systematically examine the causal link between private self-focus and preferences for uniqueness. We also extend the private self-focus literature by showing that smartphones can evoke private self-focus. Considering the influence private self-focus exerts on numerous consumer behaviors, including product evaluation, service satisfaction, affective decision-making, and choice, our research reveals a pervasive trigger of private self-focus with potentially far-reaching implications.

Finally, our results may help explain why consumers are more willing to disclose private information when using a personal smartphone rather than a PC (Melumad and Meyer 2020). Because they elevate private self-focus, smartphones may increase both the accessibility and the tendency to express and share private self-knowledge (Joinson 2001).

Boundary Conditions and Directions for Future Research

The cultural context in which people are embedded might moderate the effect of personal smartphone use on uniqueness seeking. Our effects may be attenuated in cultural contexts that emphasize a more collectivistic and less individuated notion of self (e.g., East Asian). In such contexts, private self-focus may not have the same individuating effect it has in other cultural contexts, and it may evoke a conflict between private and collective preferences (Barnes 2020).

Our results might be moderated by decision domain. Although we tested a broad range of products (wine, designer items, charities, chocolate), the effects may be attenuated in domains in which choosing a distinctive option is the default regardless of device (e.g., hairstyle, birthday cake; Berger and Heath 2007) or when self-expression is irrelevant (e.g., dish soap). The effect may also depend on the specific activity, app, or website with which people interact on their device, which may influence private self-focus and the preference for uniqueness.

Future research may also examine additional downstream consequences of private self-focus resulting from smartphone use, such as resistance to persuasion (Hutton and Baumeister 1992; Scheier and Carver 1980), perspective-taking (Hung and Wyer 2011), causal attribution (Buss and Scheier 1976; Pham et al. 2010), affective thinking (Chang and Hung 2018), and preference fluency (Goukens et al. 2009), as well as other forms of self-expression, such as compromising, variety seeking, and a preference for extreme, risky, and hedonic options (Maimaran and Simonson 2011; Sela and Simonson 2017).

Practical Implications

Online vendors routinely track the type of device used by their customers and often tailor the content to the device used. Our results suggest that consumers may find individually customized, less popular, and unique options more appealing when using their smartphone rather than PC. Amazon.com, for example, may benefit from presenting "especially for you" rather than "bestseller" recommendations for smartphone users. Spotify's and YouTube's smartphone apps should recommend "mixed for you" and "based on your recent listening" playlists for smartphone users, rather than "popular hits" or "trending now" playlists. Similarly, restaurants and brands that encourage their customers to order food and drink through their mobile apps

(e.g., Chipotle, Starbucks) might benefit from offering more unique or "individually customized" options and promotions for their mobile users, compared with users of personal computers. Consumers may also be more likely to choose more unique, unusual, or less popular venues (e.g., restaurants), events (e.g., concerts), and products (e.g., clothes) when making online reservations and purchases using their smartphone, compared with a PC.

This work also has important implications for companies, pollsters, and academic researchers who collect data through online surveys. An estimated 30%-35% of consumers respond to online consumer surveys using smartphones and mobile apps (B2B International 2020; SurveyMonkey 2020). Our results indicate that the preferences and attitudes they express in such surveys may vary as a function of the type of device used. Using a smartphone rather than a PC may increase the preference for more unique or self-expressive options, promotions, and ad copies when using a smartphone (e.g., increasing the impact of identity- rather than benefit-based messages; Shavitt 1990; Snyder and DeBono 1985). Market researchers may need to account for the type of device from which data was obtained when drawing conclusions about consumer preferences. Similarly, academic researchers collecting data online (e.g., on Amazon Mturk) may find different effects on measures related to private self-focus, individuality, uniqueness, and self-expression as a function of whether respondents use smartphones or PCs. Consequently, they may wish to account for device type as a factor in their analyses.

Companies and organizations often encourage their customers and members to use mobile apps, rather than generic browsers. To the extent that such a migration entails increased use of personal smartphones, it may influence the type of products and services consumers seek (i.e., customized or more unique options), the persuasive appeal they respond to (i.e., more individuating language), or any of the other dimensions discussed earlier.

Smartphones have had a dramatic effect on our lives, reshaping relationships, habits, and consumption behaviors. We hope that this research advances understanding of some of these effects and their implications for theory and marketing practice.

TABLE 1: SUMMARY OF STUDIES

Study 1 (N = 229 undergraduate students, 65.1% females, M_{age} = 19.5 years)

	Own device			Lab device		
	Phone	Laptop PC		Phone	Laptop PC	
Preference for uniqueness	4.41 (SE = .17)	3.84 (SE = .16)	p = .017	3.55 (SE = .18)	3.80 (SE = .19)	p = .34

Dependent variable: Mean preference for three product options described as chosen [versus not] by the majority of previous participants, 1-7 scale
Main findings: Significant device × ownership interaction (p = .021) suggests the effect of smartphone vs. PC use on preference for uniqueness was significant for participants' using their personal device (p = .017) but not a lab device (p = .34)

Study 2A (N = 448 Amazon Mturkers, 45.3% females, M_{age} = 37.6 years)

	Baseline private self-focus			Elevated private self-focus		
	Phone	PC		Phone	PC	
Preference for uniqueness	57.5%	42.3%	p = .019	54.7%	62.7%	p = .25

Dependent variable: Choice of a lifestyle product option described as individually customized based on one's unique personal preferences rather than a popular option
Main findings: Significant device × situational private self-focus interaction (p = .015) suggests the effect of smartphone use on uniqueness seeking was significant at the baseline (p = .019) but not when private self-focus was induced for both smartphone and PC users (p = .25)

Study 2B (N = 240 Amazon Mturkers, 28.3% females; M_{age} = 34.4 years)

	Low private self-focus (-1 SD, 4.90)			Moderate private self-focus (Mean, 5.77)			High private self-focus (+1 SD, 6.65)		
	Phone	PC		Phone	PC		Phone	PC	
Preference for uniqueness	50.8%	22.5%	p = .002	46.8%	31.4%	p = .02	42.9%	41.9%	p = .91

Dependent variable: Choice of a rare "Special Edition" chocolate option rather than a standard option
Main findings: Significant device × dispositional private self-focus interaction (p = .032) suggests the effect of smartphone use on the choice of the unique option was significant for people who scored low and moderate on the dispositional private self-focus (p = .002 and p = .002) but disappeared for people who scored high on the dispositional private self-focus scale (higher than the Johnson-Neyman point of 5.94, or .16 SD above the mean point of 5.77)

Study 3A (N = 197 undergraduate students, 54.8% females, M_{age} = 19.9 years)

	Phone	Laptop PC	
Preference for uniqueness	52.8%	37.4%	p = .03
Private self-focus	9.06 (SE = .30)	7.06 (SE = .32)	p = .001

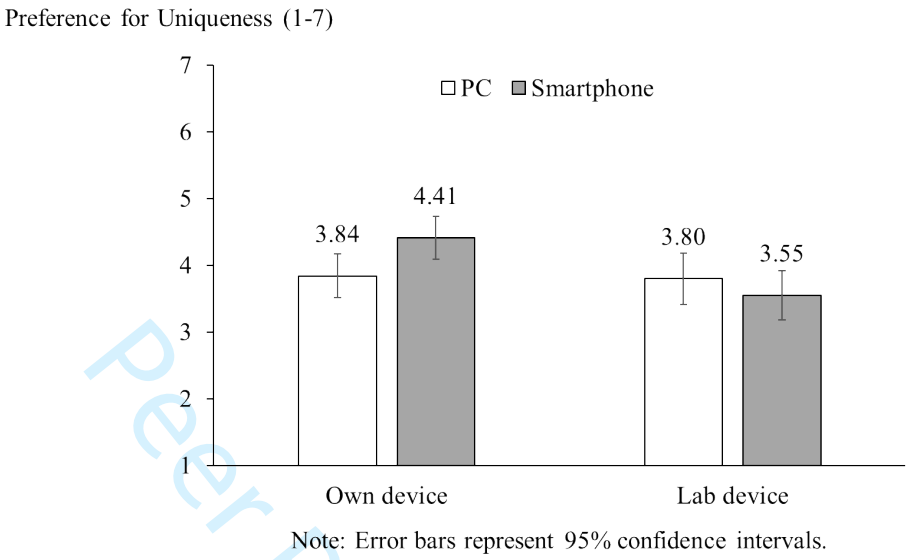
Dependent variable: Choice of a charity option described as individually customized based on one's unique personal preferences rather than a popular option
Mediator: Implicit measure of private self-focus (Linguistic Implications Form), ranging from 0-20
Main findings: The effect of smartphone vs. PC use on choice was mediated by private self-focus as measured by LIF (95% CI [.039, .476])

Study 3B (N = 112 Amazon Mturkers, 53.3% females, M_{age} = 35.3 years)

	Phone	PC	
Preference for uniqueness	88.5%	73.8%	p = .04
Private self-focus	6.30 (SE = .15)	5.69 (SE = .15)	p = .004

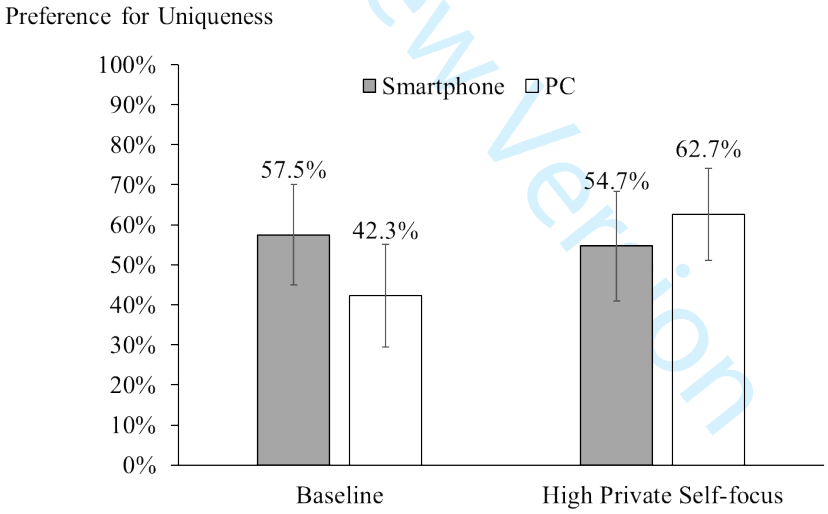
Dependent variable: Choice of a wine option described as individually customized based on one's unique personal preferences rather than a popular option
Mediator: Explicit measure of private self-focus, 1-7 scale
Main findings: The effect of smartphone vs. PC use on choice was mediated by self-ratings on the private self-focus scale (95% CI [.012, .705])

FIGURE 1: MODERATION BY DEVICE OWNERSHIP (STUDY 1)



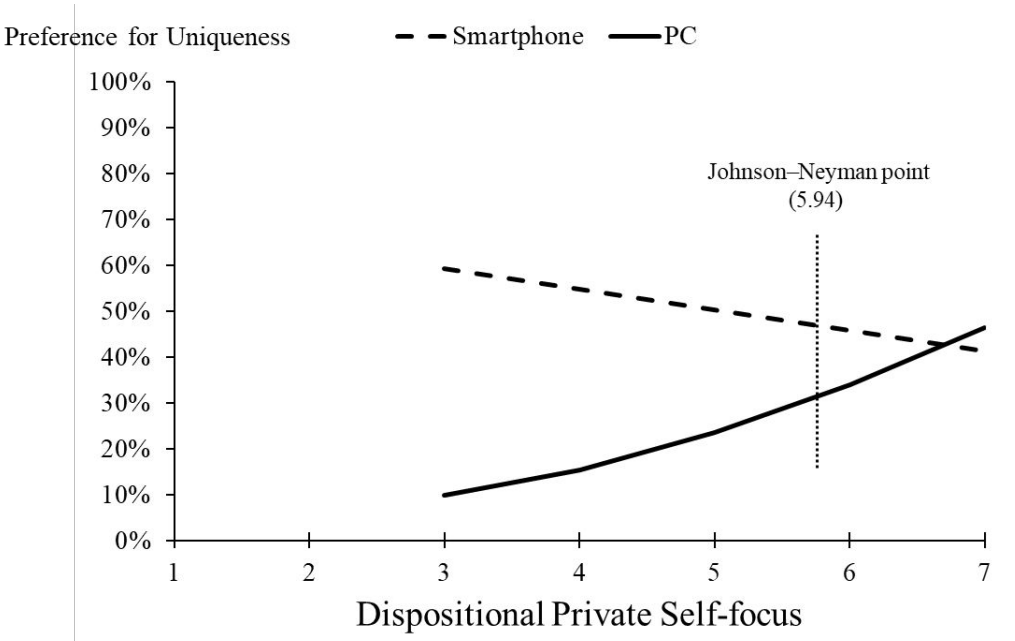
Note: Error bars represent 95% confidence intervals.

FIGURE 2: MODERATION BY PRIVATE SELF-FOCUS (STUDY 2A)



Note: Error bars represent 95% confidence intervals.

FIGURE 3: MODERATION BY DISPOSITIONAL PRIVATE SELF-FOCUS (STUDY 2B)



The vertical dotted line indicates the boundary of the Johnson–Neyman region of significance ($p < .05$). There were no observations below 3 on the measure of private self-focus.

REFERENCES

Andersen, Susan M., and Serena Chen (2002), "The relational self: an interpersonal social-cognitive theory," *Psychological review*, 109 (4), 619-645.

Andrews, Michelle, Xueming Luo, Zheng Fang, and Anindya Ghose (2016), "Mobile Ad Effectiveness: Hyper-Contextual Targeting with Crowdedness," *Marketing Science*, 35 (2), 218–33.

Ariely, Dan and Jonathan Levav (2000), "Sequential Choice in Group Settings: Taking the Road Less Traveled and Less Enjoyed," *Journal of Consumer Research*, 27 (3), 279–90.

B2B International (2020), "What Proportion of Online Surveys are Conducted on a Smartphone?" https://www.b2binternational.com/research/methods/faq/mobile-surveys/

Baldwin, Mark W. (1994), "Primed relational schemas as a source of self-evaluative reactions," *Journal of Social and Clinical Psychology*, 13 (4), 380-403.

Barnes, Aaron J. (2020), "Culture and Personal Preferences: Implications for Decision Making, Information Processing, and Brand Equity," *unpublished dissertation*, University of Illinois at Urbana-Champaign.

Berger, Jonah and Chip Heath (2007), "Where Consumers Diverge from Others: Identity Signaling and Product Domains," *Journal of Consumer Research*, 34(2), 121–34.

Buss, Arnold H. (1980), *Self-Consciousness and Social Anxiety*. San Francisco: Freeman.

Buss, David M and Michael F Scheier (1976), "Self-Consciousness, Self-Awareness, and Self-Attribution," *Journal of Research in Personality*, 10(4), 463–68.

Carver, Charles S. and Michael F. Scheier (1981), "Self-consciousness and reactance," *Journal of Research in Personality*, 15 (1), 16–29.

Casey, Logan S., Jesse Chandler, Adam Seth Levine, Andrew Proctor, and Dara Z. Strolovitch (2017), "Intertemporal Differences Among MTurk Workers: Time-Based Sample Variations and Implications for Online Data Collection," *SAGE Open*, 7(2).

Chang, Hannah H. and Iris W. Hung (2018), "Mirror, Mirror on the Retail Wall: Self-Focused Attention Promotes Reliance on Feelings in Consumer Decisions," *Journal of Marketing Research*, 55(4), 586–99.

Cheek, Jonathan M. and Stephen R. Briggs (1982), "Self-consciousness and aspects of identity," *Journal of Research in Personality*, 16 (4), 401–8.

Chen, Ping Ling and Chih Wei Pai (2018), "Pedestrian smartphone overuse and inattentional blindness: An observational study in Taipei, Taiwan," *BMC Public Health*, 18 (1).

Clayton, Russell B., Glenn Leshner, and Anthony Almond (2015), "The Extended ISelf: The Impact of iPhone Separation on Cognition, Emotion, and Physiology," *Journal of Computer-Mediated Communication*, 20(2), 119–35.

Conner, Cheryl (2013), "Fifty Essential Mobile Marketing Facts," *Forbes* (November 12), https://www.forbes.com/sites/cherylsnappconner/2013/11/12/fifty-essential-mobile-marketing-facts/#7c3142677475.

Dagogo-Jack, Sokiente W and Mark R Forehand (2018), "Egocentric Improvement Evaluations: Change in the Self as an Anchor for Brand Improvement Judgments," *Journal of Marketing Research*, 55(6), 934–50.

Davis, Deborah and Timothy C. Brock (1975), "Use of first person pronouns as a function of increased objective self-awareness and performance feedback," *Journal of Experimental Social Psychology*, 11 (4), 381–88.

de Haan, Evert, P.K. Kannan, Peter C Verhoef, and Thorsten Wiesel (2018), "Device Switching in Online Purchasing: Examining the Strategic Contingencies," *Journal of Marketing*, 82(5), 1–19.

Diener, Ed (1979), "Deindividuation, self-awareness, and disinhibition," Journal of Personality and Social Psychology, 57, 1160-1171.

Ellis, Robert J. and John G. Holmes (1982), "Focus of attention and self-evaluation in social interaction," *Journal of Personality and Social Psychology*, 43 (1), 67–77.

Fitzsimons, Gráinne M., and John A. Bargh (2003), "Thinking of you: nonconscious pursuit of interpersonal goals associated with relationship partners," *Journal of personality and social psychology*, 84 (1), 148-164.

Fitzsimons, Gráinne M., Tanya L. Chartrand, and Gavan J. Fitzsimons (2008), "Automatic Effects of Brand Exposure on Motivated Behavior: How Apple Makes You 'Think Different,'" *Journal of Consumer Research*, 35(1), 21–35.

Förster, Jens, and Nira Liberman (2007), "Knowledge Activation," in *Social Psychology: Handbook of Basic Principles*, ed. Arie W. Kruglanski and E. Tory Higgins, Guilford Press, New York, NY, 201-231.

Froming, William J. and Charles S. Carver (1981), "Divergent influences of private and public self-consciousness in a compliance paradigm," *Journal of Research in Personality*, 15 (2), 159–71.

Ghose, Anindya, Avi Goldfarb, and Sang Pil Han (2013), "How Is the Mobile Internet Different? Search Costs and Local Activities," *Information Systems Research*, 24(3), 613–31.

Gibbons, Frederick X. (1990), "Self-Attention and Behavior: A Review and Theoretical Update," *Advances in Experimental Social Psychology*, 23(C), 249–303.

Google (2018), "Micro-Moments Evolve with Consumer Behavior," https://www.thinkwithgoogle.com/data-collections/micro-moments-consumer-behavior-immediate-expectations/.

Goukens, Caroline, Siegfried Dewitte, and Luk Warlop (2009), "Me, Myself, and My Choices: The Influence of Private Self-Awareness on Choice," *Journal of Marketing Research*, 46(5), 682–92.

Grewal, Dhruv, Carl-Philip Ahlbom, Lauren Beitelspacher, Stephanie M Noble, and Jens Nordfält (2018), "In-Store Mobile Phone Use and Customer Shopping Behavior: Evidence from the Field," *Journal of Marketing*, 82(4), 102–26.

Grewal, Lauren and Andrew T. Stephen (2019), "In Mobile We Trust: The Effects of Mobile Versus Nonmobile Reviews on Consumer Purchase Intentions," *Journal of Marketing Research*, 56(5), 791–808.

Griskevicius, Vladas, Noah J Goldstein, Chad R Mortensen, Robert B Cialdini, and Douglas T Kenrick (2006), "Going along versus going alone: When fundamental motives facilitate strategic (non)conformity," *Journal of Personality and Social Psychology*, 91 (2), 281–94.

Hatuka, Tali and Eran Toch (2016), "The Emergence of Portable Private-Personal Territory: Smartphones, Social Conduct and Public Spaces," *Urban Studies*, 53(10), 2192–2208.

Hayes, Andrew F. (2013), *An Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. New York: Guilford Press.

Hull, Jay G., Ronald R. Van Treuren, Susan J. Ashford, Pamela Propsom, and Bruce W. Andrus (1988), "Self-Consciousness and the Processing of Self-Relevant Information," *Journal of Personality and Social Psychology*, 54 (3), 452–65.

Hung, Iris W and Robert S. Wyer (2011), "Shaping Consumer Imaginations: The Role of Self-Focused Attention in Product Evaluations," *Journal of Marketing Research*, 48(2), 381–92.

Hutton, Debra G. and Roy F. Baumeister (1992), "Self-Awareness and Attitude Change: Seeing Oneself on the Central Route to Persuasion," *Personality and Social Psychology Bulletin*, 18 (1), 68–75.

Joinson, Adam N. (2001), "Self-disclosure in computer-mediated communication: The role of self-awareness and visual anonymity," *European Journal of Social Psychology*, 31 (2), 177–92.

Kay, Aaron C., S. Christian Wheeler, John Bargh, and Lee Ross (2004), "Material priming: The influence of mundane physical objects on situational construal and competitive behavioral choice," *Organizational Behavior and Human Decision Processes*, 95 (1), 83–96.

LeBoeuf, Robyn A., Eldar Shafir, and Julia Belyavsky Bayuk (2010), "The conflicting choices of alternating selves," *Organizational Behavior & Human Decision Processes*, 111 (1), 48–61.

Lee, Seung Yun, Aiden P. Gregg, and Seong Hoon Park (2013), "The Person in the Purchase: Narcissistic Consumers Prefer Products That Positively Distinguish Them," *Journal of Personality and Social Psychology*, 105(2), 335–52.

Levav, Jonathan and Rui Zhu (2009), "Seeking Freedom through Variety," *Journal of Consumer Research*, 36(4), 600–610.

Lin, Ming I. and Yu Ping Huang (2017), "The impact of walking while using a smartphone on pedestrians' awareness of roadside events," *Accident Analysis and Prevention*, 101, 87–96.

Lurie, Nicholas H, Sam Ransbotham, and Hongju Liu (2014), "The Characteristics and Perceived Value of Mobile Word of Mouth," *Marketing Science Institute Working Paper Series*. Report No. 14–109.

Lurie, Nicholas H., Jonah Berger, Zoey Chen, Beibei Li, Hongju Liu, Charlotte H. Mason, David M. Muir, Grant Packard, Joseph Pancras, Ann E. Schlosser, Baohong Sun, and Rajkumar Venkatesan (2018), "Everywhere and at All Times: Mobility, Consumer Decision-Making, and Choice," *Customer Needs and Solutions*, 5 (1–2), 15–27.

Maimaran, Michal and Itamar Simonson (2011), "Multiple Routes to Self- Versus Other-Expression in Consumer Choice," *Journal of Marketing Research*, 48(4), 755–66.

Matheson, Kimberly and Mark P. Zanna (1988), "The impact of computer-mediated communication on self-awareness," *Computers in Human Behavior*, 4 (3), 221–33.

McKinsey & Company (2015), "Global Media Report 2015," https://www.mckinsey.com/industries/media-and-entertainment/our-insights/2015-global-media-report.

Melumad, Shiri and Michel Tuan Pham (2020), "The Smartphone as a Pacifying Technology," *Journal of Consumer Research*, 47 (2), 237–55.

Melumad, Shiri and Robert Meyer (2020), "Full Disclosure: How Smartphones Enhance Consumer Self-Disclosure," *Journal of Marketing*, 84 (3), 28–45.

Melumad, Shiri, J Jeffrey Inman, and Michel Tuan Pham (2019), "Selectively Emotional: How Smartphone Use Changes User-Generated Content," *Journal of Marketing Research*, 56(2), 259–75.

Mullen, Brian, Michael J. Migdal, and Drew Rozell (2003), "Self-Awareness, Deindividuation, and Social Identity: Unraveling Theoretical Paradoxes by Filling Empirical Lacunae," *Personality and Social Psychology Bulletin*, 29 (9), 1071–81.

Nail, Paul R (1986), "Toward an integration of some models and theories of social response," *Psychological Bulletin*, 100 (2), 190–206.

Oakes, Mark and Serge Onyper (2017), "The Movement-Induced Self-Reference Effect: Enhancing Memorability through Movement toward the Self," *Cognitive Processing*, 18(3), 325–33.

Pahl, Sabine and J Richard Eiser (2006), "The focus effect and self-positivity in ratings of self-other similarity and difference," *British Journal of Social Psychology*, 45 (1), 107–16.

Park, Chang Sup and Barbara K Kaye (2019), "Smartphone and Self-Extension: Functionally, Anthropomorphically, and Ontologically Extending Self via the Smartphone," *Mobile Media & Communication*, 7(2), 215–31.

Park, Jane Jeongin and Aner Sela (2018), "Not My Type: Why Affective Decision Makers Are Reluctant to Make Financial Decisions," *Journal of Consumer Research*, 45(2), 298–319.

Petty, Richard E., Kenneth G. DeMarree, Pablo Briñol, Javier Horcajo, and Alan J. Strathman (2008), "Need for cognition can magnify or attenuate priming effects in social judgment," *Personality and Social Psychology Bulletin*, 34 (7), 900-912.

Pham, Michel Tuan, Caroline Goukens, Donald R Lehmann, and Jennifer Ames Stuart (2010), "Shaping Customer Satisfaction through Self-Awareness Cues," *Journal of Marketing Research*, 47(5), 920–32.

Prentice, Deborah A. (1987), "Psychological Correspondence of Possessions, Attitudes, and Values," *Journal of Personality and Social Psychology*, 53 (6), 993–1003.

Prentice-Dunn, Steven, and Ronald W. Rogers (1982), "Effects of public and private self-awareness on deindividuation and aggression," *Journal of Personality and Social Psychology*, 43 (3), 503-513.

PwC (2020), "Global Consumer Insights Survey 2020," https://www.pwc.com/gx/en/consumer-markets/consumer-insights-survey/2020/pwc-consumer-insights-survey-2020.pdf

Ransbotham, Sam, Nicholas H. Lurie, and Hongju Liu (2019), "Creation and Consumption of Mobile Word of Mouth: How Are Mobile Reviews Different?," *Marketing Science*, 1–20.

Raphaeli, Orit, Anat Goldstein, and Lior Fink (2017), "Analyzing Online Consumer Behavior in Mobile and PC Devices: A Novel Web Usage Mining Approach," *Electronic Commerce Research and Applications*, 26, 1–12.

Scheier, Michael F. and Charles S. Carver (1980), "Private and public self-attention, resistance to change, and dissonance reduction," *Journal of Personality and Social Psychology*, 39 (3), 390–405.

Scheier, Michael F., and Charles S. Carver (1985), "The self-consciousness scale: A revised version for use with general populations," *Journal of Applied Social Psychology*, 15 (8), 687–699.

Scheier, Michael F., Arnold Buss, and David M. Buss (1978), "Self-Consciousness, Self-Report of Aggressiveness, and Aggression," *Journal of Research in Personality*, 12, 133–40.

Sela, Aner and Itamar Simonson (2017), "The Feeling of Preference," *working paper*, https://ssrn.com/abstract=3384177.

Sela, Aner, Itamar Simonson, and Ran Kivetz (2013), "Beating the Market: The Allure of Unintended Value," *Journal of Marketing Research*, 50(6), 691–705.

Sela, Aner, Jonah Berger, and Joshua Kim (2017), "How self-control shapes the meaning of choice," *Journal of Consumer Research*, 44 (4), 724–37.

Sela, Aner, Liat Hadar, Siân Morgan, and Michal Maimaran (2019), "Variety-Seeking and Perceived Expertise," *Journal of Consumer Psychology*, 29 (4), 671–79.

Shavitt, Sharon (1990), "The role of attitude objects in attitude functions," *Journal of Experimental Social Psychology*, 26 (2), 124–48.

Silvia, Paul J and Andrea E Abele (2002), "Can positive affect induce self-focused attention? Methodological and measurement issues," *Cognition and Emotion*, 16 (6), 845–53.

Silvia, Paul J. and Ann G. Phillips (2013), "Self-awareness Without Awareness? Implicit Self-focused Attention and Behavioral Self-regulation," *Self and Identity*, 12 (2), 114–27.

Silvia, Paul J. and Guido H. E. Gendolla (2001), "On Introspection and Self-Perception: Does Self-Focused Attention Enable Accurate Self-Knowledge?," *Review of General Psychology*, 5 (3), 241–69.

Simonson, Itamar (2005), "Determinants of Customers' Responses to Customized Offers: Conceptual Framework and Research Propositions," *Journal of Marketing*, 69(1), 32–45.

Snyder, Mark and Kenneth G. DeBono (1985), "Appeals to Image and Claims About Quality. Understanding the Psychology of Advertising," *Journal of Personality and Social Psychology*, 49 (3), 586–97.

Spencer, Steven J., Mark P. Zanna, and Geoffrey T. Fong (2005), "Establishing a Causal Chain: Why Experiments Are Often More Effective than Mediational Analyses in Examining Psychological Processes," *Journal of Personality and Social Psychology*, 89(6), 845–51.

Statcounter (2020), "Desktop vs Mobile vs Tablet Market Share Worldwide," https://gs.statcounter.com/platform-market-share/desktop-mobile-tablet.

Sujan, Mita, James R. Bettman, and Hans Baumgartner (1993), "Influencing Consumer Judgments Using Autobiographical Memories: A Self-Referencing Perspective," *Journal of Marketing Research*, 30(4), 422.

SurveyMonkey (2020), "Mobile Optimization for Surveys: a How-to Guide," https://www.surveymonkey.com/

Verizon (2015), "True Wireless Confessions: How People REALLY Use Their Devices," https://www.verizon.com/about/news/vzw/2015/06/how-people-really-use-their-mobile-devices

Wang, Rebecca Jen Hui, Edward C Malthouse, and Lakshman Krishnamurthi (2015), "On the Go: How Mobile Shopping Affects Customer Purchase Behavior," *Journal of Retailing*, 91 (2), 217–34.

Wegner, Daniel M. and Toni Giuliano (1983), "Social Awareness in Story Comprehension," *Social Cognition*, 2 (1), 1–17.

Wheeler, S. Christian, Kenneth G. DeMarree, and Richard E. Petty (2007), "Understanding the role of the self in prime to behavior effects: The active self account," *Personality and Social Psychology Review*, 11 (3), 234-261.

Title: Phone and Self: How Smartphone Use Increases Preference for Uniqueness

Authors: Camilla Eunyoung Song (eunysong@cityu.edu.hk) and Aner Sela (aner.sela@warrington.ufl.edu)

TABLE OF CONTENTS

WEB APPENDIX A

MATERIALS SUPPORTING THE PRELIMINARY SURVEY AND PILOT STUDY

PRELIMINARY DEVICES SURVEY

We conducted a preliminary survey among owners of multiple devices (N = 100) to test the notion that consumers view their personal smartphones as an extension of their private identity more than other commonly used devices such as PCs and tablet computers.

Method

Participants (N = 100, 46% females, M_{age} = 35.6) completed a survey on MTurk. Participants first indicated devices they own and several questions about their ownership (e.g., daily access and use time, duration of ownership, shareability of the device) and usage (device used for shopping, social interaction, and work). Next, we measured their relationships with each device they own in terms of (1) self-extension and (2) intimacy on an 11-point scale (0 = *not at all*, 11 = *very much*). As a measure of self-extension, participants indicated the degree to which they perceive each of their own device as an extension of themselves ("To what extent do you sometimes feel like your device is almost like an extension of you?" and "To what extent do you feel like the device reflects your identity?"; for smartphone; r = .73, p < .001, for PC; r = .85, p < .001, for tablet; r = .86, p < .001). As a measure of intimacy, participants indicated the degree to which they perceive each of their own device as private and personal ("To what extent do you consider each device a very personal or private thing?," "To what extent would you feel uncomfortable if someone else used your device?," To what extent does using each device make

you to feel like you are in a private space, mentally separated from your surroundings?"; for smartphone; α = .86, for PC; α = .79, for tablet; α = .86).

Results

Device ownership. 96% of respondents own a smartphone, 99% own a PC (either laptop or desktop), 64% own a tablet. We verified that 95% of respondents reported owning both a smartphone and a PC, 64% reported owning both a smartphone and a tablet, 63% reported owning both a tablet and a PC. The same 63% reported owning a smartphone, a tablet, and a PC.

Self-extension. For the 95% of respondents who reported owning both a smartphone and a PC, a repeated ANOVA on self-extension revealed that they rated their smartphone as more of a self-extension and a part of their identity than their PC ($M_{smartphone}$ = 5.42, SE = .34 vs. M_{PC} = 4.34, SE = .31; $F(1, 94) = 13.96$. $p < .0001$, $\eta_p^2 = .129$). For the 63% who reported owning a smartphone, a tablet, and a PC, a repeated ANOVA on self-extension revealed that they rated their smartphone as more of a self-extension and a part of their identity than their tablet ($M_{smartphone}$ = 5.61, SE = .38 vs. M_{tablet} = 2.70, SE = .35; $F(1, 63) = 72.57$. $p < .0001$, $\eta_p^2 = .535$).

Intimacy. For the 95% of respondents who reported owning both a smartphone and a PC, a repeated ANOVA on intimacy showed that they rated their smartphones as more personal and private than their PC ($M_{smartphone}$ = 6.73, SE = .31 vs. M_{PC} = 5.75, SE = .29; $F(1, 94) = 13.88$. $p < .0001$, $\eta_p^2 = .129$). For the 63% who reported owning a smartphone, a tablet, and a PC, a repeated ANOVA on intimacy showed that they rated their smartphones as more personal and private than their tablet ($M_{smartphone}$ = 6.91, SE = .36 vs. M_{tablet} = 4.28, SE = .38; $F(1, 63) = 49.02$. $p < .0001$, $\eta_p^2 = .438$).

MATERIALS SUPPORTING THE PILOT STUDY

The following online recruitment and random assignment method was used in this study and all the other online studies reported in the paper.

On the recruitment page, participants read the following instructions, asking them to have their smartphone and PC (laptop/desktop) available:

> **Please read the instruction closely!**
>
> **You need to have your smartphone and laptop/desktop ready to enter the survey because you will be asked to use a specific device for the survey.**
>
> **Go to Link and follow the study instructions. Note the secret key found at the end of the study which you will need to complete the HIT.**

After clicking on the link, participants were randomly assigned to one of two device conditions (smartphone vs. PC) and received a QR code or a short URL to enter the main study:

[Smartphone condition]	**[PC condition]**
To access the survey on your smartphone, there are two ways: 1. USING QR CODE 1) On your smartphone, open Camera 2) Hold your smartphone steady for 2-3 seconds towards the QR code below:  2. USING URL 1) On your smartphone, open a browser 2) Type the following URL: **http://bit.do/fGGKc** (case sensitive)	To access the survey on your laptop/desktop: 1. On your laptop/desktop, open a browser (e.g., chrome) 2. Type the URL below on the browser: **http://bit.do/fGGJ8** (case sensitive)

Factor Analysis Reported in the Pilot Study

We conducted a confirmatory factor analysis on the individual private self-focus and distinctiveness items. A principal components analysis with varimax rotation revealed that the private self-focus and distinctiveness measures loaded on two orthogonal factors explaining 64.9% of the variance:

Rotated Component Matrix

	Component	
	1	2
[distinctiveness] My taste and preferences are a bit different from those of others	**.861**	-.039
[distinctiveness] I often think a bit differently from other people	**.791**	.101
[distinctiveness] I am different from others	**.759**	.132
[distinctiveness] I feel unique	**.701**	.141
[private self-focus] During the study, my mind has been distracted by what is going on around me, rather than thinking about myself	.096	**-.894**
[private self-focus] During the study, I've been very aware of myself, my own perspective and attitudes	.381	**.679**

WEB APPENDIX B

SUPPORTING MATERIALS AND ADDITIONAL STUDIES REFERENCED IN STUDY 1

Study Instrument was adapted from Griskevicius et al. (2006). Also used in Study W2.

Preference Survey

In this survey, you will answer some questions about your personal preferences.
There are NO right or wrong answers to these questions. We are simply interested in your opinions.

Over 250 mturkers have taken this survey in the past. You will learn about their (aggregated) responses while answering the survey.

Click >> to start the survey.

Choice Stimuli:

Option frames ("chosen by the majority of previous participants") and the presentation order of the option pairs were counterbalanced.

Which of the following candy bars do you prefer?

Option A: **Twix** (chosen by the majority of previous participants)
Option B: **Kit Kat**

Which of the following car brands do you prefer?

Option A: **BMW** (chosen by the majority of previous participants)
Option B: **Mercedes**

Which of the following color combinations do you prefer?

Option A: **Blue + Orange** (chosen by the majority of previous participants)
Option B: **Green + Yellow**

How annoying was it for you to complete today's survey on your device? (1 = *Not annoying*, 7 = *Very annoying*)

How difficult was it for you to complete today's survey on your device? (1 = *Not difficult*, 7 = *Very difficult*)

How is your mood right now? (1 = *Very negative*, 7 = *Very positive*)

Pretesting Option Recall for Stimuli Used in Study 1

A pretest (N = 121, 38.8% females, M_{age} = 34.5) tested whether participants were equally likely to correctly identify and recall which options were framed as popular in each of the three product pairs, as a function of device used. Participants, randomly assigned to use their smartphone or PC using the procedure described in the pilot study, saw the same three product pairs used in Study 1 (which were adapted from Griskevicius et al. 2006), with the "popular" frame counterbalanced within each pair as done in the main study. Then, they saw all the options again, this time without any information about option popularity, and indicated which option was the more popular one in each pair. Overall, participants correctly recalled which options had been framed as popular 92.2% of the time (94.2% for candy bars, 90.0% for car brands, 92.5% for color combinations), and this was not different between device conditions (all $\chi^2(1) < 1.59$, p's > .21).

Further Analyses Testing Difficulty, Annoyance, and Mood in Study 1

A 2 (device) × 2 (ownership) ANOVA on mood revealed a significant interaction effect ($F(1, 225) = 4.04$, $p = .046$, $\eta_p^2 = .018$) with no significant main effect of ownership and device (p's > .45). Similar analyses on task difficulty and annoyance did not reveal device × ownership interaction effects (all $F(1, 225)$'s < 1.4, p's > .24). We found significant main effects of device on task annoyance ($M_{smartphone}$ = 3.97, SE = .16 vs. M_{PC} = 3.08, SE = .16; $F(1, 225) = 15.43$, p

< .001, η_p^2 = .064) and difficulty ($M_{smartphone}$ = 2.81, *SE* = .13 vs. M_{PC} = 1.78, *SE* = .13; *F*(1, 225) = 31.55, *p* < .001, η_p^2 = .123), as well as a main effect of ownership on annoyance (M_{own} = 3.23, *SE* = .15 vs. M_{lab} = 3.82, *SE* = .17; *F*(1, 225) = 6.70, *p* = .01, η_p^2 = .029) and task difficulty (M_{own} = 2.14, *SE* = .12 vs. M_{lab} = 2.46, *SE* = .14; *F*(1, 225) = 2.91, *p* = .09, η_p^2 = .013). Critically, however, including these variables as covariates in the main analysis does not alter the overall device × ownership interaction effect on the preference for unique options (*F*(1, 222) = 4.94, *p* = .027, η_p^2 = .022), nor the simple contrast within the own-device condition (*F*(1, 222) = 4.72, *p* = .031, η_p^2 = .021) and the null effect within the lab-device condition (*p* = .34). A series of device × ownership moderated mediation analyses (Hayes 2013; Model 8) suggests that none of these measures mediates the effect of smartphone use on choice (all indirect effect 95% CI's [low < -.037, high > .057]).

STUDY W1: GENERALIZATION USING A CUSTOMIZED OFFER

Method

Undergraduate students (*N* = 118, 50% females, M_{age} = 20.0) completed this study in the lab in exchange for extra course credit, as a part of an experimental session that included several unrelated studies. The recruitment and assignment procedures were identical to Study 1. Participants were randomly assigned to conditions in a 2 (device: smartphone vs. laptop PC) × 2 (ownership: own device vs. lab device) and we provided the same lab devices as described in Study 1. Once assigned, participants completed the study on respective devices. Two participants did not follow the device assignment instructions and they were excluded from further analysis (*N* = 116, 49.1% females, M_{age} = 20.0).

Adapting a manipulation from prior research on offer customization (Sela, Simonson, and Kivetz 2013), participants first filled out a "Charity Navigator" questionnaire in which they answered questions about their typical donation behavior, such as how often they donate to charity and what goals they have when doing so.

Then, in an alleged follow-up survey titled "Charity Survey," we told participants that their university was collaborating with local charity organizations and was encouraging students to show their support for one charity by joining its Facebook group. To increase the realism of the decision, we told participants that they would select a local charity organization and then have the option to show their support for that charity on their Facebook page.

Participants received recommendations for two charities they could support: Action for Healthy Kids and StandUp for Kids (unbeknownst to participants, these charities were fictitious). One of the recommendations was framed as individually customized (i.e., "Based on your unique values and preferences, we recommend for you ___"). The other recommendation was framed as the generally popular option (i.e., "Based on what other participants chose, we recommend for you ___"). Charity names were counterbalanced, which did not interact with device condition in the main analyses (p's > .40). A separate pretest (N = 11340.7% females, M_{age} = 38.4) confirmed that device had no significant effect on participants' likelihood of correctly identifying and recalling which option had been individually customized versus recommended based on popularity ($\chi^2(1) = 1.11$, $p = .29$). Participants rated mood, task annoyance, and difficulty. We also measured the level of focus, involvement, and effort.

Stimuli and Study Instrument (also used in Study 3A)

Charity Navigator Questionnaire

Which Charities Should I Donate To?

Did you know that there are roughly 1.5 million charities in the United States today? You want to do good and support the causes you care about, but with that many organizations how do you know which ones to donate to?

Charity Navigator Quiz is here to help! This Quiz will help you find the right charity and give confidently. Still not sure how to get started? Here is the Quiz and you can start now!

[Charity Navigator Quiz]
Where to donate?

I often donate to a charity (1 = n*ever*, 7 = *always*)
I often participate in volunteer services (1 = *never*, 7 = *always*)
I am interested in social issues (1 = *not at all*, 7 = *very much*)
What is your preferred way to give back? (1 = *volunteering*, 2 = *donating money*)
Why do you give to charity? (1 = *I want to change someone's life*, 2 = *I have a strong belief in a specific cause*)
What triggers you to give to charity? (1 = *when I feel emotionally moved by someone's story*, 2 = *when I have a clear idea of charity's objectives*)
Demographic information (age, sex, and race)

Choice Stimuli:

The following choice option frames (individually customized vs. popular) was counterbalanced.

StandUp for Kids

Committed to the rescue of homeless and street kids

Results

Preference for uniqueness. We ran a binary logistic regression of self-expressive choice (individually customized option choice = 1, majority-endorsed option choice = 0) on device (smartphone = 1, laptop PC = 0), ownership (own device = 1, lab device = 0), and their interaction. Consistent with prior finding, there was a marginally significant interaction between device and ownership on the preference for unique options (B = 1.43, SE = .77, $\chi^2(1) = 3.43$, p = .064). Within the own device condition, 63.3% of smartphone users preferred individually-customized option, whereas 35.7% of laptop PC users chose that option ($\chi^2(1) = 4.42$, p = .036). However, this difference between the device conditions was eliminated in the lab device condition, in which 47.2% of smartphone users and 54.5% laptop PC users chose the individually-customized option (p = .59). However, comparison between own smartphone and lab's smartphone did not reach a significance level (own phone = 63.3% vs. lab's phone = 47.2%; $\chi^2(1) = 1.71$, p = .19).

Alternative explanations. 2 (device) × 2 (ownership) ANOVAs on level of interest, effort, involvement, and focus did not reveal a significant interaction (p's > .60), nor main effect of device (p's > .12) and ownership (p's > .50). Including these variables as covariates in the main analysis does not alter the effect of device on the preference for unique options in the own-device conditions (B = 1.30, SE = .60, $\chi^2(1) = 4.75$, p = .029) and on the lab device conditions (p = .69),

nor the overall device × ownership interaction effect (B = 1.50, SE = .79, $\chi^2(1) = 3.63$, p = .057). A series of device × ownership moderated mediation analyses (Hayes 2013; Model 8) suggests that none of these measures mediates the effect of smartphone use on choice (all 95% CI's [low < -.086, high > .092].)

A 2 (device) × 2 (ownership) ANOVA on mood and task difficulty did not reveal a significant interaction (p's > .22) and main effect of device (p's > .28) and ownership (p's > .57). The same analysis on task annoyance showed a significant interaction ($F(1, 112) = 5.20$, p = .024, η_p^2 = .044), but no main effect of device (p =.36) and ownership (p = .28). Including these variables as covariates in the main analysis did not alter the overall device × ownership interaction effect (B = -1.42, SE = .79, $\chi^2(1) = 3.720$, p = .074), effect of device on the preference for uniqueness in the own-device conditions (B = 1.13, SE = .54, $\chi^2(1) = 4.38$, p = .036) and on the lab device conditions (p = .70). A series of device × ownership moderated mediation analyses (Hayes 2013; Model 8) suggests that none of these measures mediates the effect of smartphone use on choice (for the own device condition, 95% CI for the mood: [-.170, .233], task difficulty: [-.111, .246], annoyance: [-.100, .378]; for the lab's device condition, 95% CI for the mood: [-.397, .080], task difficulty: [-.082, .312], annoyance: [-.538, .034]).

STUDY W2: DOES MERELY THINKING ABOUT ONE'S SMARTPHONE HAS THE SAME EFFECT AS USING IT?

Recall that our conceptualization is based on two premises: that a personal smartphone is associated with private self-knowledge (whose accessibility increases preference for uniqueness), and that the immersive and insulating qualities of (actually) using one's personal smartphone

(Melumad and Meyer 2020; Melumad and Pham 2020) amplify the associative process (Petty et al. 2008; Wheeler, DeMarree, and Petty 2007) by directing attention to the inner self and away from the environment (Chen and Pai 2018; Hatuka and Toch 2016; Lin and Huang 2017; Lurie et al. 2014). Therefore, we expect the effect of only thinking of one's smartphone to be attenuated compared with the effect of actually using it.

We conducted a lab experiment (N = 206, 57.1% females, M_{age} = 21.9) using the same stimuli and procedure discussed above in Study 1. Participants used their own smartphone or laptop PC and indicated their preference between more- and less-popular options. Different from Study 1, however, we included a third condition where participants used their laptop PC but were prompted to think of their personal smartphone before forming their preferences in the focal decision task.

Specifically, before reaching the decision task, all the participants answered a few questions about their device, such as what brand it was, how long they had owned it, and how many hours each day they used it, as well as what activities they most frequently used their device for, what their favorite applications on that device were, and whether they used the device primarily for work or fun. In the baseline smartphone and laptop PC conditions, these questions matched the device used (i.e., smartphone users answered these questions about their smartphone whereas laptop PC users answered these questions about their laptop PC). However, in the new priming condition, participants used their laptop PC but answered these questions about their smartphone. If merely thinking of one's smartphone has the same effect as actually using it, then the preference for uniqueness in this new priming condition should be similar to the baseline smartphone condition and different from the baseline PC condition.

The results do not support this hypothesis. Smartphone users preferred unique options (M = 4.05, SE = .12) more than did participants in both the laptop PC (M = 3.66, SE = .17) and laptop PC/priming condition (M = 3.67, SE = .18; planned contrasts $t(203) = 2.26$, $p = .025$). The laptop PC and laptop PC/priming conditions did not differ ($t(203) = .03$, $p = .98$).

STUDY W3: DOES EMOTIONAL ATTACHMENT TO ONE'S SMARTPHONE PLAY A ROLE?

One may wonder if our effect depends on the degree of emotional attachment to one's phone. Our conceptualization does not make such an assumption, as we discuss in the main manuscript, but to formally test it, we conducted a replication of Study W2 (using the same procedure described in Study 1), where we examined whether emotional attachment to the assigned device mediated the effect. We expected participants to feel more emotionally attached to their smartphones than PCs, but that the effect of device on preference for uniqueness not be mediated by emotional attachment.

Participants completed this experiment on Amazon Mechanical Turk (N = 152, 48.6% females, M_{age} = 33.2). They completed the "preferences survey" described in Study 1 and were randomly assigned to a condition (Smartphone vs. PC) using the same procedure. Participants used their own smartphone or laptop PC and indicated their preference between more- and less-popular options. After completing the focal preference elicitation task and answering demographic questions, participants rated the extent to which they felt emotionally attached to their smartphone [PC], using four items adapted from the device emotional attachment subscale developed by Ward et al. (2017), "I feel lonely when my cell phone [PC] does not ring or vibrate for several hours," "using my cell phone [PC] relieves me of my stress," "I find it tough to focus

whenever my cell phone [PC] is not nearby," and "using my cell phone [PC] makes me happy" ($\alpha = .87$).

If the effect of smartphone use on uniqueness seeking reflects consumers' emotional attachment to their phone, then it should be mediated by greater emotional attachment to the phone compared with the PC. Our results, however, do not support this possibility. First, we replicated the effect of device condition on preference for unique options ($M_{smartphone} = 4.09$ vs. $M_{PC} = 3.69$; $F(1, 149) = 5.18$, $p = .024$, $\eta_p^2 = .034$). However, although – as one might expect – respondents reported being more emotionally attached to smartphones than PCs ($M_{smartphone} = 4.79$ vs. $M_{PC} = 4.22$; $F(1, 149) = 3.74$, $p = .055$, $\eta_p^2 = .025$), emotional attachment was not correlated with uniqueness seeking ($r = .13$, $p > .1$) and it did not mediate the effect of device condition on the dependent variable ($a \times b = .036$, $SE = .032$, 95% CI's [-.013, .110]). Specifically, the effect of device condition on emotional attachment was only marginally significant ($B = .58$, $SE = .30$, $p = .055$), while the partial effect of emotional attachment on preference for uniqueness was nonsignificant ($B = .063$, $SE = .048$, $p = .19$). This casts doubt on the possibility that emotional attachment is playing a significant role in our effect.

WEB APPENDIX C

MATERIALS SUPPORTING STUDY 2A

Study Instrument and Stimuli

Welcome!

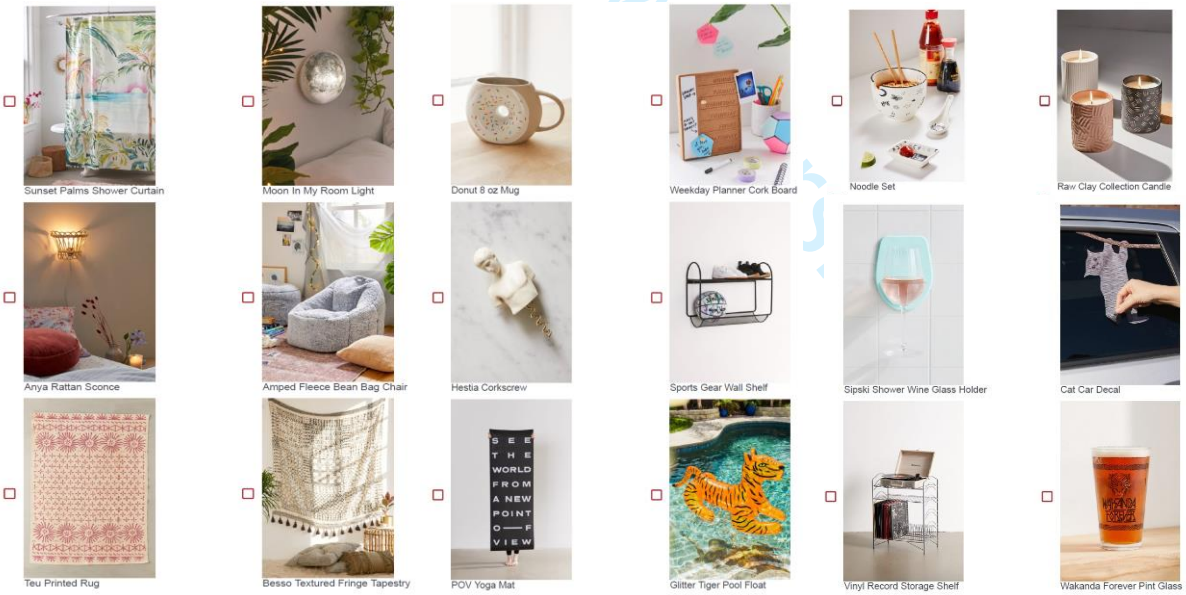
Today, you will be completing an online shopping survey. You will shop and browse a website selling lifestyle products.

While browsing, please click the products that you like so that the website can give you recommendations at the end!

This survey is concerned with how customers make choices. For this reason, we ask participants to focus on shopping during the survey.

When you are ready, click >> to start

Browse this website and click the item(s) you like.



Great! You have browsed the website.
Now you will receive two recommendations and make a choice. We will randomly select two participants and send the chosen option as a free gift!

Choice Stimuli:

The following choice option frames (individually customized vs. popular) and the presentation order of the two options were counterbalanced.

Based on your browsing history...

Especially for you:

Globe Table Lamp

Based on other people's browsing history...

Bestseller:

Triangle Side Table

How annoying was it for you to complete today's survey on your device? (1 = *Not annoying*, 7 = *Very annoying*)
How difficult was it for you to complete today's survey on your device? (1 = *Not difficult*, 7 = *Very difficult*)

How is your mood right now? (1 = *Very negative*, 7 = *Very positive*)
Do you recall which option was recommended based on your browsing history (e.g., "especially for you")?
Do you recall which option was recommended based on other people's browsing history (e.g., "bestseller")?
Do you remember which option you chose?

Pretest of the Private Self-Focus Manipulation

Participants (N = 120, 40% females, M_{age} = 36.0) were recruited on MTurk. Since the purpose of this pretest was to validate the private self-focus manipulation, device was not manipulated and nearly all participants (98.3%) used a PC by default. Participants were randomly assigned to one of two between-subjects conditions (private self-focus: baseline vs. elevated).

As a cover story, we told participants that they would be asked to share their feelings and thoughts regarding a new set of instructions that we were allegedly considering using in a future choice study. In the elevated private self-focus condition, the instructions read "This part of the survey is concerned with how you make choices based on who you are. For this reason, we ask you to focus on yourself, especially your inner states such as how you feel and think during the survey. Please keep focusing on you during the survey." For the baseline condition, the instructions read "This survey is concerned with how customers make choices. For this reason, we ask participants to focus on shopping during the survey."

Then, participants completed measures of private and public self-focus adapted from prior research (Matheson and Zanna 1988; Joinson 2001). The private self-focus measure consists of two items pertaining to an inward focus on private thoughts and attitudes during the study, "In this survey, I've been very aware of myself, my own perspective and attitudes" and "In this survey, my mind has been distracted by what is going on around me, rather than thinking

about myself" (reversed coded; $r = .43$, $p < .001$). The public self-focus measure consists of two items pertaining to self-presentation concerns and how the self is viewed by others during the study, "In this survey, I have wondered about the way I've responded and presented myself in comparison to other people" and "In this survey, I have been thoughtful of how well I may get along with other people" ($r = .49$, $p < .001$).

Private self-focus. A one-way ANOVA on the private self-focus measure revealed that, compared with the baseline, instructions to focus on inner states and feelings increased the level of private self-focus ($M_{elevated} = 5.89$, $SE = .17$ vs. $M_{baseline} = 5.21$, $SE = .16$; $F(1, 118) = 8.71$, $p = .004$, $\eta_p^2 = .069$). This supports the efficacy of the private self-focus manipulation.

Public self-focus. A similar one-way ANOVA on the public self-focus measure revealed that, compared with the baseline, instructions to focus on inner states and feelings did not change the level of public self-focus ($M_{elevated} = 4.21$, $SE = .21$ vs. $M_{baseline} = 4.00$, $SE = .20$; $F(1, 118) = .54$, $p = .46$). This provides evidence in support of the discriminative construct validity of the manipulation.

Further Analyses Testing Difficulty, Annoyance, and Mood in Study 2A

A 2 (device) × 2 (private self-focus) ANOVA revealed no effects of device or private self-focus on mood (all p's > .43). There was a main effect of device on task annoyance ($M_{smartphone} = 2.36$, $SE = .10$ vs. $M_{PC} = 1.49$, $SE = .09$; $F(1, 444) = 41.50$, $p < .001$, $\eta_p^2 = .084$) and difficulty ($M_{smartphone} = 1.61$, $SE = .07$ vs. $M_{PC} = 1.40$, $SE = .06$; $F(1, 444) = 4.66$, $p = .031$, $\eta_p^2 = .010$), but including these variables as covariates in the main analysis does not alter the focal device × private self-focus interaction effect on choice ($B = -.94$, $\chi^2(1) = 5.90$, $p = .015$) or the main effects of device ($B = .66$, $\chi^2(1) = 6.11$, $p = .013$) and private self-focus ($B = .83$, $\chi^2(1) =$

9.89, p = .002). A series of device × private self-focus moderated mediation analyses (Hayes 2018; Model 8) suggests none of these measures mediates the effect of smartphone use on choice (all indirect effect 95% CI's [low < -.026, high > .026]).

WEB APPENDIX D

MATERIALS SUPPORTING STUDY 2B

Study Instrument and Stimuli

Private and public self-focus scale (Buss 1980; Scheier and Carver 1985)

Please respond to each statement based on how you feel in general in your life.
Please click the number that corresponds to your answer. There are no 'right' or 'wrong' answers—just be honest.

Private (1 = *Strongly disagree*, 7 = *Strongly agree*)
I am reflective about myself.
I am aware of my innermost thoughts.
I am conscious of my inner feelings.

Public (1 = *Strongly disagree*, 7 = *Strongly agree*)
I am concerned about the way I present myself.
I am concerned about what other people think of me.
I am self-conscious about the way I look.

How is your mood right now? (1 = *Very negative*, 7 = *Very positive*)

How annoying was it for you to complete today's survey on your device? (1 = *Not annoying*, 7 = *Very annoying*)

How difficult was it for you to complete today's survey on your device? (1 = *Not difficult*, 7 = *Very difficult*)

Thanks for your participation!
This is the end of today's study.

As a token of appreciation, we are selecting one participant and give out a free bag of Lindt Lindor chocolate truffles (8.5 Oz).

Which one would you like to receive, if you are selected?

Choice Stimuli:

The presentation order of options was counterbalanced.

Strawberries and cream (limited edition)

Milk chocolate

Confirmatory Factor Analysis on Dispositional Private and Public Self-Focus items

We conducted a principal components analysis with varimax rotation on the three private self-focus and three public self-focus items. Analysis revealed two factors, pertaining to dispositional private and public self-focus, respectively:

Rotated Component Matrix

	Component	
	1	2
[public self-focus] I am concerned about what other people think of me.	**.890**	.103
[public self-focus] I am self-conscious about the way I look.	**.881**	.071
[public self-focus] I am concerned about the way I present myself.	**.860**	.192
[private self-focus] I am aware of my innermost thoughts.	.028	**.850**
[private self-focus] I am conscious of my inner feelings.	.059	**.831**
[private self-focus] I am reflective about myself.	.312	**.678**

Further Analyses Testing Difficulty, Annoyance, and Mood in Study 2B

A series of ANOVAs with device as the independent variable revealed no effect on task difficulty ($F(1, 238) = 2.36$, $p = .13$) and annoyance ($F(1, 238) = .37$, $p = .55$). Mood was marginally-significantly less positive in the smartphone than in the PC condition (5.37 vs. 5.67; $F(1, 238) = 3.55$, $p = .061$, $\eta_p^2 = .015$), but including it as a covariate in the main analysis did not significantly alter the device × private self-focus interaction effect on choice ($B = -.72$, $SE = .34$, $p = .03$). A series of device × private self-focus moderated mediation analyses (Hayes 2018; Model 8) suggests none of these measures mediates the effect of smartphone use on choice (all 95% CI's [low < -.056, high > .075]).

Overall, 18.8% of participants used Apple devices (6.1% in the PC condition and 33.9% in the smartphone condition). A binary logistic regression analysis did not reveal a significant 2 (device type: Smartphone vs. PC) × 2 (device brand: brand: Apple vs. Not-Apple) × Continuous (chronic private self-focus) interaction effect on choice ($B = -1.13$, $SE = 1.38$, $p = .41$).

WEB APPENDIX E

MATERIALS SUPPORTING STUDY 3A

Note: Stimuli for the "Charity Navigator" task are described in detail in Web Appendix B above.

Linguistic Implications Form (Wegner and Giuliano 1980, 1983)

This exercise is concerned with the use of pronouns. Your task is to look at each of the following passages and try to fill in the blank in each one. In each blank there are several possible pronouns that may make sense in the sentence.

Please fill out the sentence by choosing the pronoun that you feel best completes the sentence.

1. All of ____ answers matched the ones in the back of the book.
   - our
   - my
   - his
2. At first it didn't seem to make any difference, but by later that night the noise from the party was entirely too loud to allow ___ to sleep.
   - her
   - me
   - us
3. The salesman tried to persuade ___ to buy a set of encyclopedias.
   - me
   - her
   - us
4. The noise got to ___ before long.
   - us
   - them
   - me
5. ___ idea of fun is sitting at home and listening to music.
   - Our
   - His
   - My
6. The sun went down just when ___ decided to go outside.
   - we
   - she
   - I
7. Please don't do this to ____; it is just not fair.
   - her
   - us
   - me
8. It was ___ understanding that the deadline for the paper had been delayed one week.

- her
- our
- my

9. Except for ____, everyone failed the test.
   - me
   - us
   - her
10. As a result of ___ suggestions, a minor revision in the policy has occurred.
   - our
   - my
   - his
11. ___ spent so much time on the initial planning that it seemed impossible to finish before.
   - He
   - We
   - I
12. It rained so hard that all of ___ clothes got soaked.
   - our
   - my
   - her
13. For the past few months, ___ have had reports of squabbling and dissatisfaction among.
   - I
   - we
   - they
14. According to ___ notes, only five of the original seven laws are still in existence.
   - our
   - my
   - her
15. Someone stopped ___ to get directions to the stadium.
   - them
   - me
   - us
16. ____ waited by the phone for the doctor to return the call.
   - We
   - I
   - He
17. The cashier charged ____ too little for the groceries.
   - her
   - us
   - me
18. The mosquitoes didn't even bother ___.
   - him
   - us
   - me
19. Dinner was waiting on the table when ____ came back from the store.
   - he
   - I
   - we
20. It isn't easy to get lost in this town, but somehow ___ managed it.
   - I
   - we
   - they

Further Analyses Testing Difficulty, Annoyance, and Mood in Study 3A

Device had no effect on mood ($F(1, 195) < .01$, $p = .96$) and task difficulty ($F(1, 195) = .91$, $p = .34$). Compared with participants in the PC condition, those in the smartphone condition found the task more annoying (4.43 vs. 3.35; $F(1, 195) = 14.59$, $p < .001$). However, mediation analyses using these variables as parallel mediators, alongside private self-focus, did not reveal a significant mediating effect of mood ($a \times b < .01$, *BootSE* = .03, 95% CI [-.065, .064]), task difficulty ($a \times b = -.01$, *BootSE* = .04, 95% CI [-.097, .068]), or task annoyance ($a \times b = .07$, *BootSE* = .10, 95% CI [-.126, .293]), while the mediating effect of private self-focus remained significant ($a \times b = .20$, *BootSE* = .11, 95% CI [.040, .479]).

Overall, 74.1% of participants used Apple devices (49.5% in the PC condition and 95.3% in the smartphone condition). Binary logistic regression analyses did not reveal a significant 2 (device type: Smartphone vs. PC) × 2 (device brand: brand: Apple vs. Not-Apple) interaction effect on choice ($B = -1.10$, $\chi^2(1) = 1.14$, $p = .29$) and private self-focus ($F(1, 193) = .46$, $p = .50$). This result casts doubt on the possibility that our findings reflect brand effects.

WEB APPENDIX F

MATERIALS SUPPORTING STUDY 3B

"Discover the Red Wine You'll Like" Questionnaire:

Demographic information (age, sex, and race)

How do you take your coffee? (1 = I TAKE MY COFFEE BLACK, 2 = I DRINK MY COFFEE WITH MILK, 3 = I PREFER IT WITH CREAM AND SUGAR, 4 = I DON'T DRINK COFFEE)

Do you like dark chocolate or milk chocolate? (1 = DARK ALL THE WAY, 2 = I LOVE MILK CHOCOLATE, 3 = I AM NOT A CHOCOLATE PERSON)

Which sounds better to you: Porcini ravioli in a rich cream sauce or pappardelle with fresh mushrooms sauteed in olive oil with garlic & thyme? (1 = CREAM SAUCE FOR ME PLEASE!, 2 = OLIVE OIL, GARLIC AND THYME ARE MY STYLE, 3 = I WOULD NEVER ORDER EITHER)

In the morning, do you prefer a smoothie of bananas, strawberries & fruit juice or a glass of plain grapefruit juice? (1 = I WOULD PREFER THE SMOOTHIE, 2 = GRAPEFRUIT JUICE SOUNDS GOOD)

Which dessert would you prefer: strawberry rhubarb pie or creamy tiramisu? (1 = I WOULD PICK THE PIE, 2 = THE TIRAMISU SOUNDS GREAT)

Choice Stimuli:

Option frames (individually customized vs. popular) were counterbalanced.

Based on your unique values and preferences, we recommend:

Joel Gott Blend No. 815 Cabernet Sauvignon

This is what most of the other participants chose:

1865 Selected Vineyards Cabernet Sauvignon

Confirmatory Factor Analysis on Private and Public Self-Focus items:

Rotated Component Matrix

	Component	
	1	2
[public self-focus] I have been thoughtful of how well I may get along with other people.	**.878**	.070
[public self-focus] I have wondered about the way I've responded and presented myself in comparison to other people.	**.785**	-.240
[private self-focus] I've been very aware of myself, my own perspective and attitudes.	.092	**.909**
[private self-focus] My mind has been distracted by what is going on around me, rather than thinking about myself (reversed).	-.438	**.699**

Correlation Matrix (N = 122):

Correlations

	Private self-focus	Public self-focus	Mood	Annoyance	Difficulty	Focus	Involve	Interest	Effort
Private self-focus	--								
Public self-focus	-.329**	--							
Mood	.144	.059	--						
Annoyance	-.386**	.250**	-.307**	--					
Difficulty	-.516**	.295**	-.226*	.832**	--				
Focus	.429**	-.039	.144	-.380**	-.425**	--			
Involve	.490**	-.110	.143	-.403**	-.448**	.787**	--		
Interest	.112	.213*	.297**	-.188*	-.062	.284**	.200*	--	
Effort	.168	.079	.167	-.174	-.149	.348**	.305**	.358**	--

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Further Mediation Analyses in Study 3B

A series of ANOVAs on level of interest and effort did not reveal a significant effect of device (all *p's* > .70). We found a marginally significant effect of device on level of focus ($M_{smarthpone}$ = 6.85 vs. M_{PC} = 6.61; $F(1, 120) = 3.80$, $p = .054$, $\eta_p^2 = .031$) and a significant effect on involvement ($M_{smarthpone}$ = 6.85 vs. M_{PC} = 6.49; $F(1, 120) = 9.35$, $p = .003$, $\eta_p^2 = .072$), which may not be surprising considering their nomological relationship with private self-focus. However, a principal components analysis reveals that these measures did not load on the same factor with private self-focus, and mediation analyses using these variables as potential mediators for the effect of smartphone use on option choice did not reveal a significant mediating effect for either focus ($a \times b = .10$, *BootSE* = .11, 95% CI [-.046, .382]) or involvement ($a \times b = .17$, *BootSE* = .16, 95% CI [-.081, .517]). In conclusion, although these variables can potentially contribute to our effects in certain cases, they do not appear to play a significant role in the current experiment.

Device condition did not influence subjective expertise in wine ($F(1, 120) = .89$, $p = .35$), and subjective expertise did not moderate the effect of smartphone use on choice ($B = .23$, SE = .36, $p = .53$). Further, a series of ANOVAs revealed no significant effects of device on mood, task difficulty, or annoyance (all *p's* > .17). Including these variables as covariates in a logistic regression did not change the effect of device on option choice ($B = 1.35$, $\chi^2(1) = 5.84$, $p = .016$).

For completeness, we tested a saturated simultaneous mediation analysis model with all the ancillary variables (i.e., focus, involvement, interest, effort, mood, annoyance, and difficulty), as well as private and public self-focus, as potential mediators. This over-saturated model did not yield significant effects, as might be expected (Zhao, Lynch, and Chen 2010). To determine whether adding any of these variables to the model had the potential to improve its

explanatory power, however, we also performed an automatic stepwise binary logistic regression on choice with the same set of potential mediators. This analysis revealed that only private self-focus had a significant effect on choice (p = .003), while none of the other variables had a significant contribution, under any predictor combination (all p's > .11).

Overall, 31.1% of participants used Apple devices (13.1% in the PC condition and 49.2% in the smartphone condition). Binary logistic regression analyses did not reveal significant 2 (device type: Smartphone vs. PC) × 2 (device brand: brand: Apple vs. Not-Apple) interaction effect on unique choice (p = .86) or private self-focus (p = .62). Taken together, these results suggest that the effect of smartphone use on private self-focus and the preference for uniqueness is independent of device brand.

WEB APPENDIX REFERENCES

Ward, Adrian F., Kristen Duke, Ayelet Gneezy, and Maarten W. Bos (2017), "Brain drain: The mere presence of one's own smartphone reduces ***available*** cognitive capacity," *Journal of the Association for Consumer Research*, 2 (2): 140-154.

Zhao, Xinshu, John G. Lynch Jr, and Qimei Chen (2010), "Reconsidering Baron and Kenny: Myths and truths about mediation analysis," *Journal of consumer research*, 37 (2), 197-206.