SELF-MONITORING AND PERCEPTIONS OF SITUATIONAL PRIVACY AS POTENTIAL MODERATORS OF SMARTPHONE USES AND GRATIFICATIONS: AN EXPERIMENTAL INVESTIGATION

by

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DISSERTATION ABSTRACT

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Smartphones continue to grow increasingly ubiquitous for a variety of reasons. This study employed an online survey experiment in order to determine whether perceptions of environmental/locational privacy or individual levels of self-monitoring have any effect on smartphone uses and gratifications. While perceptions of locational privacy did indeed have a modest effect on smartphone gratifications sought, self-monitoring did not, and no interactions were detected between locational privacy and self-monitoring. Implications for these findings as well as avenues for future research are discussed.

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CHAPTER I

INTRODUCTION

Visit almost any public place in America and it will become immediately apparent that the cell phone[1] has saturated our society. There are very few places one can go where cell phones can be fully escaped; indeed, the Pew Research Center's Internet and American Life Project estimates that at least 91% of all American adults own at least one cell phone, with 58% of these adults owning at least one smartphone (Smith, 2013), typically defined as a hybrid device that combines a cell phone with aspects of a handheld computer. Most smartphones offer Internet access, app downloads, and other advanced features like data storage and multimedia capabilities. The developed world is not alone in its embrace of the cell phone; as a "leapfrog" technology, cell phones have "enabled developing countries to skip the fixed-line technology of the 20th century and move straight to the mobile technology of the 21st" ("The limits of leapfrogging," 2008). Cell phones have allowed individuals, non-governmental organizations (NGOs) and businesses in developing and developed countries alike to find new and innovative ways to communicate with each other, conduct trade and exchange money, and obtain and pass along information, all at minimal cost (Wike & Oates, 2014).

Unlike their bulky predecessors, modern cell phones are powerful enough that they can be (and are) used for far more than simply placing and receiving voice calls; in fact, the processor chip used in the modern iPhone is not at all dissimilar to the processor that is installed in MacBook Pro computers. As of 2013, reportedly 52% of all cell phone

[1] For the purposes of this dissertation, a "cell phone" is defined as a portable telephone that transmits and receives calls and data using specific radio frequencies. The term "cell phones" is used as a catchall that includes smartphones, defined as a hand-held hybrid device that combines a cell phone with a computer.

owners use their devices to access their email, while 60% access the Internet. These figures are up from 27% and 29%, respectively, in 2009 (Duggan, 2013), and are likely to continue to climb as smartphone adoption in particular continues to grow. While exact projections vary, manufacturers and market analysts agree that at least two billion—and perhaps many more—smartphone subscriptions worldwide will be active within the next five years as various barriers to acquisition, such as handset prices, subscription fees, and data costs, continue to fall (eMarketer, 2014; Ericsson, 2013).

Given the ubiquity of the cell phone in today's world, it is reasonable to suggest that cell phones have become an indispensable part of everyday life, particularly for so-called "digital natives," defined by Palfrey and Gasser as individuals "born after 1980, when social digital technologies… came online. They all have access to networked digital technologies. And they all have the skills to use those technologies" (2013, p. 1). In fact, some journalists, reporting on survey results revealing widespread reliance on cell phones by teenagers, have gone so far as to claim that cell phones have "become almost as important to American teens as the clothes they wear" (CNET, 2008, para. 1). This generational difference in Internet dependence becomes even starker when one considers that nearly half of all non-Internet users in the United States are age 65 or older (Zickuhr, 2014). Regardless of demographic differences, however, a paradigm shift is well underway: experts are of the opinion that within the next twenty-five years, the majority of the world population will have access to the Internet, and that the web will be essentially ubiquitous and inescapably assimilated into everyday life, paralleling electricity in certain ways (J. Anderson & Rainie, 2014). Thanks to smartphones and the

relatively comprehensive access to cellular signals or Wi-Fi nationwide, our access to information and communication with others is already essentially unconstrained.

This deepening integration of the Internet into everyday life is also changing the ways in which we interact with each other. As Meyrowitz articulates, digital technologies have the ability to change social norms and situations by creating "a very discernible rearrangement of the social stages on which we play our roles and [causing] a resulting change in our sense of 'appropriate behavior'" (1985, p. 4). Consider that "we are socialised [from a very early age] into behaving appropriately in different physical settings, which often have strong symbolic meaning" (Argyle, Furnham, & Graham, 1981, p. 274); however, the relatively recent introduction of devices like the smartphone (which tends to spontaneously emerge from pockets and purses at almost any social gathering) has required reconsideration of behavioral expectations in specific social situations. In other words, the relatively recent advances in the telecommunications technologies that we use on an individual basis have forced us to reexamine our socio-behavioral expectations, thanks in large part to the human desire for acceptance and fear of group rejection (Dittes & Kelley, 1956). Despite the fact that the smartphone is a relatively young technology, most have quickly come to the conclusion, for example, that it is socially inappropriate to play a game on a phone while dining with others in a restaurant. Engaging in such boorish behaviors can result in scorn, judgment, criticism, and social alienation.

While it is apparent that digital media can change social interactions, might the reverse be true, as well? In other words, do different social settings and patterns hold the power to alter the ways in which we interact with digital media—specifically,

smartphones? Social psychologists would argue that the answer to this question is yes; as Argyle et al. explain, "Social psychology's traditional focus on perception and behaviour has been broadened to include *contextual orientation* [emphasis added] in which the transaction between people and their sociophysical settings is emphasised" (1981, p. 267). Furthermore, research specifically related to information and communication technologies (ICTs) suggests that this may in fact be the case. For example, contextual cues and environments can and do impact the types of apps that users choose to use at a given time; as Rahmati and Zhong note, "Different [smartphone] usage patterns may apply to different locations for each user" (2013, p. 1426). One study determined that multimedia services, including camera apps, games, and streaming music are more typically deployed while users are "on the move," or somewhere between home and work (Verkasalo, 2009). Similarly, another study found statistically significant correlations between location and specific app usage (Do, Blom, & Gatica-Perez, 2011). As Matthews, Pierce, and Tang succinctly explain, "The places and situations in which users employ their phones shape the tasks they undertake and how they make time to use their devices, fill idle time with them, or defer tasks to their other devices" (2009, p. 1). But what role do situational expectations of privacy play in smartphone usage? In other words, how might one's expectations of "being alone, undisturbed, or free from public attention" ("Privacy, n.," 2007) impact the way in which one chooses to employ his or her smartphone? Social norms dictate that one would not, for example, watch a pornographic video in a crowded subway or in a public library's reading room, though such an action might be perfectly acceptable within the confines of a private home.

Expectations of privacy vis-à-vis a given environment have not been given significant consideration as a complicating factor of smartphone usage.

Situational expectations of privacy must be considered alongside individual behavioral differences—in other words, one individual may behave very differently in a given social setting than another simply because of personal disposition. Indeed, psychologists have long known that self-awareness plays a role in social interactions (Argyle et al., 1981; Duval & Wicklund, 1972). The theory of self-monitoring, in particular, holds that individuals can differ significantly in the ways that they regulate their expressive behaviors in social settings. As Snyder explains,

> Out of a concern for social appropriateness, the self-monitoring individual is particularly sensitive to the expression and self-presentation of others in social situations and uses these cues as guidelines for monitoring and managing his own self-presentation and expressive behavior. In contrast, the non-self-monitoring person has little concern for the appropriateness of his presentation and expression, pays less attention to the expression of others, and monitors and controls his presentation to a lesser extent. (1974, p. 536)

Because the theory of self-monitoring suggests that social situations may prompt a change in behavior, particularly for individuals that are high self-monitors, it stands to reason that behaviors pertaining to smartphone usage would also be altered in a given setting—for example, high self-monitors might see their smartphones as particularly useful tools for moderating their interactions with other people in a public social setting, while such a use might never occur to a low self-monitor[2]. While on the surface such a relationship seems relatively intuitive, research has apparently not yet probed this association, though Ratner and Kahn note that "people incorporate more variety into their

[2] Books and newspapers, as de Souza e Silva and Frith explain, have long been used as means of indicating a withdrawal from a public space. "By reading a book [in public], [individuals] let others know hat they are not fully or socially engaged with the public space" (2012, p. 61). This use of an interface to request a certain level of "public isolation" is also true of more modern devices, including the Sony Walkman, the iPod, and smartphones (De Souza e Silva & Frith, 2012).

consumption decisions when their behavior is subject to public scrutiny" (2002, p. 246). Put into other words, people can and do deviate from their typical behaviors when they perceive that they are in a public situation, and it seems reasonable to assume that similar deviations related to smartphone usage could also occur. Furthermore, DeBono notes that while "self-monitoring is clearly a variable that can provide [researchers] with a non-trivial degree of explanatory power regarding important aspects of consumer behavior" (2006, p. 732), the specific relationships between self-monitoring and product perceptions and uses have yet to be uncovered, suggesting that this research will help to fill a particular vacancy in the literature.

What, then, are the shifts in thinking about smartphones that occur on an individual level as a person moves from a public environment into a private environment? In other words, do perceptions of privacy, coupled with individual differences in self-monitoring, change the ways in which we use our smartphones? This is the main question that this dissertation seeks to address, utilizing the uses and gratifications theory (U&G; Katz, Blumler, & Gurevitch, 1974). An experimental survey coupled with a 2×3 research design, illustrated in Figure 1, will allow for a comparison of smartphone uses and gratifications based on six permutations of self-monitoring (high vs. low) combined with situational expectations of privacy (high, intermediate, and low). Descriptions of each of these conditions will be provided in subsequent chapters.

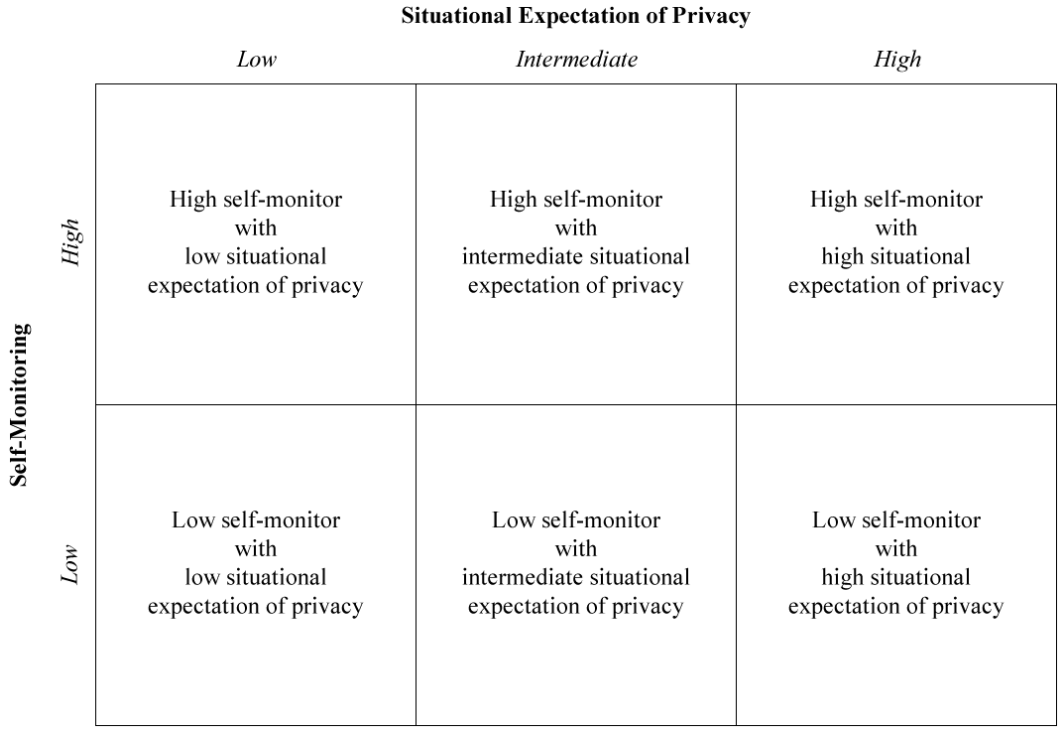


Figure 1. Research design incorporating permutations of self-monitoring and situational expectations of privacy.

Based on this research design, three specific research questions are proposed:

RQ1. Do uses and gratifications for smartphones differ based upon an individual's situational expectations of privacy?

RQ2. Do uses and gratifications for smartphones differ based upon an individual's level of self-monitoring?

RQ3. Are there any interactions among situational expectations of privacy, level of self-monitoring, and smartphone uses and gratifications?

Plans for Research

The following chapter will present an examination of the major understandings of privacy and attempt to pin down a functional definition of privacy that will serve the purposes of this dissertation. This definition will then be applied to specific settings where social interactions commonly take place in an attempt to determine whether there

are specific settings that are universally accepted as either public or private in locational terms, as the study should ideally explore situations that are significantly different from each other in terms of expectations of privacy. Chapter III will outline the theoretical framework used in this dissertation: the theory of uses and gratifications. This chapter will begin with the initial conceptualization of U&G as described by Katz et al. (1974b), and it will address the possibility of privacy as a potential gratification that must be accounted for. Chapter IV will provide some background on the theory of self-monitoring, including current understandings of the theory, as well as related concepts connected to self-awareness, particularly in social settings. Chapter V will describe the methodological approach—an experimental survey—utilized by this study, and Chapter VI will enumerate the study's results. Finally, Chapter VII will contain a discussion of the study's results, musings on the implications of the results, address the study's limitations, and suggest future avenues for further research.

CHAPTER II

PRIVACY

Human beings have articulated a desire for privacy, in one form or another, since the days of the ancient Greeks, with Socrates and other philosophers making distinctions "between the 'outer' and the 'inner,' between public and private, between society and solitude" (Holvast, 2009, p. 15). Countless authors and poets over the centuries have extolled the virtues of solitude and independence; consider, for one, Henry David Thoreau's celebration of solitude in *Walden* (2009). Some scholars believe that the current Western concept of privacy emerged with the colonization of the New World, as colonists were no longer forced to live in the cramped European cities that they had emigrated from. Instead, colonists inhabited homesteads that were further apart, subtly reinforcing the idea of the private home (Flaherty, 1972; Holvast, 2009). Even this concept of territoriality and private property was not totally new to colonists; consider, for example, that the Oxford English Dictionary notes that the term "homestead" in Old English referred specifically to boundaries between parcels of land.

Though it is clear that the concept of privacy had existed in one form or another for centuries prior, the most notable early American definition of privacy was spelled out when Warren and Brandeis defined it in legal terms as a general right to be left alone (1890). The advancement of technology, however, demanded a reconsideration of this relatively simplistic definition. Prior to the invention of the telegraph or telephone, long distance non-verbal communication was carried out primarily via post, so a would-be identity thief would have had to intercept interpersonal correspondence or break into

someone's home, making it relatively difficult to "invade" someone's privacy without committing a serious crime. Westin elaborates:

> Physical entry and eavesdropping were the only means of penetrating private homes and meeting rooms; the framers [of the Constitution] therefore made eavesdropping by private persons a crime and allowed government to enter private premises only for reasonable searchers, under strict warrant controls. (1967, p. 67)

However, with the emergence of the telephone, radio, and television, and later the computer, it became apparent relatively early on that information about an individual and his or her behaviors, preferences, and activities could be collected, disseminated, and even bought and sold, with the subject often oblivious to these transactions[3]. Indeed, communication technologies, particularly the computer, have been blamed as the most frequent causes of privacy invasion (Holvast, 2009).

Because the physical individual and the individual's beliefs and perceptions can be differentiated from information *about* the individual, there are a number of divergent understandings of what is meant by "privacy" in the literature. Relational or locational privacy, on the one hand, "deals with the relation one has to other people, for example controlling who may enter the domestic environment or who is allowed to touch one's body" (Holvast, 2009, p. 16), while informational privacy "is related to the collection, storing and processing of (personal) data" (Holvast, 2009, p. 16). Psychological privacy is a third conceptualization of privacy that is often overlooked, but that will prove important to this study, particularly as interfaces (e.g., smartphones) can be used to create a degree of psychological privacy regardless of how situationally or locationally public a space may be. It is described by Kelvin as the right of the individual to "independence in

[3] Such actions still take place on the Internet—even seemingly benign or bland websites can collect and actualize information about their visitors, resulting in a barrage of "relevant" advertisements.

situations in which [one] might otherwise be vulnerable to the power available to others" (1973, p. 250). Similarly, Williams noted that day-to-day technologies have the ability to generate a kind of "mobile privatization" that allows for "an at-once mobile and home-centered way of living" (R. Williams, 2005, p. 18). Consideration will be given to this concept of privacy, particularly as interfaces—including cell phones and smartphones—can be used to generate this type of privacy, as interfaces allow individuals "to temporarily disengage from [a] space… by paying attention to something else" (De Souza e Silva & Frith, 2012, p. 61). Directing one's attention to a smartphone, a book, or some other interface creates a "permeable boundary (interface) to that space, which… lets the [individual] control his experience of that space, enacting the type of control typically associated with private spaces" (De Souza e Silva & Frith, 2012, p. 61)—in other words, a degree of psychological privacy is created thanks to the refocusing of attention on the smartphone.

Scholarly explorations of privacy as it pertains specifically to smartphone use have focused almost entirely upon the concept of informational privacy, though this research has taken a variety of perspectives. On the end-user side, some researchers have attempted to evaluate general levels of user confidence in the security and privacy offered by their smartphones (Chin, Felt, Sekar, & Wagner, 2012; Mylonas, Gritzalis, Tsoumas, & Apostolopoulos, 2013), to determine whether users understand the privacy options offered by their smartphones (Felt, Ha, et al., 2012; Kelley et al., 2012), to determine what financial tradeoffs users are willing to make to protect the personal information accessed by a smartphone app (Egelman, Felt, & Wagner, 2013), or to determine how users might respond to various privacy violations related to their smartphone usage (Felt,

Egelman, & Wagner, 2012). Other scholars have focused on uncovering smartphone privacy and security holes at either the hardware or operating system level, or at the app level; for example, Grace et al. found that a number of ad-supported smartphone apps access personal user information unbeknownst to the user (2012), Levis noted that geolocational information is surreptitiously collected on iPhone and iPad users by Apple (2011), and Mylonas et al. found that developers and programmers of average ability could use smartphone apps as "attack vectors" to clandestinely collect users' personal data with relative ease (2012). Other researchers have focused on developing means of prevention of malicious access to personal data, with a number of proposals published on a variety of methods of keeping smartphone data, including locational and GPS data, safe using software techniques (De Cristofaro, Durussel, & Aad, 2011; Guha, Jain, & Padmanabhan, 2012) and by developing automatic tools that probe apps for potential privacy leaks and security holes (Gilbert, Chun, Cox, & Jung, 2011).

It is clear from this body of research that the informational privacy risks posed by smartphones and the apps that they run are undergoing a great deal of scrutiny, but these inquiries largely gloss over the fact that cell phones are portable devices that are carried from one place to another by their users. As such, situational or locational considerations of privacy must also be considered, given that smartphones are used "privately in public."

Locational/Situational Privacy

As McFarland explains, "Each person has a sphere of existence and activity that properly belongs to that individual alone, where he or she should be free of constraint, coercion, and even uninvited observation" (2012, para. 1). This sphere encompasses a variety of data streams, messages, and other non-tangible forms of communication that

fall under the purview of informational privacy, but that still leaves concerns of privacy related to the physical, embodied person. This is where the concept of *locational* or *situational privacy*[4] comes in. Westin provides a starting point:

> Viewed in terms of the relation of the individual to social participation, privacy is the voluntary and temporary withdrawal of a person from the general society through physical or psychological means, either in a state of solitude or small-group intimacy or, when among larger groups, in a condition of anonymity or reserve. (1967, p. 7)

Thus, it is possible for an individual to exist privately in a public place, despite the seeming contradiction in terms. Kelvin explains how this duality is of interest to the social scientist:

> …if we say that social psychology is the study of social behaviour, and that social behaviour is the behaviour of the individual as somehow affected by 'others', then, in a sense, states or conditions of privacy are the obverse of at least much that concerns social psychologists. (1973, p. 248)

In other words, levels of privacy can and do have a direct bearing on the social and psychological bearings of individuals, despite the fact that psychologists have given relatively short shrift to situational privacy as a concept over the years (Kelvin, 1973).

What is needed here is a functional definition of "public" versus "private" in a locational or situational sense, particularly given the way that the use of cell phones can muddle what seems, at first blush, like a binary:

> Mobile technology use in public spaces complicates traditional understandings of what it means to be in public, allowing people to bring previously private activities (reading, listening to music) into public spaces. When people sit on a crowded train with headphones in [*sic*] their ears, is the space as public for them as it is for the two people sitting two rows behind who are engaged in a conversation? Or does the space become private, personal, and controlled? The answers to these questions depend on how we understand the terms "private" and "public." (De Souza e Silva & Frith, 2012, p. 51)

[4] As the terms "locational privacy" and "situational privacy" are used interchangeably in the literature, both terms will be used concurrently throughout this study.

How, then, can these terms be best operationalized to best apply to situational contexts? The Aristotelian definition of "public" refers to "the setting for democratic deliberation and discussion" and is "distinctly political" (De Souza e Silva & Frith, 2012, p. 53), but this definition does not suit the needs of this study, as it fails to acknowledge that public spaces are used in a social, non-political context. Likewise, the so-called "feminist" model sees the private as anything related to domesticity, with the public seen as anything existing outside of the home (Weintraub, 1997)—again, this definition does not suit the needs of this dissertation, as "public" by this definition is far too broad. The economic model does not fit, either; in this model, "private belongs to the market forces of business and individual actors, while the public is the realm of governmental programs and services" (De Souza e Silva & Frith, 2012, p. 53). As this study is not interested in market forces or commerce, this economic model is not relevant.

The public vs. private model that best suits this study's needs is what Weintraub calls the "sociability model" (1997). Public space, in this model, is the "world of random sociability" (De Souza e Silva & Frith, 2012, p. 54) where heterogeneous individuals commingle; Jacobs describes these as spaces that allow and encourage "fluid sociability among strangers and near strangers" (1961, p. 17). A private space, on the other hand, is any "more intimate and controlled setting" where "interactions with others tend to happen on terms that are more comfortable to the individual" (De Souza e Silva & Frith, 2012, p. 54). It is important to underline the fact that "public" and "private" are not, in fact, in binary opposition to each other; the boundaries between the two are fluid and permeable. Indeed, "marking a space as public does not mean people will not have private experiences in that space" (De Souza e Silva & Frith, 2012, p. 55). Furthermore, "what is

considered private and what is considered public changes with time period, cultures, and the interfaces we use to interact with these spaces" (De Souza e Silva & Frith, 2012, p. 54).

Certain expectations are embedded in each type of setting. As Cresswell explains, "Space and place are used to structure a normative landscape—the way in which ideas about what is right, just, and appropriate are transmitted through space and place. Something may be appropriate here but not there" (1996, p. 8). Determinations as to what activities are suitable for a given space are hegemonic and communicated through social norms and behaviors:

> The urban environment is constructed around a set of "appropriate" places, areas imbued with sets of meanings *deemed correct by dominant groups in society* [emphasis added]. There are places to play, pray, sleep, eat, make love, and an infinite number of other activities. The associations between the place and its meanings are powerful and often public and communicable. The built environment materializes meanings—sets them in concrete and stone… Once meaning finds its geographical expression it is no longer personal; it is there—visible, material, solid, and shared. Once it is known what type of behavior is appropriate for which place, it is simultaneously obvious which things are inappropriate and unacceptable and thus challenging to the guardians of the established order. (Cresswell, 1996, pp. 47–48)

People are trained from childhood to identify certain places as appropriate for particular activities; regardless of age or developmental stage, we tend to recognize and classify places based upon the various activities that take place within them (Canter, 1977). Indeed, "the ways in which we conceptualise places form an integral part of our interactions with them" (Canter, 1977, p. 13).

What Cresswell calls a "normative landscape" (1996) is manmade, however, and agreement as to what activities are appropriate in which spaces are codified through "thin trust," defined as "a generalized trust in others to do what they are supposed to do" (De

Souza e Silva & Frith, 2012, p. 73). Thin trust leads to an expectation that others "will comply with our expectations, [and] 'be fair, honest, and reasonable in their dealings with us'" (Khodyakov, 2007, p. 121). Public space and the interactions that occur in it, after all, "is a collection of minor social contracts" (Gordon & De Souza e Silva, 2011, p. 90):

> We trust that cars driving past will not run up onto the sidewalk; we trust that other pedestrians will not shove us into the street; we trust that the man on his mobile phone is not using it to activate a bomb. Public space is made up of these different layers of thin trust whether we are directly engaging in a co-present manner with others or not. (De Souza e Silva & Frith, 2012, p. 73)

Taken a step further, people trust that other diners will not intrude on an intimate dinner at a restaurant by clamoring over a booth's divider; people trust that individuals will keep a respectable distance from one another[5] while walking down the street; and people trust that we will not be harangued or harassed further by a solicitor on the sidewalk if their offers have been declined. Thin trust in weak interpersonal ties coupled with social norms dictate the appropriate behavior for a given setting.

Public Place, Private Interface, and Psychological Privacy

Despite the fact that computers were just coming into use in large business environments and that the home PC was still several decades away, Westin advanced an idea in the 1960s regarding individual negotiation of the public and private spheres that now seems almost prescient:

> The individual's desire for privacy is never absolute, since participation in society is an equally powerful desire. Thus each individual is continually engaged in a personal adjustment process in which he balances the desire for privacy with the desire for disclosure and communication of himself to others, in light of the environmental conditions and social norms set by the society in which he lives. (Westin, 1967, p. 7)

[5] It is worth mentioning that interpersonal distance is, as the study of proxemics has revealed, dictated culturally, and what is "appropriate" can vary (Sussman & Rosenfeld, 1982), depending upon where and who you are.

The adjustment process of which Westin speaks is vividly demonstrated when an individual chooses to use some sort of portable interface, defined by de Souza e Silva and Frith as "something that is between two other parts or systems, and helps them communicate or interact with each other" (2012, pp. 1–2), in order to exert some level of control over the heterogeneity and potential chaos of the public space and to establish a degree of *psychological privacy*, which occurs entirely "inside the mind of the individual" (De Souza e Silva & Frith, 2012, p. 60). After all, a person playing a game on his smartphone while sitting on a park bench does not literally become invisible, but psychologically speaking he is indicating his withdrawal from an otherwise public space. As Ling explains,

> Both in everyday life and in ritualized situations we can use props, costumes, and artifacts to express a sense of self and how we wish to be seen. This is the Goffmanian front stage, where we present a specific façade… We engage in various strategies—"face-work" in Goffman's terminology—in order to beat off threats to our imagined façade… The mobile telephone can also be seen [as a tool used in this capacity]. (Ling, 2004, p. 105)

In other words, diverting one's attention to a smartphone can serve as an indicator that attention from others is undesired—the "specific façade" says to others, "Leave me alone," and the thin trust that we place in others to conform to social norms leads us to believe that this façade will be respected. Indeed, St. John notes that "since the Walkman arrived in the United States in 1980, New Yorkers have been using gadgets to tune each other out, and cellphones have certainly done their share to complicate social relations" (2004), suggesting that a social norm of ignoring people who are using various types of personal tech, particularly in urban spaces, has coalesced over the past decades. Indeed, this idea was recently confirmed by Pew Research, who polled smartphone owners and

determined that that nearly half of all smartphone owners under the age of 29 had used their phones specifically to avoid others around them (Smith, 2015).

The fact that ICTs (including smartphones) comprise a growing number of the interfaces that are used to generate psychological privacy in public places has allowed for the creation of what Boyd refers to as "networked publics" (2007), or individuals that are bound together through electronically mediated means. This is a relatively new conceptualization of "public space" that does not completely fit the public/private dichotomy as it has historically been understood, particularly as such networked publics allow the "remote other" to participate in a conversation with an embodied person, even though he or she is not physically present. Consider as well that cell phones can be used to facilitate spontaneous or otherwise unplanned social gatherings via what Ling calls "microcoordination," which can be roughly defined as iterative planning of an event via text message (2004). Flash mobs are another example of the power of the cell phone to radically alter public spaces (Walker, 2013); with minimal effort, massive numbers of people can converge on a public location for a variety of purposes (e.g., entertainment, protest). Other "complications" related to networked publics may eventually emerge as the technology matures; suffice it to say that ICTs, including the cell phone, have muddied the waters between co-present interaction and the involvement of the remote other.

Summary

This chapter has attempted to tease apart the various meanings of the word "privacy" into three primary types of privacy: *informational privacy*, *situational* or *locational privacy*, and *psychological privacy*. Most research pertaining to smartphones

has related to concerns of informational privacy connected to data and app usage, but perceptions of situational privacy and psychological privacy have been identified as of primary interest for this specific study. Therefore, the next chapter will examine the theory of uses and gratifications in greater depth and explore the possibility that privacy generation may in fact be a gratification of the smartphone that has not previously been identified.

CHAPTER III

USES AND GRATIFICATIONS

It is no exaggeration to describe today as a media-saturated age. Consider the sheer amount of media messages that the average American is exposed to; one estimate states that

> by 2015, the sum of [all] media asked for and delivered to consumers on mobile devices and to their homes would take more than 15 hours a day to see or hear. That volume is equal to 6.9 million-million gigabytes of information, or a daily consumption of nine DVDs worth of data per person per day. (Zverina, 2013)

This practically inexhaustible supply of media messages means that individuals must make conscious choices every day as to what mediums to actively attend to. The theory of uses and gratifications (U&G) attempts to understand what people actually do with media. As Sparks explains,

> The theory attempts to make sense of the fact that people consume a dazzling array of media messages for all sorts of reasons, and that the effect of a given message is unlikely to be the same for everyone. The driving mechanism of the theory is need gratification. By understanding the particular needs of media consumers, the reasons for media consumption become clear. (2012, p. 358)

Prior to the development of U&G, media scholars largely operated under the assumption that the so-called "magic bullet theory" was correct—that audiences were largely passive and susceptible to media messages in the same way (Scheufele & Tewksbury, 2007), just as any given person would be vulnerable to a bullet. However, Katz et al. proposed that "the study of how media affect people must take account of the fact that people deliberately use media for particular purposes" (E. Katz et al., 1974b; Sparks, 2012, p. 358). In other words, U&G assumes that "media users are goal-directed in their behavior,

and are active media users. Furthermore, they are aware of their needs and select the appropriate media to gratify their needs" (Ko, Cho, & Roberts, 2005, p. 58).

A diverse array of U&G studies populates the academic literature; some focus on specific audiences (e.g., children, adolescents), while a majority focus on more general users of a medium. The most commonly found type of U&G study pertains to specific types of television and radio broadcasts, including religious television programs (Abelman, 1987), soap operas (Carveth & Alexander, 1985; Lemish, 1985; Perse & Rubin, 1988), news (Dotan & Cohen, 1976; McDonald, 1990; Palmgreen, Wenner, & Rayburn, II, 1981; Perse, 1992), political programming (Eveland, 2004), children's programming (Greenberg, 1974), horror movies (Johnson, 1995), violent programming (Krcmar & Kean, 2005), reality TV shows (Nabi, Stitt, Halford, & Finnerty, 2006; Papacharissi & Mendelson, 2007), and talk radio (Rubin & Step, 2000).

U&G research has also explored specific types of interactive personal media devices and delivery systems, including telephones (O'Keefe & Sulanowski, 1995), VCRs (A. A. Cohen, Levy, & Golden, 1988; Rubin & Bantz, 1989), video recordings (Lin, 1994), DVRs (Ferguson & Perse, 2004), MP3 players (Ferguson, Greer, & Reardon, 2007; Zeng, 2011), Internet service providers (ISPs) and the Internet (Ko et al., 2005; Lin, 1999; Papacharissi & Rubin, 2000; T. F. Stafford, Stafford, & Schkade, 2004), blogs (Kaye & Johnson, 2002), email (L. Stafford, Kline, & Dimmick, 1999), tablet computers (Greer & Ferguson, 2014), video games (Lucas & Sherry, 2004), and cell phones (Leung & Wei, 2000; Wei & Lo, 2006). Some scholars have looked at specific content delivered via the Internet using U&G; these studies have included examinations of the U&G of YouTube (Haridakis & Hansen, 2009), Facebook (Joinson, 2008; Park, Kee, &

Valenzuela, 2009), online newspapers (Yoo, 2011), and Twitter (Chen, 2011; Liu, Cheung, & Lee, 2010).

Assumptions Underlying U&G

According to Rubin, contemporary scholars tend to ground U&G research in five assumptions. First, communication behavior is "goal-directed, purposive, and motivated" (2008, p. 167), with consumers seen as active participants who choose media channels or content. Second, consumers are not "used by the media" (Rubin, 2008, p. 167); rather, media are used to satiate particular desires or wants. Third, "social and psychological factors [including personality, relationships, and interpersonal interactions] guide, filter, or media behavior," and "predispositions, the environment, and interpersonal interactions shape expectations about media and media content" (Rubin, 2008, p. 167). Fourth, media compete with other types of communication, including interpersonal interactions, with individual sociopsychological circumstances dictating how well a given medium will satisfy a particular need. Finally, people are seen as "more influential than the media in this process, but not always" (Rubin, 2008, p. 167), meaning that "media may affect individual characteristics or social, political, cultural, or economic structures of society, and how people may come to rely on certain communication channels" (Rubin, 2008, p. 167).

There has also long been an assumption in place that people are able to accurately self-report their media use; according to Sparks,

> There is now a long tradition in mass communication research that asks people to report the amount of time they devote to different kinds of media. The early research on uses & grats can take a good deal of the credit for starting that tradition. (2012, p. 362)

Some scholars have criticized self-reporting as a data collection method, arguing that individuals may not be able to accurately articulate or even comprehend why they chose a particular medium. However, a number of studies have been able to support data collected via self-response methods (Rubin, 1979, 1981); furthermore, a number of researchers have conducted U&G research using novel methods including experiments, ethnographic research, and diaries or personal narratives (Rubin, 2008).

Typologies of Gratifications

In an attempt to make U&G a more manageable research tool, scholars have made a number of attempts over the decades to classify motivations for media uses into typologies, or sets of categories, with each category typically describing both a reason for media use and a potential gratification experienced from that use (Rubin, 2008; Sparks, 2012). Rubin's typology for television uses and gratifications, for example, is often cited as a starting point for mass media U&G research, with (1) passing time, (2) companionship, (3) escape, (4) enjoyment, (5) social interaction, (6) relaxation, (7) information, and (8) excitement (1981) identified as "most of the explanations [that] people give for their [television] consumption" (Sparks, 2012, p. 362).

This is a fine typology for a mass medium like television that does not necessarily lend itself to direct interaction at the individual level, but the present study demands a more robust typology that speaks to the interactive nature of smartphones. An appropriate place to begin would be with Wei and Lo's study of cell phone U&G (2006); however, as this study was conducted prior to the widespread adoption of smartphones[6], it does not include all potential gratifications that modern smartphone handsets might satisfy, given

[6] The first generation iPhone was introduced on June 29, 2007; while the iPhone was not, strictly speaking, the first "smartphone" on the market, it was the first smartphone to be successful on the mass market.

the wide range of features that traditional cell phone handsets lack when compared to modern-day smartphones. On a macro level, however, the addition of the Internet is perhaps the primary differentiator between a traditional cell phone and a smartphone; as such, the gratifications for the Internet developed by Papacharissi and Rubin (2000) would be appropriate to incorporate. There is some overlap between these two lists of gratifications, and as a result, items would need to be consolidated as appropriate. Combining these studies results in a typology that consists of (1) information seeking, (2) social/interpersonal, (3) passing time/entertainment, (4) fashion/status, and (5) mobility/accessibility, as shown below in Table 1. Specific items associated with each of these gratifications are listed in Table 17 (see Appendix A).

Table 1. Reclustered smartphone gratification typology (Papacharissi & Rubin, 2000; Wei & Lo, 2006).

Smartphone gratifications	Cell phone gratifications	Internet gratifications
Information seeking	Information seeking	Information seeking
Social/interpersonal	Social utility Affection	Interpersonal utility -
Fashion/status	Fashion/status	-
Mobility/accessibility	Mobility[7] Accessibility	Convenience -
Passing time/entertainment	- -	Pass time Entertainment

Privacy as a Gratification

As established, particular types of spaces tend to come with certain expectations related to what activities are appropriate in the space, based in part on the sense of privacy that the space provides. Furthermore, portable interfaces (e.g., books, magazines,

[7] The three items contained in Wei and Lo's "mobility" gratification (2006) all pertained to pay phones. Because pay phones are dwindling in numbers and are removed at a rate of approximately 15% per year (Fagan, 2013), and because mobile phones have become essentially ubiquitous, the decision was made to exclude these three variables altogether.

smartphones) can intervene in these spaces, offering the individual a degree of psychological privacy, even in an otherwise public setting. This interplay between locational privacy and psychological privacy vis-à-vis interfaces like smartphones, not to mention personal space, verbal behavior, and so forth, can be described as "an *interpersonal boundary process* by which a person or group regulates interaction with others" (Altman, 1975, p. 6). In other words, people will use various means at their disposal to adjust the situational or locational privacy at hand until a desired level of comfort is reached, as illustrated by Figure 2.

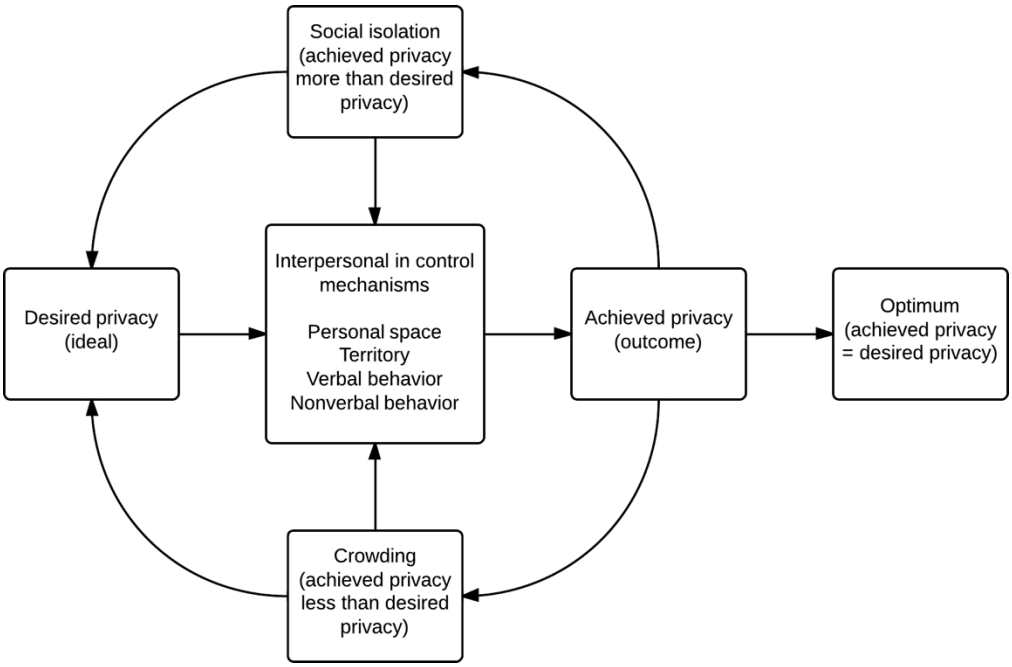


Figure 2. Overview of relationships among privacy, personal space, territory, and crowding (Altman, 1975, p. 7).

We have known for some time that a variety of interfaces, including smartphones, can be used by individuals to remove themselves (in a psychological or attentive sense) from the world around them (Brown, Green, & Harper, 2002; De Souza e Silva & Frith, 2010; Fortunati, 2002; Gergen, 2002; J. Katz & Aakhus, 2002; Moores, 2004; Puro, 2002); indeed, Wellman points out that "mobile phones afford a fundamental liberation

from place" (2001, p. 238) insofar as cell phones "provide users with an interface that helps them select and control their interactions with public spaces" (De Souza e Silva & Frith, 2010, p. 506). However, none of the extant U&G studies pertaining specifically to cell phones (Leung & Wei, 2000; Wei & Lo, 2006) or to apps and activities specific to cell phones, including entertainment and games (Wei, 2008), apps (Ho & Syu, 2010), texting vs. talking (Grellhesl & Punyanunt-Carter, 2012; Jin & Park, 2010; Reid & Reid, 2007), or interpersonal relationship management (Auter, 2007; Walsh, White, & Young, 2007) include a privacy gratification among the typologies presented.

It is worthwhile to mention, however, that this privacy gratification may be challenging to tease out, specifically because smartphones are both communication devices and means of passing time. However, it is evident from the literature that cell phones can (and do) serve as means of generating psychological privacy in public spaces. Furthermore, it is important to note that scholars tend to agree that specific uses and gratifications can vary depending upon

> social and psychological factors [that] guide, filter, or mediate behavior. Predispositions, the environment, and interpersonal interactions shape expectations about media and media content… Media use may respond to needs, but also satisfies wants or interests… (Rubin, 2008, p. 167)

Because individuals may in fact use their smartphones to generate a degree of psychological privacy, a privacy gratification—specifically, a gratification related to psychological privacy generation—will need to be added to the instrument deployed for this study, based primarily on de Souza e Silva and Frith's descriptions of digital interfaces as potential generators of privacy in public places (2012). Hence, the following hypothesis is proposed:

H1. As smartphones are believed to generate a sense of psychological privacy when deployed as an interface between the individual and his or her surroundings, privacy as a gratification for smartphone use is expected in public and hybrid settings. Privacy generation as a gratification is not expected in private settings.

However, as noted in the previous chapter, situational contexts can and do differ widely in terms of the levels of privacy anticipated; one would not necessarily need to generate a sense of psychological privacy if he or she is already cloistered away in a private place like a bedroom or hotel room. As one can use a smartphone virtually anywhere, and because the types of activities performed in each environment can differ drastically, this suggests that uses and gratifications will be different across various environments. For example, in public places, smartphones are used to coordinate social interactions, to obtain information, and—potentially—to create a sense of privacy (Ling, 2008). While any of these behaviors can (and do) occur in private places, the smartphone is more likely to be used as an entertainment device; for example, individuals are more likely to play games in isolation or in small groups (Lenhart et al., 2008). Thus, the second hypothesis is proposed:

H2. Uses and gratifications reported for smartphones will differ based upon situational expectations of privacy. The predominant gratifications for public environments are expected to be privacy, information seeking, and mobility/accessibility, while the predominant gratification for private environments is expected to be passing time/entertainment. A mixture of these gratifications is anticipated for hybrid environments.

Summary

This chapter has presented an overview of the theory of uses and gratifications (U&G) as originally conceptualized by Katz et al. (1974b), examined the wide array of U&G studies that populate the academic literature, evaluated the assumptions that underlie U&G, and explained the concept of typologies in U&G studies. Additionally, an

argument was presented for combining the gratification typologies identified for the Internet (Papacharissi & Rubin, 2000) and for cell phones (Wei & Lo, 2006) in order to create a more complete picture of U&G for smartphones, as no U&G study specific to smartphones as an integrated device is apparent in the literature. Finally, an argument was made for the inclusion of psychological privacy as a potential gratification of smartphones, particularly given the nature of the proposed study, which seeks to determine whether U&G differ for public vs. private environments; this argument was bolstered by the theoretical literature, which indicates that individuals can and do differ in their specific U&G for a given medium.

The next chapter will introduce self-monitoring theory and will evaluate the extent to which the theory has been applied to studies of technology and privacy. The chapter will conclude with explication as to why low and high self-monitors may differ in their reported U&G of smartphones.

CHAPTER IV

SELF-MONITORING THEORY

Social psychologists have long held the opinion that "the ability to manage and control expressive presentation [in social settings] is a prerequisite to effective social and interpersonal functioning" (Snyder, 1974, p. 526). Goffman is perhaps the most well-known of these theorists, as he is largely acknowledged as having championed the idea that social interactions are akin to theatrical performances (1955, 1959). Indeed, self-monitoring theory uses Goffman's theory of "dramaturgy[8]" as a starting point, and combines it with the idea of impression management (Snyder, 1987) in an attempt to explain why some individuals appear "to be living lives of public illusion, when others are content just to 'be themselves,' without constantly assessing the social climate around them" (Snyder, 1987, p. 1).

At the core of the theory, self-monitoring "is a theory of *the self in action*" (Snyder, 1987, p. 187), and that people adopt actions to support this sense of self in one of two ways—either individuals are said to be high self-monitors, or low self-monitors:

> [High self-monitors] monitor or control the images of self they project in social interaction to a great extent. Low self-monitors, in contrast, value congruence between who they are and what they do. Unlike their high self-monitoring counterparts, low self-monitors are not so concerned with constantly assessing the social climate around them. Their behavior is quite consistent: They typically express what they really think and feel, even if doing so means sailing against the prevailing winds of their social environments. They take the injunction, "To thine own self be true," seriously. (Snyder, 1987, p. 5)

Snyder suggests that there are a variety of goals for self monitoring, including

[8] In brief, Goffman conceived of social situations as being comprised of a "front stage," or public area, in which individuals "perform" while facing others, and a "back stage," or private area, in which people drop any pretenses that they might be holding on to (1959).

> [the need] (a) to communicate accurately one's true emotional state by means of an intensified expressive presentation; (b) to communicate accurately an arbitrary emotional state which need not be congruent with actual emotional experience; (c) to conceal adaptively an inappropriate emotional state and appear unresponsive and unexpressive; (d) to conceal adaptively an inappropriate emotional state and appear to be experiencing an appropriate one; (e) to appear to be experiencing some emotion when one experiences nothing and a nonresponse is inappropriate. (1974, p. 527)

Self-monitoring appears to be a strategy in which displays of identity are matched to externally located features and situational concerns. High self-monitors tend to be more attentive and responsive to situational cues; external situations seem to take on a greater importance than do elements of one's internal concept of identity. Indeed, high self-monitors "conceive of themselves as rather flexible and pragmatic types" (Snyder, 1987, p. 51). Low self-monitors, on the other hand, "cherish images of themselves as rather principled beings who value congruence between 'who they think they are' and 'what they try to do'" (Snyder, 1987, pp. 49–50); in other words, low self-monitors have a strong and stable sense of self that is generally less susceptible to external influence.

Measuring Self-Monitoring and Objections to the Self-Monitoring Scale

Snyder originally proposed a 25-item Self-Monitoring Scale comprised of true-false statements, with the scale scored in such a way that a high score indicated high self-monitoring (Snyder, 1974). Despite the relatively widespread acceptance and use of the theory and this scale by social scientists as a construct of self-awareness, a number of scholars have suggested that the Self-Monitoring Scale (SMS[9]) is in fact flawed or inadequate. Briggs et al., for example, noted that while there are "three [primary] characteristics of the high self-monitor [including] concern for the appropriateness of

[9] While "SMS" is the commonly used abbreviation for "short message service" (also known more colloquially as text messaging), this document will consistently use "SMS" specifically to refer to the self-monitoring scale.

social behavior, sensitivity to important cues, and self-regulation" (1980, p. 679), a factor analysis of the SMS revealed inconsistencies related to other personality measures, including extraversion, with the authors suggesting that someone who scored as a high self-monitor in one study could very likely register as a low self-monitor in another.

Similarly, Lennox noted that the SMS does not seem to measure a "single, unitary trait" (1988, p. 70); in a joint paper, Lennox and Wolfe criticized the SMS, stating that

> Snyder sought to assess five hypothetical components of the [self-monitoring] construct: (a) concern for appropriateness of social behavior, (b) attention to social comparison information, (c) ability to control or modify self-presentation, (d) use of this ability in particular situations, and (e) cross-situational variability of social behavior. (1984, p. 1349)

Based upon their factor analysis of Snyder's SMS, Lennox and Wolfe asserted that only three factors are dependably measured by the SMS: acting ability, extraversion, and other-directedness (Lennox & Wolfe, 1984). The authors acknowledge that "self-monitoring is an important construct" (Lennox & Wolfe, 1984, p. 1350) and propose a revised version of the SMS based on four separate studies, a 13-item Likert-style scale comprised of two subscales—"Ability to modify self-presentation" and "Sensitivity to expressive behavior of others" (Lennox & Wolfe, 1984).

Snyder objected to this revamp of the SMS in his 1987 book, observing that the correlation between his original SMS and Lennox and Wolfe's revised SMS is +.72—this is "a substantial figure, given all of the differences Lennox and Wolfe have claimed between their measure and the original Self-Monitoring Scale" (1987, p. 180). Furthermore, Snyder observes that the revised scale may be prone to response bias, and that the language used in the revised scale is difficult to understand, as "most of their

items are long and contain terms the average respondent would not use" (1987, p. 181). Snyder addressed further objections to the SMS directly:

> The Self-Monitoring Scale does possess intrinsic validity. As examinations of latent causal structure… have suggested, it measures an entity or structure that really exists… Moreover, the Self-Monitoring Scale appears to measure something very much akin to what is specified by the self-monitoring construct. As examinations of the network of associations between the Self-Monitoring Scale and external criterion behaviors… have demonstrated, the validity of the interpretation seems to be very much in keeping with that entailed by the construct of self-monitoring. (1987, p. 177)

Snyder acknowledged, however, that he had been able to increase SMS reliability by reducing the SMS to 18 true-false items, increasing internal consistency to +.70 compared to the original scale's alpha of +.66, with a correlation between the two scales of +.93 (1987).

While one still occasionally encounters criticisms of the theory of self-monitoring and the SMS (e.g., Briggs & Cheek, 1988), critics still acknowledge that "the popularity of the scale suggests that it assesses a construct of interest" (Briggs & Cheek, 1988, p. 673) while simultaneously calling for further reassessment of the self-monitoring construct itself. Because a widely accepted alternative to self-monitoring theory has yet to be developed, and because the SMS is still heavily used by social psychologists, it would seem to be an appropriate measure for the present study.

Self-Monitoring, Communication, and Technology

A number of studies related to interpersonal and organizational communication have been published that identified self-monitoring as a criterion of interest. Studies have found that high self-monitors are "motivated impression managers who are willing to invest considerable thought and effort into planning the specific strategies and forms of impression management that will enable them to accomplish their interaction goals" (W.

Ickes, Holloway, Stinson, & Hoodenpyle, 2006, p. 681). These strategies can be either consciously or unconsciously deployed, and can include high levels of self-disclosure with a new acquaintance (Ludwig, Franco, & Malloy, 1986), expressing less negative and more positive emotions when tasked with self-presentation (Levine & Feldman, 1997), using nonverbal mimicry as a "nonconscious strategy to get along" (Cheng & Chartrand, 2003, p. 1170), and engaging in more friendly casual social interactions (Hamid, 1994). High self-monitors perceive themselves as effective communicators and as persuasive (Sypher & Sypher, 1983), perform better at "getting along (e.g., meeting others' social expectations) and getting ahead (e.g., job performance and leadership emergence)" (Day & Schleicher, 2006, p. 685) in the workplace, tend to favor short-term sexual associations over long-term intimate relationships (Sakaguchi, Sakai, Ueda, & Hasegawa, 2007), are more tolerant of relationships in which the power balance is asymmetrical (Oyamot, Jr., Fuglestad, & Snyder, 2010), tend to have more social connections based on activities and shared interests that are less intimate, and they tend to be more willing to dissolve relationships (Leone & Hawkins, 2006), perhaps in part because they tend to feel subjectively ambivalent when they are faced with discrepancies "between their own attitude[s] and the attitude[s] of liked others" (Cowley & Czellar, 2012, p. 949)

Low self-monitors, in contrast, tend to be relatively consistent in their behaviors in a social context, "expressing what they regard as 'my usual self'" (W. Ickes et al., 2006, p. 682). Low self-monitors are likely to match (but not exceed) a new acquaintance's level of self-disclosure (Ludwig et al., 1986), are unlikely to deploy nonconscious mimicry of others as a social strategy (Cheng & Chartrand, 2003), are more comfortable in situations where their attitudes are in conflict with another's attitudes

(Cowley & Czellar, 2012), and can be seen as less likable or competent than high self-monitors (Levine & Feldman, 1997). That is not to say that low self-monitors are antisocial—on the contrary, low self-monitors tend to value long-term relationships over casual encounters (Sakaguchi et al., 2007) where the power balance feels equal and reciprocal (Oyamot, Jr. et al., 2010). While low self-monitors may tend to have less relationships quantitatively, their relationships are more intimate and less likely to be dissolved (Leone & Hawkins, 2006).

A less ample body of literature has evaluated the concept of self-monitoring as it pertains to ICTs, though a handful of studies have been conducted that include the SMS as a measurement tool. Findings have tended to show that high self-monitors are more likely to manipulate information about themselves online in order to produce a favorable self-image; for example, high self-monitors are more likely to construct more "extraverted" Facebook profiles (Hall & Pennington, 2013), write and post blog entries more frequently than low self-monitors (J. T. Child & Agyeman-Budu, 2010), and are more likely to misrepresent themselves on online dating sites (Hall, Park, Song, & Cody, 2010).

Some research has evaluated consumer behaviors in connection with self-monitoring, which may have some applicability to ICTs and smartphones, given that adults typically choose their own cell phones. Indeed, DeBono notes that high self-monitors are more likely to judge product quality based on "the product's image-enhancing capabilities" (2006, p. 715), which could have direct implications related to smartphones, given the perception of the iPhone as a "status symbol" (Electronista, 2013). On the other hand, low self-monitors are more interested in product performance

and tend to be "more responsive to quality-based appeals" (DeBono, 2006, p. 715), suggesting a certain practicality in their product selections. High self-monitors tend to show a higher degree of "sensation seeking" behaviors (Bell, Schoenrock, & O'Neal, 2000), which may explain why high self-monitors tend to be more persuaded by website designs that feature interactive animations and advertisements that are image-oriented; on the other hand, low self-monitors are more responsive to informational designs for websites and advertisements (Yates & Noyes, 2007). Given these differences, it is plausible that there are as-yet-unexplored differences in the ways in which low and high self-monitors use their individual ICTs, including smartphones. Hence, the third hypothesis, which acknowledges the more "people-pleasing" nature of high self-monitors and the more self-centered orientation of low self-monitors:

H3. Given the differences in the way high and low self-monitors interact with others in social situations, high self-monitors will be more likely to report social/interpersonal and fashion/status as smartphone gratifications, whereas low self-monitors are more likely to report more practical gratifications, such as information seeking, convenience, and mobility/accessibility.

The "Front" and the Smartphone as "Prop"

In Goffmanian terms, the "stage," also referred to as the "front"—the area on public display in a social context—consists of "aspects of the interaction setting (e.g., scenery, stage props) and features of personal appearance (e.g., clothing, jewelry, cosmetics). Such items may function as symbols of the self and convey images of the self to other people" (Snyder, 1987, p. 63). Unsurprisingly, high and low self-monitors deploy elements of this "front" quite differently. Snyder notes that

> high self-monitors are often seen as being particularly concerned with their outer appearances. They are very aware of the messages projected by clothing and personal effects, and they choose these items of front according to their strategic value in controlling the images they project in social situations. (1987, p. 63)

Indeed, this opinion is supported by findings that high self-monitors are more materialistic and conscious of brands (Browne & Kaldenberg, 1997). Low self-monitors, on the other hand, tend to "make their choices of front, instead, on the basis of abiding tastes and preferences" (Snyder, 1987, p. 63). Once again, consistency rules for low self-monitors, with engrained personal preferences and tastes guiding their selection and consumption of "props."

Given that the smartphone would indeed count as a "prop" in the "front" area of a social interaction, it stands to reason that there could be significant differences in the way individuals use them, particularly in a social gathering. A high self-monitor at a party, for example, might keep his smartphone in his pocket as he plays the role of host or congenial guest, while a low self-monitor at the same party might have no qualms about playing a game on his phone if he encounters a lull in conversation. Then again, this supposition may be too simplistic—a high self-monitor at a crowded sports bar may feel it is entirely appropriate to use his smartphone alongside his buddies who are doing the same, while a low self-monitor who is out with a friend might feel that the interpersonal interaction with a co-present other is more important than the phone. In any case, props (including smartphones) are deployed by both high and low self-monitors in social settings, depending upon what is consistent with one's individual level of self-monitoring and based upon the context of the given situation. This is supported by research into the behaviors of high and low self-monitors, as studies have confirmed that individuals tend to blend into interactions in ways that are conducive to their style of self-monitoring (W. J. Ickes & Barnes, 1977; Snyder & Kendzierski, 1982). However, aside from a few studies pertaining to self-monitoring and men's clothing choices (Davis & Lennon, 1985;

Snyder, 1987), the literature is apparently devoid of studies of the differences in how high and low self-monitors handle similar props in a given social setting, so these assumptions must suffice for the time being.

Privacy, Uses and Gratifications, and Self-Monitoring

As mentioned in the previous chapter, the generation of psychological privacy may very well be an as-yet-unacknowledged gratification of smartphones, particularly as many individuals routinely use them as interfaces to modulate public interaction. But how does this desire for privacy connect with the idea of self-monitoring? The answer may lie in Kelvin's explication of the three factors underlying the concept of psychological privacy:

> In all cases there is an assumption that the individual is, and has a right to be, *independent*—as [*sic*] least in principle: in all cases the individual is, however, also seen to be *vulnerable*—in the sense that his independence is potentially threatened, with possibly harmful consequences to himself: and in all cases this threat to his independence arises because other people actually or potentially have *power* over him… The most important source of the power of others lies in *social norms* [emphasis added], sometimes reinforced by formal laws… From a social-psychological standpoint (and there are, of course, others), the central issue is the interrelation of privacy, power, and norms. (1973, p. 250)

Kelvin asserts that, in a psychological sense, privacy is all about power—the power to conform to, or stand up against, social norms. This is precisely the way in which high self-monitors differ from low self-monitors: high self-monitors are concerned with the appropriateness of their behavior in a given setting and actively alter their behaviors in order to conform, whereas low self-monitors are guided by an internal sense of consistency and identity and are far less likely to conform to social norms "just because." Nevertheless, low self-monitors are still human beings, and are just as likely to desire a certain level of privacy in a given setting—and with smartphones growing increasingly

ubiquitous, the low self-monitor may have a new option in hand (literally) that will afford him or her with some degree of psychological privacy while remaining consistent with his or her internal identity. On the other hand, there is always the possibility that this is true for the high self-monitor as well: the "life of the party" may wish to take a break, and consulting the phone might provide an easy way out without creating cognitive dissonance. Thus, the fourth and final hypothesis:

H4. Smartphone uses and gratifications will shift depending upon specific combinations of self-monitoring and situational expectations of privacy. More specifically, high self-monitors are expected to report social/interpersonal gratifications more frequently than low self-monitors, whereas low self-monitors are expected to predominantly report more utilitarian gratifications (e.g., mobility/accessibility).

Summary

In this chapter, the theory of self-monitoring and the 25-item SMS, used to measure individual levels of self-monitoring, were introduced. Criticisms of the SMS were discussed, as was Snyder's rebuttal to these critiques, which included the introduction of a revised 18-item SMS, featuring both increased internal validity and a high degree of correlation with the previous version of the SMS. Given that no functional alternative to the theory of self-monitoring has been introduced, an argument was made that Snyder's 18-item SMS would be the most appropriate choice for the present study. As the self-monitoring theory stems from Goffman's dramaturgical theory, consideration was given to the smartphone as a "prop" in the public "front" area, though it was noted that few, if any, studies have attempted to evaluate the differing ways in which high and low self-monitors use various "props." Finally, an argument was made that attempted to connect the proposed smartphone gratification of psychological privacy to self-

monitoring vis-à-vis Kelvin's description of privacy as a process of exerting control over social norms.

CHAPTER V

METHODOLOGY

Given that previous studies of both uses and gratifications (U&G) research and self-monitoring have utilized questionnaires as data collection devices, an experimental survey design containing an experimental manipulation (preceded by two pretests) was used to complete the present study. This chapter justifies the use of an experimental survey instrument, explains the participant recruitment process, elaborates upon the necessary pretests and their deployments and outcomes, and describes the design and analyses of the survey experiment.

Justification for an Online Survey Experiment

Surveys and questionnaires have long been used by researchers in a wide range of fields to produce a quantitative snapshot of a population (Oppenheim, 1992; Wimmer & Dominick, 2006). Therefore, a survey experiment—that is, a survey instrument that includes an experimental manipulation—was selected as the primary means of evaluating whether respondents' self-monitoring levels or specific socio-locational contexts would have any bearing on the various uses and gratifications of smartphones. Survey experiments, to clarify, are defined as surveys that include "the random assignment of respondents to different stimuli under the active control of the researcher within a given survey" (Schlueter & Schmidt, 2010, p. 93). The technique of embedding experimental manipulations within survey instruments "has increasingly been recognized as a flexible and powerful means to combine the internal validity of experiments with the external validity of surveys" (Schlueter & Schmidt, 2010, p. 93), while also providing "firmly grounded inferences about real-world… attitudes and behavior" (Gaines, Kuklinski, &

Quirk, 2007, p. 2) when a representative sample is used. While there is some risk of experiments contaminating each other if a survey experiment contains multiple manipulations (Gaines et al., 2007), in this case there was only one single manipulation to be concerned with, outlined below.

Online data collection was selected as the most suitable choice for this study for a variety of reasons, including convenience, speed of data acquisition, and relatively low cost. Indeed, online research (including surveys and survey experiments) has become quite common in recent years in social science research, as studies have shown that results from online studies produce results comparable to those produced in a laboratory setting, and that Internet-based studies are often able to reach a more diverse and heterogeneous sample than standing university research pools (i.e., undergraduates) tend to offer (Birnbaum, 2004). Furthermore, data can be collected much more rapidly and downloaded and analyzed immediately upon completion of the run using statistical software such as SPSS, with no coding, collation, or compiling necessary, as would be the case with mail- or telephone-based data collection.

There are, however, some drawbacks to online data collection that should be acknowledged. Because online participants are often self-selected, samples are not truly random, which may call into question the generalizability of a study's findings, particularly as members of certain populations are less likely to participate in online research (Launer, Wind, & Deeg, 1994). However, some studies of online study participants have demonstrated that self-selection introduces minimal bias (Søgaard, Selmer, Bjertness, & Thelle, 2004). There is also some risk of online surveys being completed multiple times by the same participant(s), as noted by Birnbaum (2004);

however, the Qualtrics system that was used to administer this survey experiment was set up to screen out such duplicates.

Finally, while surveys and survey experiments conducted via mail or other means can often run the risk of a low rate of return, such a concern was not relevant in this case, given that the instrument remained open and available on the Mechanical Turk platform until an appropriate number of validated responses were collected. Indeed, research has shown that even with smaller incentives, it is generally possible to collect an adequate number of responses using the MTurk platform (Buhrmester, Kwang, & Gosling, 2011).

Participant Recruitment and Survey Experiment Deployment

The specific population of interest in this study consisted of adult American smartphone users. Smartphones have become increasingly ubiquitous in the United States, with nearly two-thirds of American adults now owning or regularly using at least one smartphone. Roughly equal numbers of men (66%) and women (63%) own smartphones, and majorities across all demographic groups (50-85%) report owning a smartphone—except for those aged 65+, where only 27% own a smartphone (Smith, 2015). Given the fairly uniform distribution of smartphone ownership nationwide, only minimal amounts of demographic data were requested, including year of birth, gender, state of residence, and level of education completed.

In order to access a wide range of potential subjects at a reasonable cost, the Amazon.com Mechanical Turk (MTurk) system served as the primary means of recruiting participants for all pretests as well as the full run of the study. MTurk is an online "labor market" that allows "workers" to complete a variety of tasks in exchange for a small monetary incentive, usually less than $1 per task. Because of its ease of use,

its competitive pricing (Berinsky, Huber, & Lenz, 2012), and its "large, stable, and diverse subject pool" (Mason & Suri, 2011), MTurk is gaining a foothold as a frequently used pool of online study participants for social science researchers. Furthermore, Buhrmester et al. established in a recent study that

> MTurk participants are at least as diverse and more representative of noncollege populations than those of typical Internet and traditional samples. Most important, we found that the quality of data provided by MTurk met or exceeded the psychometric standards associated with published research. (2011, p. 5)

Indeed, a growing body of literature shows that MTurk participants respond to studies in a comparable manner to participants recruited via other means, and that surveys and experiments can successfully be completed with participants recruited using the platform (Buhrmester et al., 2011; Goodman, Cryder, & Cheema, 2013; Mason & Suri, 2011; Paolacci, Chandler, & Ipeirotis, 2010), with Rand noting that "[MTurk] makes it easy for theorists to run experiments in much the same way as they would run computer simulations" (2012, p. 177). That said, Goodman et al. urge caution and suggest that researchers inclusion of one or more "attention check" questions in study designs in order to ensure that MTurk participants, who are completing studies unsupervised, are in fact completely attending to all questions as written (2013).

Only MTurk "workers" in the United States were allowed to access any of the survey experiment's runs. As an incentive to participate, each subject that was not screened out and that successfully completed a pretest or the study was offered a code that could be redeemed for a credit of 30¢ to his or her MTurk account. While the MTurk system keeps personal information and bank account records on file for each of its workers, none of this information was accessible to the researcher. MTurk and Qualtrics were not interlinked with each other, nor did they share any data with each other; thus,

there was no way to access any confidential or personally identifying information on individual participants through either MTurk or Qualtrics. Participants left the MTurk website and completed either a pretest or the complete study on the Qualtrics platform (i.e., the study opened in a new browser window) before returning to MTurk to claim their participation credit. Furthermore, in accordance with the University of Oregon's human research policies, no personally identifying information was solicited from participants, and all data obtained online was encrypted and stored in password-protected files that were accessible only to the researcher. Prior to the launch of any pretests or research instruments, University of Oregon Research Compliance Services made the determination that the research protocol was exempt from IRB review.

Pretest 1: Verification of Situational Privacy Conditions

The experimental manipulation included in this study required that participants be randomly be assigned to one of three conditions designed to correspond to high, intermediate, and low levels of situational or locational privacy, which required the selection of three distinct environments that would be recognized by the majority of a population as *almost entirely public*, *almost entirely private*, and as a *public-private hybrid*. While Gaines et al. advocate for the inclusion of a control group in an experimental survey design (2007), there are no situational or social contexts that exist outside of the public-private spectrum—in other words, every environment can ostensibly be described as private, public, or somewhere in between. As such, no control group was included in the research design.

Selection of Environments

To review, the definition of locational privacy as given by de Souza e Silva and Frith identifies public spaces as those where "random sociability" (2012, p. 54) can take place and heterogeneous individuals commingle, while a private space is any "more intimate and controlled setting" where "interactions with others tend to happen on terms that are more comfortable to the individual" (2012, p. 54). The home comes to mind as the most obvious choice for an environment that Americans generally agree is largely private[10]; indeed, de Souza e Silva and Frith call it "the prototypical private space in Western society" (2012, p. 55). However, "the home" was not believed to be specific enough, as various spaces in the home are used for a variety of functions (Canter, 1977). Parties, for example, tend to take place in the "more public" areas of the home, such as the kitchen, the living room, and/or the dining room. On the other hand, more intimate acts—sleeping, studying, lovemaking, etc.—tend to be confined to the bedroom, which is generally not an area of the home that is put on display, even when company does come over. An explicit invitation is generally made before an outsider is allowed into someone's bedroom. Thus, the bedroom seemed to be the most appropriate choice for an environment that is *almost entirely private*, as a high degree of control over the environment is typical[11].

Deciding upon an *almost entirely public* space was significantly more challenging, given that private-in-public hybrids can (and do) materialize almost

[10] It is worth noting that even the idea of the bedroom as a private space is a relatively recent concept. In the Middle Ages it was not uncommon for all members of the household to sleep together in one room, including servants. Privacy as an element of the bedroom did not truly emerge until the Victorian era, when manuals were published that pertained to bedding, sleep hygiene, and the like (NPR, 2012).

[11] Even "slumber parties," which might be the most "convivial" activities that routinely take place in the bedroom, are highly controlled and can be quite intimate, with only a select few invited into the environment.

instantaneously whenever an individual brandishes an interface of some type in order to establish a degree of psychological privacy (De Souza e Silva & Frith, 2012). That caveat aside, a public park seemed to be the type of space where most individuals would agree that random sociability is likely to take place; indeed, urban planners have long known that the most popular parks are those in which both spontaneous and planned gatherings take place (Low, Taplin, & Scheld, 2009), particularly when the parks are surrounded by a diverse mixture of businesses, residences, and institutions. As Jacobs explains, successful parks, particularly those located in urban environments, are made successful when a "mixture of uses of buildings [surrounding a park] directly produces for the park a mixture of users who enter and leave the park at different times… The park thus possesses an intricate sequence of uses and users" (1961, p. 96). This heterogeneous mixture can—and often does—lead to "random sociability" (De Souza e Silva & Frith, 2012, p. 54). Thus, the public park stood out as a space for socialization that could accurately be described as *almost entirely public*.

Because public and private do not exist in binary opposition to each other, it is critical to note that there are a variety of environments and social settings where the two can overlap. A booth or a table in a restaurant, for example, is simultaneously public and private; it is public insofar that any given group of people can approach it, sit down at it, observe what its occupants are doing, and so forth. But it is private, as well: when a group occupies a booth or table, the members of the group rely on thin trust that strangers will not dawdle nearby, that gawkers will not stare through the window, that eavesdroppers will not encroach on their conversation, and so forth. This is what Sheller and Urry would call a "private-in-public hybrid" (2003)—a situation in which situational privacy is

muddled, and where public and private overlap. Such hybrids become increasingly apparent when one looks around, though socialization does not necessarily occur in all of these hybrid environments: a stall in a public restroom, a study carrel in a public library, or the area immediately adjacent to the pharmacy counter in a supermarket, among many others. All of these examples carry a demand for a certain level of privacy or inattention on the part of others, despite the fact that they are situated in environments where essentially anyone is permitted to come or go.

Other environments, however, permit a relatively high degree of socialization, even though they are not "public" in the sense that an outdoor park is. For example, Oldenburg describes the restaurant or café setting as a "third place" (1991) that exists between home and work; these spaces facilitate conversation and sociability, are characterized by a playful spirit, and often include a variety of "regulars" that serve to welcome and integrate newcomers into the mix. Furthermore, Meyer specifically notes that successful spaces of this type successfully mix public and private, and serve as "the 'living rooms' of our cities" (2011, para. 13). In terms of identifying a prototypical environment where public and private overlap in the situational sense, the restaurant stood out for the reasons explicated above[12]; furthermore, social theorists including Goffman have long used the restaurant as an ideal setting to illustrate "front stage" (i.e., public) and "back stage" (i.e., private) behaviors (Argyle et al., 1981; Goffman, 1959, 1963, 1971; Shelton, 1990), and psychologists have used the restaurant as an environment in which privacy studies can be conducted. Robson, for example, examined

[12] Interestingly, Altman laments the seating arrangements in most restaurants, noting that parties are typically seated in such a way that they cannot interact with each other, and suggesting that interparty interaction might occur were groups situated differently in space (1975). It remains to be seen, though, whether most private dining parties would even particularly want to spontaneously engage with co-present groups.

how stress levels impacted seating selections in a restaurant, finding that individuals under stress tend to dine in more secluded areas (2008). Although they are "public" environments in the sense that anyone can enter and dine, the restaurant environment appears to offer a certain expectation of privacy[13]. Thus, it seemed to be an appropriate choice of an environment that would likely be recognized by most individuals as a *public-private hybrid*.

Rationales aside, it was necessary to verify that (a) participants would recognize these environments as intended, and (b) to determine whether these environments would serve as the best possible choice for the final survey experiment by employing a pretest. Pretests, as noted by Stopher, are typically used to determine "whether or not something works, or is understood by potential respondents. For pretests, it is likely that much smaller samples will suffice" (2012, p. 261). There is no widespread agreement as to how many subjects are needed for a pretest to stand as valid, though most studies seem to suggest a number somewhere between 12 and 30 (Backstrom & Hursch, 1963; Boyd, Jr., Westfall, & Stasch, 1977; Ferber & Verdoorn, 1962; Hunt, Sparkman, Jr., & Wilcox, 1982). Stopher advises that "the largest samples that can be afforded will be best; it is always true that a larger sample will give more accurate results" (2012, pp. 261–262), and Blair et al. suggest that "the sample should be large enough to include people from diverse subgroups in the target population, so that the questions and the answer categories are given a reasonable test" (2013, p. 257). Hence, a pretest was constructed to confirm face validity for these *a priori* assumptions regarding perceptions of privacy, with $N \approx$

[13] A 2003 lawsuit against Washington, D.C. restaurant Taberna del Alabardero alleged that the restaurant violated diner privacy and "intruded on their seclusion" when it provided the employer of two diners with a copy of their lunch receipt (Leonnig, 2003a, 2003b), suggesting that a restaurant has an inherent responsibility to keep diners' activities quiet.

100 subjects set as a target in order to ensure that the sample would include a relatively diverse array of respondents (Blair et al., 2013) and to minimize any possibility that the sample was simply too small (Hunt et al., 1982; Stopher, 2012).

Pretest Description

The initial pretest was posted on the MTurk platform with a 30¢ incentive offered; participants were restricted to those that were based in the United States. The MTurk human intelligence task (HIT) posted was identified as a "Survey on Smartphones and Privacy," and a short description asked "workers" to "Respond to a short survey regarding smartphones and privacy in various environments."

Participants first read and accepted the conditions presented in an IRB-approved electronic informed consent form, and non-smartphone users were screened out. Participants were then asked to name the "most public" and "most private" environments that they could think of, as well as an environment that is both "public and private" in a series of open-ended questions (See Appendix B for specific wording of questions.) These questions were included in order to confirm the *a priori* assumption that the selected scenarios would be perceived as expected in terms of privacy by allowing a comparison of the types of places that the definitions brought to mind with the conditions being tested.

Participants were then presented with a randomized set of six Likert-type items that were derived directly from the aforementioned operationalized definitions of public and private (see Table 2 below).

Table 2. Literature-derived items used for measurement of a "control of privacy" smartphone gratification (De Souza e Silva & Frith, 2012).

"I use my smartphone…"	Page
…to feel like I have some control over the environment	59
…to control my personal experience	60
…to indicate how willing I am to socialize with others	61
…to have personal experiences, no matter where I am	62
…to isolate myself from others	63
…to block out the outside world	66
…to help me remain anonymous	69
…to help me have a uniquely individual experience	71

Note. Response options range from 1 (strongly disagree) to 5 (strongly agree).

Using these items, participants were asked to rate the perceived privacy that various environments provide, including those identified and justified above (public park, bedroom, and restaurant), as well as six other environments identified as similar in terms of privacy based on informal discussions with colleagues and associates[14]. For example, as random sociability can also occur at a street fair and on a sidewalk (in addition to a public park), these environments were included as additional possibilities for a prototypical "public" space. Likewise, as hotel rooms and living rooms are spaces where interactions occur on individual, intimate terms, these environments were tested as potential "private" spaces. Finally, the environment of a bar and a supermarket were included as potential public/private hybrids, as both clearly share aspects of both public and private spaces while being experientially different from a restaurant.

Each scenario was presented with an accompanying stock photo that illustrated a relatively platonic social interaction occurring in the specific setting in order to minimize confusion. Using photographs as an augment has precedent, and has been used in studies

[14] A number of the suggestions generated by associates were eliminated because they are not typically conducive to social interactions (e.g., elevators, public restrooms, dressing room, parking garage) or because the environment might not be broadly applicable or because many respondents may not have experienced the situation (e.g., subways, airports/airplanes, beach, farmer's market).

related to ethnicity and urban interactions (Havekes, Coenders, & van der Lippe, 2013). Using a photograph to represent an environment is a type of "vignette" technique, in which subjects are asked to think about a hypothetical situation and answer questions about it (Brewer, 2003). Using vignettes in research has been used in a variety of fields including social psychology (H. H. Anderson & Anderson, 1951; Carver, 2009; Lee & Pinker, 2010), neuropsychology (den Ouden, Frith, Frith, & Blakemore, 2005), anthropology (Herskovits, 1950), education (Sumrall & West, 1998), and nursing and healthcare research (Gould, 1996; Peabody et al., 2004). A number of studies have noted high degrees of overlap between predictions generated by vignettes and actual outcomes (Peabody et al., 2004; Robinson & Clore, 2001), suggesting that the information collected is reasonably reliable. Furthermore, because "the information contained within the vignettes can be defined and standardized, to enable all participants to respond to the same stimulus," and because vignettes "may be used to elicit participants' automatically generated meanings" (Hughes & Huby, 2002, p. 384), the technique seems to be appropriate in this context, particularly given that the situational contexts being investigated are extraordinarily common and should be quite familiar to virtually every American adult. An example of the type of photo to be used is shown below in Figure 3 (the remaining photographs can be seen in Appendix C). The pretest concluded with the collection of demographic information, including age, gender, level of education, and marital status.

Pretest 1 Data Analysis

After pretest data collection was completed, frequency counts of responses to the open-ended questions and ANOVA calculations of the Likert-type items were conducted

in order to determine whether the prototypical public, private, and hybrid environments were indeed recognized by subjects as such, and in order to determine whether an alternate environment is recognized as "more public" or "more private" than one or more of the three environments originally proposed (e.g., if respondents rate a hotel room as "more private" than a home bedroom).

Figure 3. Image representing social interaction at a restaurant (Rodriguez, n.d.).

Pretest 1 Results

The first pretest was launched on Mechanical Turk on January 18, 2015 at 1:30 AM Pacific and ran until 3:30 PM Pacific. 163 total responses were recorded by the Qualtrics system; however, 15 abandoned the study before completion, 18 were eliminated for non-ownership of a smartphone, and 11 failed embedded attention check questions (e.g., "Select AGREE in this row"). A total of 119 valid responses were collected. More males (63%, n = 75) than females (37%, n = 44) completed the

instrument, with a majority being Android users (59.7%, *n* = 71). A plurality of respondents identified as being between the ages of 26 and 35 (42.9%, *n* = 51), as white/Caucasian (82.4%, *n* = 98) and single (45.8%, *n* = 45), and as holders of a 4-year college degree (39.5%, *n* = 47). These demographics largely conformed to the typical range of "workers" on Mechanical Turk, save for the gender difference, as most "workers" are generally female (Ipeirotis, 2010); the demographics also conformed to known data for smartphone owners, as slightly more males than females own smartphones, and smartphone owners tend to skew younger and more educated (Smith, 2015). Demographic information can be found in Table 16 (see Appendix A).

In a series of open-ended questions, survey participants named locations that they felt were representative of a public environment, a private environment, and both public and private (also referred to as a "hybrid" environment); these are listed below in Table 3. The most frequently named public places were shopping malls/department stores (*n* = 35) and outdoor locations like public parks (*n* = 15). The most frequently named private places were the home in general (*n* = 53), with the bedroom (*n* = 38) and bathroom (*n* = 11) identified more specifically. Frequently identified hybrid (that is, both public and private) locations included restaurants (*n* = 24), offices/places of work (*n* = 18), the library (*n* = 13), parties (*n* = 11), and classrooms or school grounds (*n* = 10). Overall, these open-ended results were roughly comparable to the scenarios selected for testing.

Subjects were then asked to use an environmental privacy scale derived from De Souza e Silva & Frith (2012) comprised of six five-point items ranging from "Strongly Disagree" (1) to "Strongly Agree" (5) in order to evaluate the privacy offered by nine different environments (three each for public, private, and hybrid conditions); refer to

Table 2 for exact items. Overall the six-item scale offered a high degree of internal consistency, as determined by a Cronbach's alpha of 0.851. A privacy score (PS) was then calculated for each of the nine environments by totaling the six items and dividing by 6, resulting in a range of scores from 1-5, with a higher score indicating a higher degree of privacy (i.e., 1 = most public, 5 = most private). Results are shown in Table 4 below.

Table 3. Open-ended responses identifying public, private, and hybrid environments from Pretest 1.

Public		Hybrid		Private	
Environment	*N*	Environment	*N*	Environment	*N*
Department store/shopping center/mall	35	Restaurant	24	Home	53
Park/outdoors	15	Office/workplace	18	Room/bedroom	38
Sidewalk/street	9	Library	13	Bathroom	11
Bar/nightclub	9	Party	11	Office/study	3
Sporting event/concert	9	Classroom/school	10	Outdoors/wilderness	2
Mass transit/terminal	8	Park/outdoors	7	Classroom/school	2
Airport	5	Public restroom	6	Vacation cabin	1
Restaurant	5	Bar/club/pub	6	Park	1
Classroom/school	4	Coffee shop/café	3	Living room	1
Bar/restaurant	4	Medical facility	3	Closet	1
Coffee shop/café	4	Private club	3	Hotel room	1
Supermarket	4	Home	2	Panic room	1
No response	2	Mass transit/terminal	2	No response	1
Beach	1	Hotel	2	City hall	1
Internet café	1	Church	2	Restaurant	1
Home	1	No response	2	Library	1
Party	1	Breakroom	1		
Work	1	Gym	1		
Public building	1	Car	1		
		Mall	1		
		Front porch	1		

Table 4. Privacy scores including pairwise comparisons from Pretest 1.

					Post hoc pairwise *p* scores†		
Condition/Environment		PS*	*SD*	*N*	1	2	3
Public ($F = 11.608$, $df = 2$, $p < .0005$**)							
1	Public park	2.08	0.469	117	–	.000**	.000**
2	City sidewalk‡	1.90	0.547	117	.000**	–	1.000
3	Street fair	1.90	0.520	117	.000**	1.000	–
Hybrid ($F = 74.331$, $df = 2$, $p < .0005$**)							
1	Restaurant‡	2.58	0.458	115	–	.000**	.000**
2	Bar	1.97	0.524	115	.000**	–	.000**
3	Supermarket	2.22	0.496	115	.000**	.000**	–
Private ($F = 85.832$, $df = 1.857$, $p < .0005$**)							
1	Bedroom‡	3.88	0.682	115	–	.527	.000**
2	Hotel room	3.95	0.548	115	.527	–	.000**
3	Living room	3.28	0.522	115	.000**	.000**	–

* PS = Privacy score.
** indicates statistical significance at $p < .0005$ level.
† Post hoc analysis with Bonferroni adjustment.
‡ Chosen for inclusion in final survey experiment.

In the public condition, both a street fair (1.90, $n = 117$, $SD = .520$) and a city sidewalk (1.90, $n = 117$, $SD = .574$) scored lower than a public park (2.08, $n = 117$, $SD = .469$). A one-way repeated measures ANOVA indicated that statistically significant differences existed among scores, $F(2, 232) = 11.608$, $p < .0005$, though post hoc pairwise analysis with a Bonferroni adjustment revealed that the difference in privacy scores between the street fair and city sidewalk environments (.003) was not statistically significant (95% CI [-.11, .11], $p = 1.00$), suggesting that either of these two environments would be more appropriate moving forward. Given that street fairs are infrequent events that are more common to urban areas, whereas sidewalks can be found in cities of all sizes, the city sidewalk environment was selected as the best exemplar of a "public" environment.

In the hybrid condition, the restaurant environment scored the closest to the middle of the 5-point range (2.58, n = 115, SD = .458), while a bar (1.96, n = 115, SD = .524) and a supermarket (2.22, n = 115, SD = .496) both scored slightly closer to the "public" end of the range. A one-way repeated measures ANOVA indicated that statistically significant differences existed among all three of these scores, $F(2, 228) = 74.331$, $p < .0005$, and a post hoc analysis with a Bonferroni adjustment revealed that differences among all scores were statistically significant, $p < .0005$. Hence, the restaurant environment was held as the best exemplar of a "hybrid" environment, given its score was nearest to the middle of the scale.

In the private condition, a hotel room earned the highest PS (3.95, n = 115, SD = .548). PS for a bedroom was slightly lower (3.88, n = 115, SD = .682), and lower still for a living room (3.28, n = 115, SD = .522). A one-way repeated measures ANOVA was performed; Mauchly's test of sphericity indicated that the assumption of sphericity had been violated, $\chi^2(2) = 9.050$, $p = .011$. Epsilon (ε) was 0.929, as calculated according to Greenhouse & Geisser (1959), and was used to correct the one-way repeated measures ANOVA. Statistically significant differences existed among scores, $F(1.857, 211.706) = 85.832$, $p < .0005$, though post hoc pairwise analysis with a Bonferroni adjustment revealed that the difference in privacy scores between the hotel room and bedroom environments (.071) was not statistically significant (95% CI [-.20, .06], $p = .527$; see Table 5), suggesting that either of these two environments would be appropriate moving forward. While virtually everyone has slept with at least some regularity in a bedroom, not everyone has stayed in a hotel room. Hence, the bedroom was selected as the best exemplar of a "private" environment.

To confirm that the three selected environments (i.e., city sidewalk, restaurant, and bedroom) would retain statistically significant differences when compared to each other, a one-way repeated measures ANOVA was performed; see Table 5 below. Mauchly's test of sphericity indicated that the assumption of sphericity had been violated, $\chi^2(2) = 34.059$, $p < .0005$. Epsilon (ε) was 0.791, as calculated according to Greenhouse & Geisser (1959), and was used to correct the one-way repeated measures ANOVA. Statistically significant differences existed among scores, $F(1.582, 177.183) = 321.154$, $p < .0005$, and post hoc pairwise analysis with a Bonferroni adjustment revealed that statistically significant differences existed at the $p < .0005$ level for all pairwise comparisons.

Table 5. Comparison of privacy scores for final environments selected from Pretest 1.

				Post hoc pairwise *p* scores†		
Condition/Environment	PS*	*SD*	*N*	1	2	3
1 Public/city sidewalk	1.90	0.548	113	–	.000**	.000**
2 Hybrid/restaurant	2.58	0.459	113	.000**	–	.000**
3 Private/bedroom	3.86	0.688	113	.000**	.000**	–

* PS = Privacy score.
** indicates statistical significance at $p < .0005$ level.
† Post hoc analysis with Bonferroni adjustment.

To summarize, this pretest was designed to evaluate a number of environments that were believed to be ideal examples of "public," "private," and "both public and private" (i.e., hybrid) in order to make a decision as to which environments to include in the final study. This pretest was also used to confirm that selected environments would indeed be perceived as different in terms of the levels of privacy offered. Ultimately, a city sidewalk was selected as an ideal example of a public environment, a bedroom was selected as an ideal example of a private environment, and a restaurant was selected as an

ideal example of a public/private hybrid. Statistically significant differences among privacy perception scores were found across all of these environments.

Pretest 2: Manipulation Check and Pilot Test

In order to ensure that the final survey would function as expected, and to confirm that the experimental manipulation was working as intended, a second pretest—a pilot test, essentially—was conducted of the experimental survey instrument. As with pretests, Biemer and Lyberg note that the literature has "sadly neglected" (2003, p. 365) specific guidelines with regards to sample sizes for pilot tests; however, some limited guidance does exist. Stopher notes that the sample size should be "as large as time and money will permit… [and] large enough to produce statistically reliable results" (2012, p. 258), with Dillman et al. noting that a sufficient pilot test will have 100 to 200 subjects (2008). Hence, a target of $N \approx 100$ subjects was set for the second pretest.

As before, this pretest was run on the MTurk platform with a 30¢ incentive offered, and was open to individuals in the United States only; the MTurk HIT posted was identified as a "Survey on Smartphones," and a short description asked "workers" to "Respond to a short survey regarding smartphones in specific environments." The pretest began with an IRB-approved electronic informed consent form, followed by screening questions to ensure that respondents were smartphone users. After this screening, participants were randomly assigned to one of three conditions (public, private, or hybrid) automatically by the Qualtrics system; each condition contained an environmental description and a stock photo intended to represent the environment visually, with the three environments used (city sidewalk, restaurant, and bedroom) based upon the results of the first pretest.

In each condition, participants were asked about their smartphone usage in a specific environment; specifically, participants completed a series of Likert-type items that were intended to assess the uses and gratifications of smartphones in a locational context, given the prompt "When I am in [conditional location], I use my smartphone…." These items, shown in Table 17, were taken from Papacharissi and Rubin's study of Internet uses and gratifications (2000) and Wei and Lo's study of cell phone uses and gratifications (2006), with overlapping items consolidated together. Additionally, in order to address the possibility of psychological privacy generation being a smartphone gratification, a series of Likert-type items relating to this were also included. Shown in Table 2, these items were paraphrased from de Souza e Silva and Frith's discussion of interfaces as means of generating privacy (2012), with page numbers indicating portions of the text that support each statement.

Because the U&G items utilized in this study came from a combination of sources, and because there was some overlap among gratifications identified in the previous studies, it was necessary to determine how to best "re-cluster" items for each type of gratification to ensure that each gratification demonstrated unidimensionality, convergent validity, and reliability. First, an initial gratification typology was developed using the gratification categories identified in the literature as a starting point (Papacharissi & Rubin, 2000; Wei & Lo, 2006), shown in Table 1, as well as the aforementioned "control of privacy" gratification added containing items derived from the literature (see Table 2 for these items); in total, this reclustering resulted in six new gratification categories (see Table 6 below). It should be noted that some items from some groups seemed to fit more logically into other categories, and were swapped

accordingly. For example, Wei and Lo's item "to relieve boredom by calling people" was originally grouped with a gratification called "social utility" (2006), but the keyword "boredom" in this item suggested that it would be more appropriate in the new "passing time/entertainment" gratification. These alterations were relatively minimal, with only four items moving from one category to another.

Table 6. Reclustered smartphone gratification typology including privacy gratification (De Souza e Silva & Frith, 2012; Papacharissi & Rubin, 2000; Wei & Lo, 2006).

Smartphone gratifications	Cell phone gratifications	Internet gratifications
Information seeking	Information seeking	Information seeking
Social/interpersonal	Social utility Affection	Interpersonal utility -
Fashion/status	Fashion/status	-
Mobility/accessibility	Mobility[15] Accessibility	Convenience -
Passing time/entertainment	- -	Pass time Entertainment
Control of privacy	-	-

Exploratory factor analysis (EFA) was then conducted individually on each of these new gratification clusters, with an *a priori* expectation that each gratification would demonstrate just one major latent factor. The maximum likelihood method of extraction was employed (Fabrigar, Wegener, MacCallum, & Strahan, 1999), with the SPSS software set to perform a Promax rotation (Costello & Osborne, 2005) if needed. In the event that multiple significant factors were detected based on the Kaiser rule (i.e., eigenvalue greater than 1; Kaiser, 1960), a visual examination of the Scree plot was conducted as a secondary test, with any clear "elbows" identified on the plots. Next,

[15] The three items contained in Wei and Lo's "mobility" gratification (2006) all pertained to pay phones. Because pay phones are dwindling in numbers and are removed at a rate of approximately 15% per year (Fagan, 2013), and because mobile phones have become essentially ubiquitous, the decision was made to exclude these three variables altogether.

items with unusually low communalities (D. Child, 2006) or factor loading scores of less than .32 (Costello & Osborne, 2005) were considered for exclusion from the final survey instrument. Finally, Cronbach's alpha for each category was calculated in order to confirm reliability.

Likert-type items for these reclustered gratification categories were followed by an experimental manipulation check: on a sliding 10-point scale, participants were asked whether the environment they were considering was "very public" (1) or "very private" (10).

Finally, participants were presented with the eighteen true-false items that comprise Snyder's 18-item measure of self-monitoring (1987, p. 179), listed in Table 18 (see Appendix A), in order to assess each subject's level of self-monitoring. The survey concluded with basic demographic questions identical to those included in the initial pretest.

Pretest 2 Data Analysis

In order to ensure that the perceptions of privacy remained in place as anticipated, an evaluation of the manipulation check was conducted using a one-way ANOVA, with data transformation conducted if results were ambiguous or unclear.

Next, gratification scores were calculated by adding together all scores for each of the gratification clusters and dividing by the total number of items included. This produced a score for each gratification ranging from 1 to 5 (i.e., 1 = low agreement; 5 = high agreement). A series of one-way ANOVAs were calculated using these scores in order to determine whether the privacy scenarios had any effect on smartphone gratifications sought.

In order to determine whether level of self-monitoring had any effect on gratifications sought, the self-monitoring scores were used to group respondents into low and high self-monitors based on either a median cut point (Cheng & Chartrand, 2003; De Cremer, Snyder, & Dewitte, 2001) or upper and lower thirds (Hofmann, 2006; Snyder, 1974)[16]. After grouping, the previously calculated gratification scores were used to perform a series of independent-samples *t*-tests to determine whether level of self-monitoring had any effect on smartphone gratifications sought.

Finally, in order to determine whether there was any interaction between the two independent variables (environmental scenario and level of self-monitoring), two-way ANOVAs were calculated for each of the identified gratifications, using level of self-monitoring and privacy condition as independent variables and gratification scores as dependent variables.

Pretest 2 Results

The second pretest was launched on MTurk on February 2, 2015 at 11:00 PM Pacific and ran until 8:00 PM Pacific on February 3, 2015. 156 total responses were recorded by the Qualtrics system; however, 30 abandoned the study before completion, 1 was eliminated for non-ownership of a smartphone, and 4 failed embedded attention check questions. A total of 121 valid responses were collected. Consistent with the first pretest, the sample was more heavily male (76%, $n = 92$) than female (24%, $n = 29$); likewise, the majority reported being Android users (61.2%, $n = 74$). Just as before, a plurality of respondents identified as being between the ages of 26 and 35 (44.6%,

[16] As Cheng and Chartrand point out, "A long-standing debate exists in the literature with regards to whether the self-monitoring construct should be treated as dichotomous or continuous" (2003, p. 1173); however, Snyder notes that the underlying construct as conceptualized is categorical, not continuous, and should be treated as such (1987).

n = 54), as white/Caucasian (68.6%, *n* = 83) and single (57.0%, *n* = 69). Holders of a 4-year college degree (33.9%, *n* = 41) were slightly outnumbered by individuals who reported having only completed some college (40.5%, *n* = 49). These demographics conformed to the typical range of "workers" on Mechanical Turk, save for the gender difference, as most "workers" are generally female; furthermore, most "workers" tend to hold a Bachelor's degree (Ipeirotis, 2010). The demographics also largely conformed to known profiles of smartphone owners, skewing male, younger, and with some college education (Smith, 2015). Demographic information can be found in Table 19 (see Appendix A).

This pretest, as well as the final survey experiment, included the 18-point version of the self-monitoring scale; part of the process of interpreting the scores produced by this scale involves essentially dichotomizing a continuous/ordinal variable into the categories of "high" and "low self-monitor" (Snyder, 1987). While researchers have long been aware that dichotomization of continuous variables has the potential to create misleading results (MacCallum, Zhang, Preacher, & Rucker, 2002), Snyder argues that such dichotomization is appropriate when using the self-monitoring scale (SMS) because of the categorical nature of the underlying self-monitoring construct (1987). Hence, subjects should be classified as either high or low self-monitors based on the scores derived from the self-monitoring scale (SMS). However, studies utilizing the SMS have differed in their approaches to determining the most appropriate cut points; some, like Hofmann (2006), use the approach originally suggested by Snyder (1974), which directs the researcher to regard the scores in the upper and lower thirds of the sample as demonstrative of high and low self-monitoring, respectively. Others have used a median

split as the point of demarcation between high and low self-monitors (De Cremer et al., 2001). As there is no apparent agreement in the literature as to which method is most appropriate or effective, both methods were utilized and the results compared.

Using the upper and lower thirds method, individuals were classified as high self-monitors if their SMS scores fell into the upper third (above 9; $n = 43$) of the distribution range (0-18), and as low self-monitors if SMS scores fell into the lower third (below 6; $n = 38$). The mean score for the low self-monitoring group was 3.47 ($SD = 1.869$), and the mean score for the high self-monitoring group was 12.13 ($SD = 2.28$). An independent-samples *t*-test was performed to determine whether a statistically significant difference existed between the two groups; indeed, a statistically significant difference was found, $t(79) = -18.789$, $p < .0005$. Using the median split method, individuals were classified as high self-monitors if their SMS scores were greater than 9 ($n = 68$), and as low self-monitors if SMS scores were 9 or less ($n = 49$). The mean score for the low self-monitoring group was 4.93 ($SD = 2.451$), and the mean score for the high self-monitoring group was 11.43 ($SD = 2.398$). An independent-samples *t*-test was performed to determine whether a statistically significant difference existed between the two groups; as before, a statistically significant difference was found, $t(115) = -14.284$, $p < .0005$. Results for both methods can be found in Table 7 below.

Given that both methods returned statistically significant differences between low and high self-monitors, the median split method was chosen for all subsequent analyses, primarily because the upper and lower thirds method would have disregarded data from a considerable number of subjects ($n = 36$).

Table 7. Dichotomization of self-monitoring scores from Pretest 2.

Method/Level	*N*	%	*M*	*SD*
Upper & lower thirds (t = -18.789, df = 79, p < .0005*)				
Low (1-5)	43	35.5	3.47	1.869
Indeterminate (6-9)	36	29.8	7.92	0.841
High (10-18)	38	31.4	12.13	2.280
Missing	4	3.3		
Median split (t = -14.284, df = 115, p < .0005*)				
Low (1-9)	68	56.2	4.93	2.451
High (10-18)	49	40.5	11.43	2.398
Missing	4	3.3		

* Significant at the p < .0005 level

In order to confirm that the privacy levels of the presented scenarios were perceived as intended, participants were asked to indicate whether their assigned environment was "very public," "very private," or somewhere in between, using a sliding scale between 1 and 10, with higher scores indicating higher perceptions of privacy[17]. Privacy scores, with higher scores indicating "more private," increased from the public/sidewalk condition (n = 41, M = 1.98, SD = 2.31), to the hybrid/restaurant condition (n = 40, M = 2.90, SD = 2.52), to the private/bedroom condition (n = 40, M = 8.88, SD = 1.70), in that order. A one-way ANOVA revealed statistically significant differences among these scores, F(2, 118) = 116.36, p < .0005. Post hoc pairwise analysis was conducted using LSD; post hoc pairwise analysis indicated the difference in privacy scores between the public/sidewalk and hybrid/restaurant conditions (.93) was not statistically significant (95% CI [-.05, 1.89], p = .062). A logarithmic transformation was performed on the scores and the one-way ANOVA repeated; statistically significant differences among scores persisted (F(2, 118) = 60.242, p < .0005), and post hoc

[17] Because of a small bug in the Qualtrics system, the survey asked participants to rate the privacy of a given environment on a scale from 1-10, but the slider itself actually ranged from 0-10. This issue was corrected for the full run of the survey. Given that the bug only impacted a manipulation check question on a pretest survey, its impact is arguably minimal.

pairwise analysis using LSD revealed statistically significant differences among all scores, including the public/sidewalk and hybrid/restaurant conditions (p = .02). Results are displayed below in Table 8.

Table 8. Privacy perception scores from Pretest 2.

					Post hoc pairwise p scores†	
Condition/environment	n	M	SD	1	2	3
Raw scores (F = 116.36, df = 2, p < .0005*)						
1 Public/city sidewalk	41	1.98	2.31	–	.062	.000**
2 Hybrid/restaurant	40	2.90	2.52	.062	–	.000**
3 Private/bedroom	40	8.88	1.70	.000**	.000**	–
Logarithmic transformation (F = 60.242, df = 2, p < .0005*)						
1 Public/city sidewalk	41	0.362	0.309	–	.020*	.000**
2 Hybrid/restaurant	40	0.501	0.294	.020*	–	.000**
3 Private/bedroom	40	0.978	0.163	.000**	.000**	–

* Significant at the p < .05 level
** Significant at the p < .0005 level
† Post hoc analysis using LSD.

Exploratory factor analysis (EFA) was conducted individually on each of the reclustered gratifications using the maximum likelihood method of extraction (Fabrigar et al., 1999) with Promax rotation (Costello & Osborne, 2005). EFA revealed one latent factor with an eigenvalue greater than 1 for the "passing time/entertainment" gratification (4.667, 58.34% of variance) and the "fashion/status" gratification (3.128, 78.19% of variance).

For the "social/interpersonal" and "control of privacy" gratifications, EFA suggested multiple factors based on the Kaiser rule (i.e., eigenvalues greater than 1; Kaiser, 1960); however, examination of the Scree plots for the "social/interpersonal" analysis revealed a clear "elbow," suggesting that a single latent factor was most appropriate (see Figure 4), with the eigenvalue of the latent factor for the "social/interpersonal" gratification calculated as 9.688 (50.99% of variance).

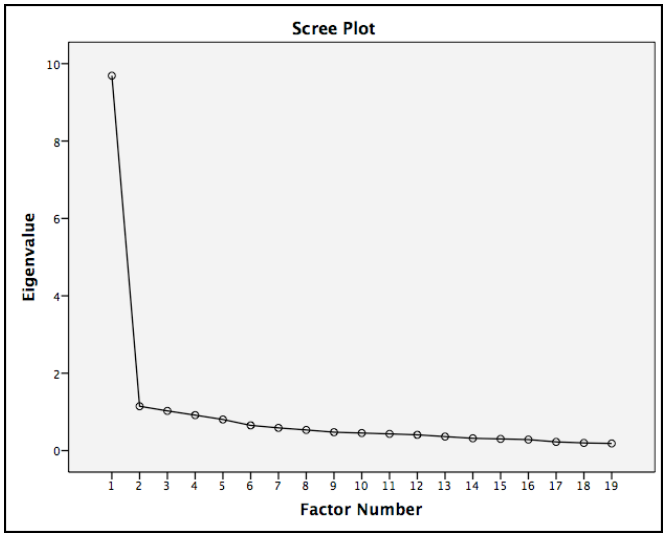


Figure 4. Scree plot from factor analysis for pretest of the "social/interpersonal" gratification.

As visual inspection of the Scree plot for the "control of privacy" gratification (see Figure 5) was less clear-cut, parallel analysis was conducted as a double-check, as it "provides a superior alternative to other techniques that are commonly used for the same purpose" (Ledesma & Valero-Mora, 2007, p. 1). Parallel analysis was accomplished using O'Connor's parallel analysis program for SPSS (O'Connor, 2000); this analysis confirmed that one factor was indeed most appropriate, with a raw data eigenvalue of 3.466 calculated for the latent factor and eigenvalues < 1 for all others. Returning to the maximum likelihood method of extraction to retain consistency, the eigenvalue calculated for one single latent factor was 3.992 (49.90% of variance).

EFA also suggested multiple factors for the "information seeking" and "mobility/accessibility" gratifications based on the Kaiser rule (i.e., eigenvalue greater than 1; 1960). An examination of the communalities of the items contained within the "information seeking" gratification cluster revealed that "to see updates on stocks" had a particularly low communality (.247) and loading (.373), particularly when compared to

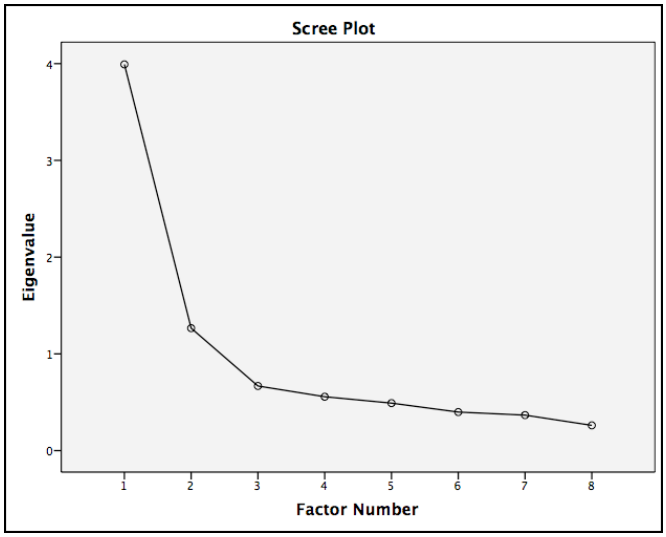


Figure 5. Scree plot from factor analysis for pretest of the "control of privacy" gratification.

all other items, which otherwise ranged from .432 to .617 for communalities and from .601 to .755 for loadings. After this item was eliminated, EFA revealed one single latent factor with an eigenvalue of 4.868 (54.09% of variance). The decision was made to delete this specific item from all subsequent calculations and from the final run of the survey experiment. Likewise, the "mobility/accessibility" gratifications related to the use of public/pay phones were deleted, given that pay phones are dwindling in numbers—less than 500,000 remain in the United States (T. Anderson, 2014)—and because they are being removed at a rate of approximately 15% per year (Fagan, 2013). After these items were eliminated, EFA revealed one single latent factor for the "mobility/accessibility" gratification with an eigenvalue of 3.456 (49.37% of variance). These three items were likewise struck from all subsequent calculations and from the survey experiment. Results of these factor analyses can be found in Table 20 (see Appendix A). Calculations to determine internal consistency for each of the reclustered gratifications (excluding deleted items) were performed; Cronbach's alpha fell into an acceptable range for all

gratification clusters, ranging from .825 to .946. These figures have been included in Table 20.

A series of one-way ANOVAs were conducted to determine whether any statistically significant differences existed among gratifications for the three environmental conditions. Five of the six gratifications were found to demonstrate statistically significant differences among conditions. The "information seeking" ($p = .001$), "social/interpersonal" ($p = .005$), "passing time/entertainment" ($p = .021$), "mobility/accessibility" ($p = .005$), and "control of privacy" ($p = .002$) all indicated statistically significant differences among conditions; however, the "fashion/status" gratification cluster ($p = .109$) did not demonstrate a statistically significant difference among conditions. Tukey's post hoc test of pairwise comparison revealed mixed results; statistically significant differences ($p < .05$) were found between both the public and hybrid conditions and private and hybrid conditions for "information seeking," between the public and hybrid conditions for "social/interpersonal," "mobility/accessibility," and "privacy/control," and between the private and hybrid conditions for "passing time/entertainment." No statistically significant differences pairwise were found for any gratification between public and private environments. Refer to Table 21 (see Appendix A) for results.

A series of independent-samples *t*-tests were conducted to determine whether any statistically significant differences existed between high and low self-monitors with regards to gratifications sought (see Table 22 in Appendix A). No statistically significant difference was found between high and low self-monitors for five of the six gratification clusters; however, a statistically significant difference was calculated between high

($M = 2.81$, $SD = .810$) and low ($M = 2.44$, $SD = .846$) self-monitors for the "control of privacy" gratification, $p = .019$.

Finally, a series of two-way ANOVAs were performed to determine whether there was any statistically significant interaction between the two independent variables (i.e., environmental scenario and level of self-monitoring) with regards to gratifications sought. No statistically significant interactions were found for any of the six reclustered gratifications ($p = .303$ to $.933$). Results are shown in Table 23 (see Appendix A).

To summarize, the second pretest served as a pilot test of the final survey experiment; beyond simply confirming that the data collection apparatus was functioning as expected, the pretest also allowed for statistical confirmation of six unidimensional and reliable gratification "clusters" (i.e., "information seeking," "social/interpersonal," "passing time/entertainment," "mobility/accessibility," "fashion/status," and "control of privacy"). Further, the pretest revealed that a median split between low and high-self monitors would be a suitable means of dichotomizing participants. However, statistically significant differences were only found in certain combinations of gratifications and environments, with no statistically significant differences detected between the public and private conditions for any of the six gratifications. Finally, the pretest revealed that there were no significant differences in gratifications sought between high and low self-monitors, aside from the "control of privacy" gratification.

Final Survey Experiment and Data Analysis

Given that the adult (18+ years old) population of the United States is approximately 209 million and that the Pew Research Center estimates that 56% of all American adults own at least one smartphone (Smith, 2013), the population of interest

consists of approximately 117 million American adults. For a typical survey, this would suggest an ideal sample size of $N \geq 384$ assuming a 5% margin of error and a confidence level of 95% (Alreck & Settle, 1995; Krejcie & Morgan, 1970). However, because this instrument carried an experimental manipulation, consideration had to be given to levels of statistical power. Typically speaking, given a confidence level of 95%, a power level of .80 ($\beta = .20$) is sufficient to detect a small effect, though different statistical tests require different numbers of subjects in order to detect a small effect (J. Cohen, 1992); hence, these numbers vary from one test to the next. For example, Cohen suggests a sample size of $N = 322$ for ANOVA calculations with three groups when a confidence level of 95% is desired (1992). This suggests that that the previously calculated sample size of $N \geq 384$ would provide sufficient statistical power; hence, a goal of at least 384 participants was set.

The final run of the survey experiment was, like the two pretests, deployed on the MTurk platform and was restricted to those within the United States, with a 30¢ incentive offered upon successful completion of the study. As before, the MTurk HIT posted was identified as a "Survey on Smartphones," and a short description asked "workers" to "Respond to a short survey regarding smartphones in specific environments." Participants read an IRB-approved electronic informed consent form; after agreeing to the terms presented, non-smartphone users were screened out. Following this screening, just as with the second pretest, participants were randomly assigned to one of three environmental conditions (i.e., public/city sidewalk, hybrid/restaurant, or private/bedroom) automatically by the Qualtrics system. Each condition included a short description of the environment and a stock photo representing the environment.

Respondents completed the series of 55 Likert-type items representing the six reclustered gratifications retained following the second pretest; as before, the prompt "When I am in [conditional location], I use my smartphone…" was followed by the series of items, which were answered on a scale of 1 ("Strongly Disagree") to 5 ("Strongly Agree") in the same fashion as described for the secondary pretest. As a manipulation check, subjects were asked to rate the condition's privacy on a scale from 1 to 10, where 1 represented "very public" and 10 represented "very private." Participants were then presented with Snyder's 18-item measure of self-monitoring, and the survey concluded with the same demographic questions used in the first two pretests.

The same battery of statistical analyses carried out following Pretest 2 were then conducted; this included an examination of the manipulation check using a one-way ANOVA, factor analysis calculations to ensure that the previously identified gratification clusters remained intact, calculation of gratification scores for each of the six previously identified gratifications, a series of one-way ANOVAs to evaluate whether environments had any effect on gratifications sought, grouping of respondents into high and low self-monitors using the median split method, a series of independent-samples *t*-tests to evaluate whether level of self-monitoring had any effect on gratifications sought, and a series of two-way ANOVAs to determine whether there was any interaction effect between level of self-monitoring and environmental conditions.

CHAPTER VI

RESULTS

This chapter outlines the results of the final run of the survey experiment. Discussion of these results follows in Chapter VII.

The study was launched on the MTurk platform on March 5, 2015 at 8:15 PM Pacific, and ran until March 22, 2015 at 3:30 PM Pacific. A total of 455 total responses were recorded by the Qualtrics system; however, 12 abandoned the study before completion, 1 was eliminated for non-ownership of a smartphone, and 29 were rejected for failing attention check questions. A total of 413 valid survey responses were collected. Slightly more females (53%, n = 219) than males (47%, n = 194) completed the survey, with a slight majority being Android users (55.2%, n = 228). A plurality of respondents identified as being between the ages of 26 and 35 (43.5%, n = 178), as white/Caucasian (75.1%, n = 310) and single (47.7%, n = 197), and as holders of a 4-year college degree (38.3%, n = 158). These demographics seemed to largely conform to the typical range of "workers" on Mechanical Turk, including the gender difference (more females than males) noted by Ipeirotis (2010); the demographics also generally conformed to known profiles of smartphone owners, skewing younger and college-educated, though slightly more males than females overall tend to own smartphones (Smith, 2015). American demographics were somewhat reflected, including a slightly larger number of females, a younger overall composition, and a larger number of white/Caucasians. However, more single individuals were represented, as well as a higher number of college degree holders (Infoplease, 2013; United States Census Bureau, 2015). Demographic results are displayed in Table 24 (see Appendix A).

Confirmations of Manipulations and Reclustered Gratifications

As before, self-monitoring scores were evaluated using both the upper/lower thirds method and the median split method (see Table 9 below). Using the upper and lower thirds method, individuals were classified as high self-monitors if their SMS scores fell into the upper third (above 9; $n = 134$) of the distribution range (0-18), and as low self-monitors if SMS scores fell into the lower third (below 6; $n = 140$). The mean score for the low self-monitoring group was 4.16 ($SD = 1.68$), and the mean score for the high self-monitoring group was 12.35 ($SD = 2.13$). An independent-samples t-test was performed to determine whether a statistically significant difference existed between the two groups; indeed, a statistically significant difference was found, $t(253.015) = -35.244$, $p < .0005$. Using the median split method, individuals were classified as high self-monitors if their SMS scores were greater than 9 ($n = 134$), and as low self-monitors if SMS scores were 9 or less ($n = 268$). The mean score for the low self-monitoring group was 5.98 ($SD = 2.33$), and the mean score for the high self-monitoring group was 12.35 ($SD = 2.13$). An independent-samples t-test was performed to determine whether a statistically significant difference existed between the two groups; as before, a statistically significant difference was found, $t(400) = -26.632$, $p < .0005$. Given that both methods returned statistically significant differences between low and high self-monitors, the median split method was chosen for all subsequent analyses, primarily because the upper and lower thirds method would have disregarded data from a significant number of subjects ($n = 128$).

Table 9. Dichotomization of self-monitoring scores from final study.

Method/Level	*N*	%	*M*	*SD*
Upper & lower thirds (t = -35.224, df = 253.015, p < .0005*)				
Low (1-5)	140	33.9	4.16	1.682
Indeterminate (6-9)	128	31.0	7.96	0.827
High (10-18)	134	32.4	12.35	2.128
Missing	11	2.7		
Median split (t = -26.632, df = 400, p < .0005*)				
Low (1-9)	268	64.9	5.98	2.325
High (10-18)	134	32.4	12.35	2.128
Missing	11	2.7		

* Significant at the p < .0005 level

In order to confirm that the privacy levels afforded by the three selected environments were being perceived as desired, a one-way ANOVA was conducted to determine whether the privacy scores (PS) calculated for each of the three scenarios were significantly different on a statistical level. Levels of privacy increased from the public/city sidewalk condition (1.93, n = 133, SD = 1.59), to the hybrid/restaurant condition (3.73, n = 135, SD = 2.34), to the private/bedroom condition (8.88, n = 140, SD = 1.73), in that order. Hence, the perceived level of privacy for each of the scenarios was found to be statistically significantly different (Welch's $F(2, 264.235) = 614.033$, $p < .0005$). Tukey's post hoc test confirmed that statistically significant differences existed among all pairings, with $p < .0005$ for all pairs. See Table 10 below.

Table 10. Privacy perception scores from final study.

					Post hoc pairwise p scores†		
Condition/environment		*n*	*M*	*SD*	1	2	3
1	Public/city sidewalk	133	1.93	1.59	–	.000*	.000*
2	Hybrid/restaurant	135	3.73	2.34	.000*	–	.000*
3	Private/bedroom	140	8.88	1.73	.000*	.000*	–

* Significant at the p < .0005 level

† Post hoc analysis using Tukey's HSD.

EFA was conducted individually on each of the reclustered gratifications using the maximum likelihood method of extraction with Promax rotation, if needed (Costello

& Osborne, 2005; Fabrigar et al., 1999), in order to reconfirm that one latent construct existed for each cluster (see Table 25 in Appendix A for results). EFA revealed one latent factor with an eigenvalue greater than 1 for the "information seeking" gratification (4.691, 52.12% of variance), the "passing time/entertainment" gratification (4.837, 60.46% of variance), and the "fashion/status" gratification (3.183, 79.57% of variance).

For the "social/interpersonal," the "mobility/accessibility," and the "control of privacy" gratifications, EFA suggested multiple factors based on the Kaiser rule (i.e., eigenvalues greater than 1; Kaiser, 1960). However, an examination of the Scree plot for the "social/interpersonal" and "mobility/accessibility" analyses (Ledesma & Valero-Mora, 2007) revealed distinct "elbows" (see Figures 6 and 7), indicating that in all cases one factor was most appropriate. Thus, the eigenvalue of the latent factor for the "social/interpersonal" gratification was found to be 9.273 (48.81% of variance) and 3.046 (43.52% of variance) for the "mobility/accessibility" gratification.

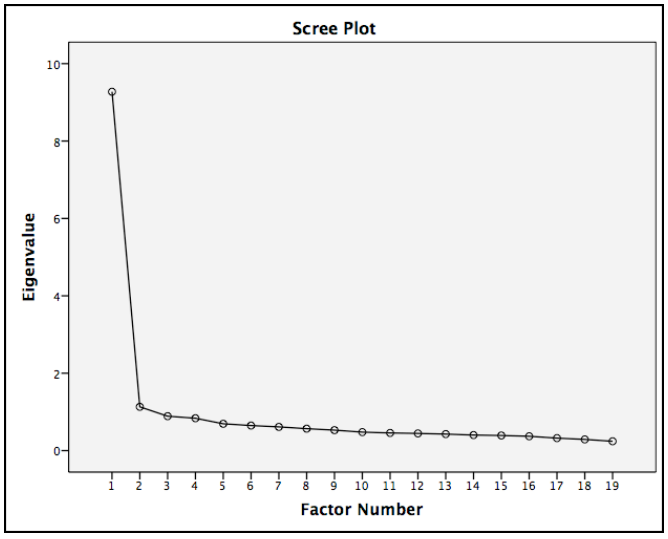


Figure 6. Scree plot from factor analysis of "social/interpersonal" gratification.

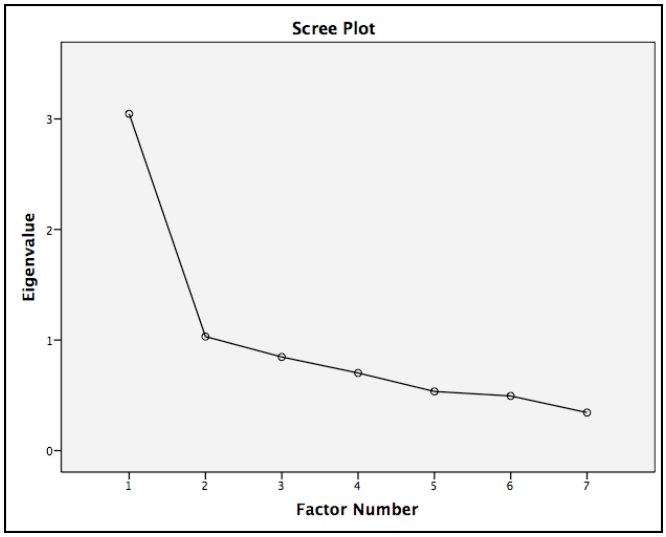


Figure 7. Scree plot from factor analysis of "mobility/accessibility" gratification.

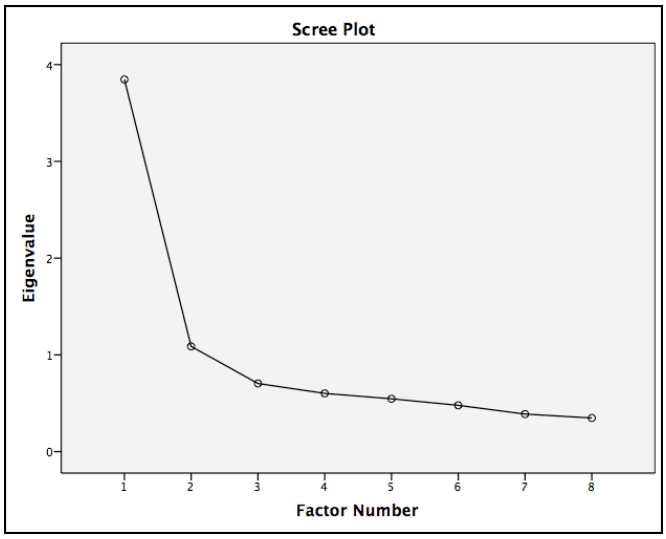


Figure 8. Scree plot from factor analysis of "control of privacy" gratification.

RQ1: U&G and Privacy of Environments

The first research question asked, "Do uses and gratifications for smartphones differ based upon an individual's situational expectations of privacy?" A series of one-way ANOVAs were performed to determine whether any statistically significant differences existed among gratifications for the three environmental conditions (see Table 26 in Appendix A). All six gratifications were found to demonstrate statistically

significant differences among the three conditions, with p ranging from < .0005 to .013. There was homogeneity of variances for all but two gratifications as assessed by Levene's test for equality of variances (p = .071 to .595). For the remaining two gratifications, "information seeking" and "passing time/entertainment," the assumption of homogeneity of variances was violated, as assessed by Levene's test (p = .001, in both cases).

For the four gratifications demonstrating homogeneity of variances, Tukey's post hoc test of pairwise comparison revealed mixed results, with some, but not all, pairs indicating statistically significant differences; likewise, for the two gratifications that violated the assumption of homogeneity of variances, the Games-Howell post hoc test also revealed statistically significant differences for some, but not all, pairs. For the "information seeking," "social/interpersonal," "mobility/accessibility," and "control of privacy" gratifications, statistically significant differences pairwise were found between the public and hybrid conditions and the private and hybrid conditions, but not between public and private. For the "passing time/entertainment" gratification, a statistically significant difference occurred only between the private and hybrid conditions, and for the "fashion/status" gratification, a statistically significant difference occurred only between the public and private conditions.

In order to determine if gender or age might play a mitigating role, these tests were repeated with only males and only females, as well as for all subjects older than 35 and subjects aged 35 or less. No statistically significant differences emerged from these demographically based analyses.

In short, the answer to this research question is "yes," as gratification scores for all six gratifications differed in a statistically significant manner across scenarios. The most clear-cut differences were noted for the "fashion/status" gratification, where gratification scores were highest for the public condition (2.090) but fell for the hybrid condition (1.919) and fell further still for the private condition (1.678). Given the statistically significant difference between the public and private scores, this suggests that the need to invoke the "fashion/status" gratification does not tend to arise as often in a private setting. One would be more likely to conspicuously display his or her phone in public if impressing other people was a priority, as opposed to a private environment where presumably one is surrounded by intimate familiars.

For all gratifications aside from "fashion/status," hybrid scores were statistically significantly lower than both public and private scores, with one exception. There was no statistically significant difference ($p = .124$) between public (3.446) and hybrid (3.206) scores for the "passing time/entertainment" gratification, suggesting that passing time and entertainment are integral functions of our smartphones that take place in either public or private environments. The "passing time/entertainment" score for the private condition was highest of all (3.671) with a relatively small standard deviation ($SD = .797$), suggesting that in private situations, one of the main uses of smartphones is for entertainment purposes. Logically, in a public or hybrid setting, one would presumably tend to be engaged with other people, so the need to pass time or occupy oneself would be significantly lower. On the other hand, one might bring his or her phone to bed (i.e., into a private setting) to play a game or read a book before falling asleep.

H1: Privacy as a Smartphone Gratification

With regards to the proposed "control of privacy" gratification, the first hypothesis predicted, "As smartphones are believed to generate a sense of psychological privacy when deployed as an interface between the individual and his or her surroundings, privacy as a gratification for smartphone use is expected in public and hybrid settings. Privacy generation as a gratification is not expected in private settings." This hypothesis was only partially supported: as expected, the public condition garnered the highest score (2.799). However, the score for the private condition was virtually the same (2.769), with no statistically significant difference calculated between these two; this was unanticipated, as was the hybrid score registering the lowest (2.381). As these scores were in line with the other gratification scores calculated, this suggests that privacy and control are indeed gratifications that can be "scratched" using a smartphone; in a public environment, one may seek to "isolate" himself from others in a psychological sense using a smartphone, essentially sending a signal that says "leave me alone" to co-present others. In a private setting, however, there would presumably be less need to isolate the self from others, so it may be the case that using a smartphone to exert control over the environment (e.g., having "personal experiences" as described in the U&G items; see Table 2 for wording) may be the gratification being sought.

A series of independent-samples *t*-tests were performed to determine whether any statistically significant differences existed between high and low self-monitors with regards to smartphone gratifications sought (see Table 27 in Appendix A). Homogeneity of variances was confirmed for all gratifications using Levene's test (p = .109 to .867). However, no statistically significant differences were found between high and low self-

monitors for any of the six gratification clusters (p = .210 to .709). Repeated tests examining specific demographic groups (i.e., males vs. females and age 35+ vs. 35 and under) revealed no statistically significant differences from the overall result.

Finally, a series of two-way ANOVAs were performed to determine whether there was any statistically significant interaction between the two independent variables (i.e., environmental scenario and level of self-monitoring) with regards to gratifications sought; see Table 11 below. No statistically significant interactions were found for any of the six reclustered gratifications (p = .298 to .895).

Table 11. Interaction effects between level of self-monitoring and environment from Pretest 2.

		Self-monitoring × environment		
	Gratification	*p*	*F*	*df*
1	Information seeking	.559	.582	2
2	Social/interpersonal	.351	1.049	2
3	Passing time/entertainment	.328	1.118	2
4	Fashion/status	.298	1.214	2
5	Mobility/accessibility	.775	.255	2
6	Control of privacy	.895	.111	2

H2: Smartphone U&G and Environmental Privacy

The second hypothesis predicted, "Uses and gratifications reported for smartphones will differ based upon situational expectations of privacy. The predominant gratifications for public environments are expected to be privacy, information seeking, and mobility/accessibility, while the predominant gratification for private environments is expected to be passing time/entertainment. A mixture of these gratifications is anticipated for hybrid environments."

This hypothesis was not supported. The top gratifications for all three environments did not differ; in all cases, these were "information seeking," "passing

time/entertainment," and "mobility/accessibility." There was no statistically significant difference between the scores for the public and private conditions, though there were indeed statistically significant differences among most public/hybrid and private/hybrid pairwise comparisons. In all cases, the hybrid scores were in fact lower, again lending credence to the suggestion that the so-called "third place" retains an important role as a place where co-present socialization can take place despite the increasing presence of smartphones and other devices.

Although gratifications did in fact differ depending upon environment when examined in rank order (see Table 12 below), a method that has been used to compare groups in previous U&G studies of mobile communications and social networks (Grellhesl & Punyanunt-Carter, 2012; Ku, Chu, & Tseng, 2013), testing the ranks using the Wilcoxon rank-sum test at the $\alpha = .05$ level revealed no statistically significant differences in these rankings ($z = 34$).

Table 12. Gratifications rank ordered by environment.

		Gratification rank (score)		
	Gratification	Public	Hybrid	Private
1	Information seeking	1 (3.455)	2 (3.191)	2 (3.532)
2	Social/interpersonal	4 (2.816)	4 (2.559)	4 (2.999)
3	Passing time/entertainment	2 (3.446)	1 (3.206)	1 (3.671)
4	Fashion/status	6 (2.090)	6 (1.919)	6 (1.678)
5	Mobility/accessibility	3 (3.186)	3 (2.919)	3 (3.149)
6	Control of privacy	5 (2.799)	5 (2.381)	5 (2.769)

RQ2: Smartphone U&G and Self-Monitoring

The second research question asked, "Do uses and gratifications for smartphones differ based upon an individual's level of self-monitoring?" The data did not reveal any statistically significant differences in gratification scores between high and low self-

monitors (p = .210 to .709), so it would seem that the answer to this question is, simply put, "no." In all cases, the scores for both high and low self-monitors were statistically similar, with similar standard deviations. Furthermore, when gratifications were put into score rank order, rankings were the same for both low and high self-monitors (see Table 13 below). As mentioned previously, additional tests examining the sample by gender and by age groups revealed no statistically significant deviations from the overall results.

Table 13. Gratifications rank ordered by level of self-monitoring.

		Gratification rank (score)	
	Gratification	Low self-monitors	High self-monitors
1	Information seeking	2 (3.369)	2 (3.420)
2	Social/interpersonal	4 (2.759)	4 (2.814)
3	Passing time/entertainment	1 (3.417)	1 (3.472)
4	Fashion/status	6 (1.840)	6 (1.964)
5	Mobility/accessibility	3 (3.056)	3 (3.115)
6	Control of privacy	5 (2.629)	5 (2.662)

H3: Smartphone U&G Predictions by Self-Monitoring Level

The third hypothesis predicted, "Given the differences in the way high and low self-monitors interact with others in social situations, high self-monitors will be more likely to report social/interpersonal and fashion/status as smartphone gratifications, whereas low self-monitors are more likely to report more practical gratifications, such as information seeking, convenience, and mobility/accessibility." This hypothesis was not supported, given the statistically insignificant differences among scores (see Table 27 in Appendix A), as well as the identical gratification rank order between the two groups (see Table 13 above). As mentioned previously, additional tests examining the sample by gender and by age groups revealed no statistically significant deviations from the overall results.

RQ3: Interactions Between Independent Variables

The third research question asked, "Are there any interactions among situational expectations of privacy, level of self-monitoring, and smartphone uses and gratifications?" Based on the analysis of the two-way ANOVA, this does not appear to be the case; see Table 14 below. No statistically significant interactions were observed between either of the independent variables (self-monitoring and environment); $p = .298$ to .895.

Table 14. Interaction effects between level of self-monitoring and environment.

		Self-monitoring × environment		
	Gratification	*p*	*F*	*df*
1	Information seeking	.559	.582	2
2	Social/interpersonal	.351	1.049	2
3	Passing time/entertainment	.328	1.118	2
4	Fashion/status	.298	1.214	2
5	Mobility/accessibility	.775	.255	2
6	Privacy/control	.895	.111	2

H4: Predictions of Interactions Between Self-Monitoring and Environment

The fourth hypothesis predicted, "Smartphone uses and gratifications will shift depending upon specific combinations of self-monitoring and situational expectations of privacy. More specifically, high self-monitors are expected to report social/interpersonal gratifications more frequently than low self-monitors, whereas low self-monitors are expected to predominantly report more utilitarian gratifications (e.g., mobility/accessibility, convenience)." This hypothesis was not supported; again, as noted previously, gratification scores did not differ in any statistically meaningful way among groups, nor did the rank order change between low and high self-monitors. This suggests that self-monitoring does not particularly change depending upon scenario; in other

words, self-monitoring would appear to be a relatively static construct that does not change over time, just as Snyder originally proposed (1974). Environmental awareness exclusive of level of self-monitoring, however, appeared to play a role, albeit a minor one, with individuals in a public environment naming the "information seeking" gratification as most important, whereas "passing time/entertainment" lead the pack for both hybrid and private environments.

Table 15, appearing on the next page, summarizes all hypotheses and research questions and relevant results.

Table 15. Summary of research questions, hypotheses, and results

Research Question/Hypothesis		Outcome
RQ1	Do uses and gratifications for smartphones differ based upon an individual's situational expectations of privacy?	Yes. U&G differ depending upon specific scenarios.
RQ2	Do uses and gratifications for smartphones differ based upon an individual's level of self-monitoring?	Hypothesis not supported.
RQ3	Are there any interactions among situational expectations of privacy, level of self-monitoring, and smartphone uses and gratifications?	Hypothesis not supported.
H1	As smartphones are believed to generate a sense of psychological privacy when deployed as an interface between the individual and his or her surroundings, privacy as a gratification for smartphone use is expected in public and hybrid settings. Privacy generation as a gratification is not expected in private settings.	Partially supported. Privacy generation seen in public and private settings, and less so for hybrid settings.
H2	Uses and gratifications reported for smartphones will differ based upon situational expectations of privacy. The predominant gratifications for public environments are expected to be privacy, information seeking, and mobility/accessibility, while the predominant gratification for private environments is expected to be passing time/entertainment. A mixture of these gratifications is anticipated for hybrid environments.	Hypothesis not supported.
H3	Given the differences in the way high and low self-monitors interact with others in social situations, high self-monitors will be more likely to report social/interpersonal and fashion/status as smartphone gratifications, whereas low self-monitors are more likely to report more practical gratifications, such as information seeking, convenience, and mobility/accessibility.	Hypothesis not supported.
H4	Smartphone uses and gratifications will shift depending upon specific combinations of self-monitoring and situational expectations of privacy. More specifically, high self-monitors are expected to report social/interpersonal gratifications more frequently than low self-monitors, whereas low self-monitors are expected to predominantly report more utilitarian gratifications (e.g., mobility/accessibility).	Hypothesis not supported.

CHAPTER VII

DISCUSSION

The present study began with an examination of the uses and gratifications of smartphones, particularly as these devices are growing increasingly common in modern society. This chapter, then, will attempt to interpret the findings of the study through a theoretical lens and suggest what these findings may tell us about perceptions of privacy, smartphone uses and gratifications, and the concept of self-monitoring, despite the fact that a number of the proposed hypotheses were ultimately not supported by the data. Limitations will be considered, as will possible directions for future research.

Theoretical and Practical Implications

Overall this study produced a number of findings: that perceptions of environmental privacy do have an effect (albeit a small one) on the ways in which we use our smartphones, that privacy and/or control is indeed a gratification derived from smartphones, and that one's level of self-monitoring does not seem to make any appreciable difference on how he or she uses his or her smartphone.

Our relationship with technology is complicated; as recently as twenty years ago, most people didn't have an email address, and flat screen displays were expensive novelties. Today, however, we juggle multiple devices, we are surrounded by screens, and we are bombarded with information almost non-stop. But even amidst all of this digitization, we still long to connect with each other—we are social animals, after all—and we are still figuring out the role that our omnipresent smartphones should play in our face-to-face interactions (or if they should play a role at all). Many of the theories that we still rely on in the social sciences that relate to interpersonal interaction were largely

developed during eras when technologies were much simpler, much bulkier, and much less (if not at all) portable. Fortunately, a new breed of scholars are attempting to understand the ways in which mobile technologies specifically are changing our interpersonal interactions (Baym, 2010; Ling, 2004, 2008, 2012; Walsh et al., 2007), but much of this new(er) research has focused on the interaction between individuals and the remote other, rather than how the technology is a complicating factor in co-present, face-to-face interactions. The fact that gratification scores were lower in the hybrid condition for all but one gratification ("fashion/status") suggests that people, intimacy, and co-present interconnection is still the dominant order of business in the hybrid "third place" where we gather together, just as Oldenburg (1991) and Putnam et al. (2003) have argued.

Preoccupations with co-present others may help to explain why smartphone gratification scores were lower in general in the present study. Hybrid environments are unique; they represent gathering places—the "third place," in Oldenburg's words (1991). We gather together in these spaces, which include restaurants (as tested), bars, cafés, salons, and many other spots; these types of environments truly exemplify a "hybrid" environment—while private interchanges can and do regularly occur, they are themselves intermingled in a spatial environment that can be openly traversed. These "third places" are also unique in that they represent an environment that we voluntarily visit—no one simply "shows up" at a restaurant, entirely bereft of any idea what he or she is doing there. Rather, we make a conscious decision to visit these spaces, and oftentimes we choose to visit these spaces with co-present others. Furthermore, the fact that "control of privacy" gratification scores for a hybrid environment were both lower and statistically

significantly different from both public and private scores lends support to this idea that the so-called "third place" is one of co-present socialization, where a need for generating a sort of "private bubble" would not be as high. In other words, the "third place" is not where one would typically go when he or she is seeking solitude. So, while the use of smartphones and other devices has become much more visible and pervasive in recent years, particularly in restaurants and cafés, the primary use of these "third places" remains in-person, co-present personalization; it may simply be the case that we are still figuring out how to juggle our co-present socializations with all of the affordances offered by our smartphones (after all, they are still a relatively novel invention). This suggests that theories of co-present socialization may need to be revisited in order to better integrate the complicating factors of technologies like smartphones.

That said, the "third place" cannot simply be assumed to be some type of monolith. After all, a bookstore is entirely different from a restaurant; a billiard parlor is entirely different from a coffee shop, and so forth. While Oldenburg is correct in observing that these environments all share certain aspects in common (namely, that they are places of co-present socialization that are separate from the home and the workplace), distinctly different types of interactions can—and do—occur in each "third place," and each has its own set of social norms and expectations. A hair salon, for example, may be a great place to get a perm and chat with the other clients about the goings-on about town, but it wouldn't be an ideal spot to look for a date. This study used a restaurant as an exemplar of a "third place" and care was taken to include photographs that featured people socializing with each other, but a sit-down restaurant over wine at a table with an elaborate centerpiece (as pictured) is not the same as a burger joint or a sandwich shop;

using a smartphone while sitting at a plastic table at McDonald's isn't at all the same as using the same device while waiting for the dessert course to be served at Spago. Again, although co-present socialization can and does occur in all of these types of environments, the prevailing attitudes regarding smartphones in each may be significantly different.

Apps are not the only distractions beckoning to us on our smartphones; indeed, we have resigned ourselves to the fact that remote others are also clamoring for our attention via our smartphones, and we must balance those demands with the demands created by in-person socialization. Microcoordination (De Souza e Silva, 2006; Ling & Yttri, 2002; Ling, 2008) may be an example of an early step in our attempts to incorporate smartphones and other mobile technologies into our co-present interpersonal interactions with each other, as it is essentially incremental interaction that happens in "bursts" rather than continuously. Furthermore, we are learning what is and is not socially acceptable with regards to smartphone use in public; cultural norms, including rules of etiquette, evolve, change, and develop over time (Cavalli-Sforza & Feldman, 1981), and microcoordination may be an example of this very process happening in real-time.

This is just one single example of how smartphones differ significantly from other mediated forms of technology, and the increasingly important role that they play in day-to-day life. Whereas telephones used to be in fixed locations (that is, you had to physically move to the phone to use it), we are now individually addressable; that is, there is an expectation that one's cell phone number will reach a specific individual, and not a handset bolted to the kitchen wall that any household member could answer.

Frequently one may find that there is an expectation to have their smartphone on, charged, and within range of a signal at virtually all times. This is a significant paradigm shift—it is much more difficult (some would say virtually impossible) to "walk away" from a smartphone, as it has become something of an outgrowth of the human being and contributed to what some scholars refer to as the "cyborgification" of the human body (Mann & Niedzviecki, 2001). These digital "appendanges" are certainly changing the ways in which we interact with co-present others, as examined in this study, but we have yet to fully grasp the ways in which smartphones are changing other aspects of our human experience beyond social interaction, etiquette, and norms, similar to the ways that previous paradigm-shifting communication technologies (e.g., the printing press, the telegraph, the telephone) changed society.

While theories like U&G still have a clear place in communication and media research, perhaps more nuance must be incorporated into U&G studies of new media channels and devices as some have suggested (Sundar & Limperos, 2013), owing largely to the compounding/unitization of our technologies—in other words, previously distinct media technologies are being gathered together into multipurpose devices, contributing to what Jenkins (2006) refers to as "convergence." As noted below, the name "smartphone" is problematic as an identifier, not only because voice telephony is no longer the primary task carried out using these devices, but also because the smartphone might be viewed as a sort of "conglomerator" of previously distinct mediums (i.e., voice telephony, text messaging, video, photography); indeed, the smartphone is an exemplar of convergence. As many have discovered, it is now virtually impossible to buy a basic "phone only" mobile device:

> The other week I wanted to buy a cell phone—you know, to make phone calls. I didn't want a video camera, a still camera, a Web access device, an mp3 [*sic*] player, or a game system. …I didn't want the electronic equivalent of a Swiss army knife. …I just wanted a phone. The sales clerks sneered at me; they laughed at me behind my back. I was told by company after mobile company that they don't make single-function phones anymore. Nobody wants them. This was a powerful demonstration of how central [mobile phones] have become to the process of media convergence. (Jenkins, 2006, pp. 4–5)

That said, the lack of support found for H2 and H3 (i.e., no demonstrable U&G differences based upon environmental privacy or self-monitoring) suggests that smartphone users are developing relatively consistent patterns of usage for their devices; in other words, regardless of physical location, users consistently rely on certain smartphone functionalities and apps, despite the fact that smartphones offer virtually unlimited practical uses and are being used to perform an increasingly diverse array of tasks (Komando, 2013). This increasing reliance on the various utilities offered by the smartphone may also mean that novel gratifications are emerging beyond those that have been identified so far—health and workout apps, for example, might suggest a "health monitoring" gratification, apps related to dating and sexuality might fit under a "hedonism" gratification, and so forth; the possibilities seem virtually limitless. Utilizing a more fine-grained U&G list (e.g., breaking down larger gratifications into smaller ones, and including items related to modern smartphones such as game play and Web browsing that were absent from the list of uses, in addition to considering potentially new gratification categories) may have revealed a more nuanced portrait of smartphone U&G.

With regards to self-monitoring, the existing research shows that despite the fact that the latent constructs that comprise self-monitoring are still debated, some people are more prone to "acting" around others, for a variety of reasons—impression management, damage control, flirting, etc. Goffman and other social constructivists have long felt that

the world is "constructed" by interchanges that individuals share with each other. It would seem, however, that based on the present research, and as suggested by previous research (Snyder & Gangestad, 1986; Snyder, 1974), that one's level of self-monitoring is more-or-less fixed. Even though it may differ from one person to the next, it does not seem to have a particularly important impact on the ways that people use technology, specifically smartphones. Perhaps the latent utility of the device is its most important aspect; anyone, regardless of how they portray themselves in a social setting, will likely use his or her smartphone in similar ways as everyone else and to accomplish similar ends. However, this question remains an open one, particularly given the ambiguity in the statistical findings between the pretest and the final run of the study. It could be the case that the self-monitoring scale itself is due for an upgrade, as the scale does not include any mention of personal technologies of any kind, much less smartphones; digital media and computerized technologies are far more pervasive today than they were when the revised 18-point self-monitoring scale used in this study was published in the 1980s. Snyder and colleagues likely had no conception of the degree to which digital communication and electronic media devices would be relied upon when the scale was developed; given that smartphones, among other devices, are indeed used as "props" in the Goffmanian sense, and given that smartphones and similar digital devices are increasingly ubiquitous in a widening variety of social and interpersonal contexts, including tech-relevant items in the scale might make it more applicable to modern media consumers.

The possibility may also exist that the methods used for this study were not powerful enough to tease out differences in smartphone U&G that may in fact exist

between high and low self-monitors. In other words, using a more elaborate "real-world" experimental design that could involve putting high and low self-monitors in tangible physical environments and observing their actual behaviors could potentially produce very different results than those obtained in this study. There is, after all, a very real difference between observing subjects in an actual environment and relying on self-report data based on personal recall.

In a practical sense, this research suggests specific implications for the so-called "third place" and the management or proprietors of such establishments. Although this study was limited to a specific context, it nonetheless suggested that hybrid environments—those that combine elements of the public with the private—play an important role in social life, and that smartphones can be seen as digital intruders that interfere with interactions between co-present others in these environments. This suggests a potential demand for "third place"-type environments that actively discourage the use of smartphones[18]. Perhaps as smartphones become increasingly ubiquitous, restaurants and other similar environments should take a hybrid approach—voluntarily allowing surrender of the devices in exchange for some type of incentive (e.g., a discount), or perhaps setting aside areas of an establishment where phones are not allowed. Just as individuals are still actively working out the social norms and etiquette surrounding smartphone use in co-present social situations, so too are businesses in developing best practices related to smartphones, given that impinging too heavily on customer autonomy has the potential to hinder business.

[18] Outright bans in restaurants have proven less than successful and not particularly popular (Forbes, 2013), though other tactics such as offering a discount for surrendering your phone at the door have been modestly popular (Hsu, 2012).

The results of the study also suggest some practical implications for developers of smartphone operating systems, hardware, and apps. As shown, smartphone U&G do in fact differ depending upon where one is physically located. This finding suggests that future generations of smartphones could potentially leverage artificial intelligence and locational awareness via GPS to predict which apps a user is most likely to need in a given environment; if someone is at a café, for example, a menu listing or payment app might be made more prominent, whereas settling in for the evening in bed might prompt the alarm clock app or an eBook reader to come to the forefront. Such locational awareness has the potential to make our smartphones even "smarter" in a very practical sense.

Smartphone Gratifications, Environments, and Privacy

The notion of an "interface" as any sort of device (whether that device is analog or digital is relatively immaterial) that modulates human interaction is not new. Long before the advent of smartphones or even portable music players like the Walkman, books and magazines served this purpose. Someone sitting in an otherwise public place but reading a newspaper is signifying that he or she does not want to be interrupted; the paper—the interface—is not only the focus of attention, but also a dyadic sign, to borrow from Saussure. The interface, the newspaper, becomes a signifier, with privacy—"leave me be so I can enjoy the day and my newspaper without interruption"—is the signified (1959). This sign—the dyadic interaction of interface as signifier and privacy as signified—has persisted, even as technology has changed and interfaces have evolved. Step aboard almost any subway car in New York City, Frankfurt, or Sydney, and books and magazines will still be deployed in this manner, but smartphones will as well. In

other words, just as people have used books, newspapers, and iPods to psychologically isolate themselves in public places (De Souza e Silva & Frith, 2012), so too are smartphones used in a similar fashion.

But what of the word "phone" embedded in the very name "smartphone?" This term has become almost a misnomer. While smartphones are indeed telephonic devices capable of placing and receiving calls as well as text-based messages, the name is almost becoming antiquated, as smartphone owners use their devices for a wide array of tasks, including accessing Internet and email, seeking information, following news stories, sharing photos and videos with friends and family, getting directions, and so on; the list is theoretically endless, especially as new apps become available on a daily basis. Consider, too, that the Pew Research center found in its most recent study of smartphone owners that text messaging is used even more frequently than voice or video calling (Smith, 2015), which shows even more clearly that modern smartphones might more accurately be considered a sort of modern-day communication hub rather than "a phone that also does other stuff," as the name "smartphone" seems to suggest. Indeed, just like a Swiss Army knife, the functionalities requested of a smartphone change depending upon the environment, as certain gratifications may be prioritized depending upon where someone physically finds himself or herself. Consider using a smartphone in a public setting—perhaps an unfamiliar city. One might ostensibly use his or her device to call up maps, find a place to eat, or get public transit information in this type of situation (particularly in a "city sidewalk" environment, as indicated in the experiment). However, the desire to satisfy the information-seeking gratification would be less urgent in a familiar social setting or in a private place; instead, other gratifications would be expected emerge in

these settings, such as the desire to pass time or alleviate boredom. The multimodality of the smartphone offers the ability to juggle gratifications depending upon the contextual requirements of a given environment.

While the "control of privacy" gratification evaluated in this study was confirmed as extant, the concept could be unpacked to a much greater extent, just as Sundar and Limperos (2013) have suggested—current approaches to U&G research simply are not as detailed as needed, given the multifunctionality of modern telecommunications devices. In this case, there is a distinct difference between using a smartphone to avoid others versus using a smartphone to control others; in other words, the commuter may use his smartphone to avoid having to make small talk with the passenger jammed into the seat next to him (i.e., avoidance), but the acquaintance out to dinner with a group may be jabbing at his smartphone so that he can find a factoid that will help him control the conversation or offer up a suggestion for someplace to go for after-dinner drinks (i.e., control). It also remains to be seen if differences in terminology—for example, "privacy" versus "avoidance"—may be interpreted differently, or may have different implications depending upon a given environment.

What of the "gratifications" in the term "uses and gratifications," however? There is an assumption implicit in the U&G framework—that individuals actively seek out media and media devices that will allow them to fulfill particular needs or desires, and that media "scratches" a psychological or sociological "itch" in an active, voluntary way: "An important part of mass media use is assumed to be *goal directed* [emphasis added]," and that "the media compete with other sources of need satisfaction" (E. Katz, Blumler, & Gurevitch, 1974a, pp. 510–511). Can it always be argued that, when one reaches for a

smartphone, that a specific goal is always the reason, or that media consumption is done in an active (as opposed to automatic/unconscious) fashion? Furthermore, given the growing ubiquity of smartphones and pervasive data networks, are there truly other "sources of need satisfaction" that smartphones are "competing" with? When one has access to the whole of the Internet via a palm-sized device in his or her pocket, convenience may outweigh competition—it is inarguably far easier to "ask Google" for directions than tracking down a map or finding a local who may or may not be reliable in the first place. There is also the question of whether "new media create new needs, which they then proceed to gratify" (Sundar & Limperos, 2013, p. 505); if this is in fact the case, then we must be much more deliberate when applying the U&G framework to "new" media devices like smartphones, which have already been shown to have certain "transformative" qualities when it comes to social interaction (e.g., the aforementioned process of microcoordination, etc.). Finally, we must also consider the possibility that, as mentioned previously, novel gratifications might be emergent, given that the smartphone is unique in terms of its adoption, functionalities, and the degree to which it has been incorporated into day-to-day life.

Self-Monitoring and Smartphones

Curiously, this study failed to find any apparent relationship between level of self-monitoring and reported uses and gratifications for smartphones, despite the fact that social constructivists (Berger & Luckmann, 1966; Goffman, 1959) have long held that "props" play a role in the "facework" or "performances" that we exhibit when we are interacting with others. This is made further curious by the fact that the theory of self-monitoring refers to, and builds upon, Goffman's ideas regarding performance, props,

and facework (Snyder & Gangestad, 1986; Snyder, 1987). There are a number of possible reasons why the present study failed to find any support for the hypothesis that high and low self-monitors would differ with regards to smartphone U&G.

The first possibility is related to the U&G items used, as mentioned previously; it may have been the case that the items were simply not "fine-grained" enough to offer a detailed enough picture between the two groups, as some have suggested is the case with modern technologies with regards to U&G research (Sundar & Limperos, 2013). If a follow-up study were to be conducted using updated smartphone U&G items, it might be telling to repeat the administration of the 18-point SMS to determine if this was perhaps the issue.

The second possible explanation is that the theory of self-monitoring (or, more precisely, the extant self-monitoring *scale*) does not adequately take technology into consideration. Consider, for example, that the revised 18-point version of the scale was published in the mid-1980s[19] (Snyder & Gangestad, 1986), well before mobile phones of any description were particularly mainstream and even before the Internet played any appreciable role in most individuals' day-to-day lives. Today, however, the influence of technology on our behavior is inescapable, which suggests that the SMS may be due for yet another revision that acknowledges the prevalence of individual technologies on our interpersonal interactions.

Of course, the possibility may also exist that there is simply little to no overlap between the construct of self-monitoring and the concept of uses and gratifications, though this seems unlikely given that self-monitoring has been shown to play a role in

[19] A casual discussion of the SMS with colleagues who were fairly well versed in psychometric theory resulted in a fairly consensual agreement that the language alone used in the SMS was a bit out-of-date and could stand to be modernized.

studies pertaining to behavior and socialization (Hamid, 1994; W. Ickes et al., 2006; Ludwig et al., 1986). However, most of these studies omit the complicating factor of technology; only one recent study has examined individual level of self-monitoring and the impact that it might have on self-disclosure on Facebook, and statistically significant differences were indeed discerned between high and low self-monitors (Hall & Pennington, 2013). That said, there are considerable differences between a social networking service like Facebook and a mobile technology like a smartphone; one is a channel, and the other is a platform that can actually deliver the former. It appears that a "hole" exists in the literature on this topic, and further study is required to understand if differences exist between low and high self-monitors when it comes to smartphone usage specifically; perhaps the Hall and Pennington study would be a good model to start with.

While the self-monitoring construct suggests interesting implications for the use of "props" during interpersonal interactions in the Goffmanian tradition (Goffman, 1959; Snyder, 1987), and while smartphones can (and are) used as "props"—or, to use the terminology of De Souza e Silva and Frith, "interfaces" (De Souza e Silva & Frith, 2012)—to mediate public interactions, it may simply be the case that the practical functionalities (e.g., information seeking, communicative) of a smartphone significantly outweigh any value that it might offer as a "prop" or "interface." It may also be the case that self-monitoring is not an ideal construct for teasing apart differences in uses and gratifications between groups. A handful of studies have established that U&G can indeed differ across various groups; one study, for example, established that U&G for listening to music varies significantly depending upon age and a range of other factors (Lonsdale & North, 2011). Likewise, a study of Facebook also found that individual

needs and differences can direct the ways in which individuals use various Facebook features (Lai & Yang, 2014), and another found that social networking gratifications can differ depending upon attachment styles (Baek, Cho, & Kim, 2014). So, while groups may in fact exist that differ in the ways that they use their smartphones, it appears that level of self-monitoring does not explain or predict any appreciable differences in gratifications sought.

On balance, it is difficult to know why exactly no discernible difference was found between self-monitors with regards to uses and gratifications in this particular study. It is too early to say with absolute certainty that self-monitoring has no bearing on U&G, but more study is required to make any statement to the contrary.

Study Limitations

There were a number of limitations of this study that should be acknowledged and addressed, some of which future research efforts could help to resolve. First and foremost is the issue of sample collection. While the MTurk platform was effective in offering enough subjects at a reasonable price to the researcher, the demographic profiles of the samples shifted somewhat between pretests and the final run of the survey. Overall, participants skewed younger and tended to be relatively well educated, having completed some college at minimum. While this was not particularly a problem given that the subjects of interest were smartphone owners (smartphone owners tend to skew slightly younger and slightly more educated), a more liberal demographic spread might have very possibly revealed different results, given that various groups have demonstrated different tendencies in their smartphone usage patterns (Smith, 2015).

Because Mechanical Turk "workers" tend to skew younger, are generally technologically savvy (Ipeirotis, 2010; Paolacci et al., 2010), and typically value privacy and anonymity (Kang, Brown, Dabbish, & Kiesler, 2014), these shared traits may have played some role in influencing the study's results to a degree that may not have been seen in a truly random sample. Beyond shared traits, studies have noted that subjects obtained via Mechanical Turk can display a certain degree of "non-naïveté," described as a familiarity with certain types of studies or even "foreknowledge of [an] experiment" (Chandler, Mueller, & Paolacci, 2014, p. 113). Such knowledge is gained through experience as well as participation within unofficial MTurk worker communities, where information on various Mechanical Turk tasks is candidly discussed. Such sharing has the potential to undermine the experimental process, particularly with regards to subject selection; a subject with previous knowledge of an experiment may simply offer up what he or she believes the experimenter wants to see or hear, rather than providing honest answers. Furthermore, Chandler et al. note that "a small set of very productive workers are disproportionately likely to complete research HITs" (2014, p. 118), and that "previous experience with research studies can have varying, and perhaps unpredictable, effects on the diagnosticity of the data provided by [Mechanical Turk] workers" (2014, p. 119). Hence, it is conceivable that a sample obtained via another source could be demographically identical to the present sample and yet still produce entirely different results. It is impossible to speculate precisely how the results might have differed, but the possibility is not unreasonable. Repeating the experiment with a sample obtained via other means would be the best way to determine whether the participant pool itself played any role in the results obtained.

There were also certain limitations related to comparing members of the sample to smartphone owners in general. As mentioned, survey research has revealed that approximately two-thirds of all American adults own or regularly use at least one smartphone (Smith, 2015); however, specific and granular data collection on this population has been relatively limited, so an exact categorical comparison was not possible. Likewise, only a small number of studies (Ipeirotis, 2010; Paolacci et al., 2010) have examined the demographic makeup of MTurk workers, so it was similarly difficult to compare the study sample to a snapshot of the overall MTurk population.

Furthermore, data collection took much longer than anticipated, perhaps because of the relatively small incentive offered, despite the fact that the survey took most respondents only seven to eight minutes to complete. There also seems to be a bit of resistance among MTurk workers to surveys that may screen them out; it stands to reason that someone wouldn't want to spend a great deal of time working on a survey that will ultimately not yield an incentive. Again, it is impossible to know how the demographics of the sample might have changed or how quickly the survey would have reached quota if a larger incentive had been offered; these are questions that might be better suited for an examination of the MTurk platform itself.

The experimental assignment of participants to one of three different "environments" using stock photos seems to have been successful, in that statistically significant differences were seen among all three, and roughly equal numbers of subjects were assigned to each condition; while photographs depicting platonic social interactions were selected, a photograph is nevertheless not a perfect stand-in for actual immersion in a real environment. Unfortunately, live experiments and field tests would have been

prohibitively expensive, though perhaps future studies might make use of existing market research platforms that are smartphone-based; this might allow for real-time surveying of individuals while they are physically located in a particular environment. Adding real-life sights, smells, sounds, and stimuli would make for a far more robust test than simply showing a photograph and asking the participant to imagine that he or she is in a "type of place." Furthermore, while there were statistically significant differences among all selected environments, the selection of just three environments to attempt to completely embody "public," "private," and "somewhere in-between" may have been problematic. A more complete range of environments might be more telling.

As mentioned previously, the list of U&G items utilized was synthesized from two existing studies published prior to the advent of smartphones (Papacharissi & Rubin, 2000; Wei & Lo, 2006). As such, the list of items may have been problematic in that it did not include items that are directly applicable to smartphone technologies. As mentioned previously in this chapter, a more up-to-date list of U&G items would need to be created if this study were to be repeated, perhaps drawing upon lists of most commonly conducted activities on smartphones, such as those compiled by organizations like the Pew Research Center (Smith, 2015).

Furthermore, the set of specific U&G items used in this study may not have provided the degree of robustness needed to entirely dissect the ways in which people use their smartphones, specifically as uses for modern smartphones are essentially limitless, and because uses continue to broaden as adoption increases. The present study used a compound list of gratifications that was compiled from U&G studies that focused on the Internet and cell phones, both of which were conducted and published prior to the advent

of the first widely popular smartphone (i.e., the original iPhone). A number of important smartphone functions were notably absent from the list, including game play, photo and video sharing, and social networking, which could suggest that the U&G items tested were too broad or not granular enough to allow a complete picture of smartphone U&G to be obtained, a criticism similarly voiced by some researchers who feel that the "classic" U&G approach to modern technologies is insufficient (Sundar & Limperos, 2013). Nevertheless, it was apparent from the data collection that perceptions of environmental privacy did have at least some bearing on gratifications sought, though a more detailed U&G list may very well have provided even more elucidation.

There are also challenges inherent with attempting to understand why certain smartphone gratifications might be more prevalent than others. For example, if one mindlessly taps away at a game of Angry Birds on his or her smartphone simply because of boredom, is this truly an example of gratifying a particular *need*? Or is it simply an unconscious action akin to flipping through a dog-eared magazine at a doctor's office or mindlessly watching a random televised sporting event at an empty bar? Many of our media consumption behaviors occur unconsciously; most of us do not say to ourselves, "I really need to seek some information, so I'm going to fire up Google Maps," or "I really don't want to be approached by strangers, so I'm going to flip through an eBook." Psychologists have long known that motives for various behaviors can (and do) often occur automatically (Bargh & Barndollar, 1996), and that is precisely what may be happening in many cases, as the smartphone is a device that is almost always at one's side (or in one's hand); attending to the device may simply be an unconscious reflex. Even if we allow that smartphone usage is not always automatic or unconsciously driven,

we do have to acknowledge that the smartphone allows for gratifications to overlap; one can simultaneously seek information or alleviate boredom while also putting "shields up" to generate privacy, for example. It is certainly possible that the U&G instrument utilized in this study was simply not robust enough to "slice and dice" these potentially automatic or overlapping gratifications.

Finally, based on the fact that some but not all gratifications showed statistically significant differences among various pairwise comparisons of the conditions (i.e., significant differences were found less frequently between "public" and "private" than between "public" and "hybrid" or "private" or "hybrid"), it seems as though the concept of a "hybrid" environment may have been somewhat difficult for participants to wrap their minds around. We are programmed to think of public and private as a fixed binary, despite the fact that a whole range of places exists that are neither fully public nor fully private. However, it is plausible that individuals participating in this survey were not completely considering the entire sphere of the "hybrid" environment, given that privacy scores tended to be relatively low (that is, the restaurant environment was seen as more public than private). While a restaurant, for example, is in a certain sense public (i.e., essentially anyone can come in and sit down for a meal), it contains private elements (i.e., parties are segregated by table or booth); however, there is also a wide range of restaurants out there, and participants could have been thinking about their last visit to Subway or McDonald's rather than a sit-down dining experience at, say, a steakhouse or even a mass-market restaurant like Red Lobster or Applebee's. Providing more background or explanation of the environment (e.g., pointing out the ways in which it is both public and private) might have produced slightly different results, though it is

difficult to know whether a participant would even attend to such additional information. Further research should be much more specific about identifying the particulars of an environment.

Avenues for Future Research

As mentioned previously, while there is clear evidence for a "control of privacy" gratification for smartphones, more information is needed in order to determine the specific circumstances and situations in which the gratification might be most sought, as well as what exactly privacy means to a smartphone user. Does privacy generation with a smartphone as the in-hand interface differ in any meaningful way, for example, from privacy generation with a newspaper or book?

It should also be noted that it might be possible that the "control of privacy" gratification does not necessarily occur in isolation; that is, it may be a sort of "overlapping" gratification that occurs simultaneously with others, rather than in a singular fashion. Consider the aforementioned subway commute example; someone who is focused on their smartphone might be using the device to play a game or read a book without consciously being aware of the fact that he or she is also sending a signal to everyone else that says "please leave me alone." The opposite could be true; many of us have likely reached for our phones instinctively in a public place simply to have an excuse not to speak to others, picking from one of our apps indiscriminately to "legitimize" the attention paid to the device. It is unclear how these "overlapping" gratifications might impact upon each other, though it seems safe to say that privacy as a gratification need not necessarily be sought specifically or independently of other gratifications—though it certainly could be.

Furthermore, the results of the study suggest that bundling privacy and control together into a single gratification may lack a degree of nuance; it seems quite plausible that privacy and control are seen as distinctly different. The creation of more detailed and robust privacy and/or control scales as they pertain to environments may be particularly useful to future studies.

The possibility also exists that there are a variety of other gratifications that smartphones can fulfill, and that the combination of preexisting U&G items from extant studies were simply not sufficient to explore all of these possible gratifications. For example, more specific items that are more directly relevant to the differences between high and low-self monitors might tease out additional gratifications. A high self-monitor, for example, might be more apt to agree with a statement like "I use my smartphone as a sort of prop when I'm in a social setting" than a low self-monitor. Further study would be required to determine whether this is indeed the case.

Finally, paying a greater amount of attention to the psychological theories related to motivation and action might have added a unique dimension to this study, particularly when it comes to the "automaticity" or unconscious drive that can often prompt actions (including media consumption); such an inclusion would offer an intriguing avenue for future research. Continuing to employ a cross-disciplinary approach that draws directly from both communication theory and from the field of psychology—as done in this study—implicitly acknowledges that our interpersonal communications have psychological and social consequences. As technologies like our smartphones become increasingly engrained into everyday existence, we will need to continue our inquiries into how these technologies are changing not only the ways we communicate, but what

effects these changes are having on us on a psychological level. Both points are critical in painting a more complete portrait of how our devices are impacting the way we interact with each other.

Conclusion

At the time of this writing, the iPhone is only eight years old; its predecessors, including the BlackBerry, the Palm Pilot, and other similar hand-held devices, while now defunct, are all still relatively recent memories. Even though the smartphone is a relatively young device, it has been adopted more quickly than any other consumer technology in history (Mlot, 2012), and it is already engraining itself in society and changing the ways that we interact with each other, entertain and inform ourselves, and create and distribute media artifacts.

And yet, we continue to grapple with the addition of this pervasive technology in our day-to-day lives in myriad ways; despite the conveniences and advantages that smartphones offer and the growing adoption of these devices, many still see their smartphones as "not always needed" (Smith, 2015), suggesting that we are in a period of transition and integration. We are collectively creating new social norms and rewriting the rules of etiquette as they relate to smartphones, and as smartphone adoption continues to increase worldwide, scholars of communication and social media will need to observe the changes that these devices (and our reliance on them) create. In an era where we are seeing, in real-time, the changes that occur with the advent of a pervasive and successful new interpersonal communication technology, we should seize the opportunity to more fully understand the patterns that occur when primary modes of communication are paradigmatically shifted and what these changes mean for us both as individuals and as a

society of social animals, using the full array of theories and tools available at our disposal.

APPENDIX A

ADDITIONAL TABLES

Table 16. Pretest 1 demographic information.

Variable	*N*	%
Gender		
Male	75	63.0
Female	44	37.0
Age		
18-25	17	14.3
26-35	51	42.9
36-45	25	21.0
46-55	18	15.1
56-65	7	5.9
66+	1	0.8
Race		
White/Caucasian	98	82.4
African-American	7	5.9
Hispanic	9	7.6
Asian	4	3.4
Other	1	0.8
Marital Status		
Single, never married	45	37.8
Married without children	17	14.3
Married with children	39	32.8
Divorced	7	5.9
Separated	1	0.8
Living with partner	10	8.4
Education Level		
Less than high school	0	0.0
High school/GED	17	14.3
Some college	30	25.2
2-year college degree	12	10.1
4-year college degree	47	39.5
Masters degree	9	7.6
Doctoral degree	3	2.5
Professional degree (JD, MD)	1	0.8
Smartphone operating system		
Android	71	59.7
iPhone/iOS	42	35.3
Windows Phone	5	4.2
BlackBerry	1	0.8

Table 17. Consolidated list of Internet (Papacharissi & Rubin, 2000) and cell phone U&G items (Wei & Lo, 2006), including privacy items (De Souza e Silva & Frith, 2012).

Gratification/item		Source*
Information seeking		
1	…to seek traffic updates	WL
2	…to keep up to date with social events	WL
3	…to see updates on stocks**	WL
4	…to check news headlines and weather updates	WL
5	…to find consumer and entertainment information	WL
6	…because it is a new way to do research	PR
7	…because it is easier	PR
8	…to get information for free	PR
9	…to look for information	PR
10	…to see what is out there	PR
Social/Interpersonal		
11	…to gossip or chat	WL
12	…to enjoy the pleasure of talking to people	WL
13	…to improve relations with family	WL
14	…to feel closer to family members	WL
15	…to let others know you care for them	WL
16	…to get a feeling that people care about you	WL
17	…to say 'hi' to people who care about you	WL
18	…to help others	PR
19	…to participate in discussions	PR
20	…to show others encouragement	PR
21	…to belong to a group	PR
22	…because I enjoy answering questions	PR
23	…to express myself freely	PR
24	…to give my input	PR
25	…to get more points of view	PR
26	…because I wonder what other people said	PR
27	…to tell others what to do	PR
28	…to meet new people	PR
29	…because I want someone to do something for me	PR
Pass Time/Entertainment		
30	...because it passes time when bored	PR/WL
31	…when I have nothing better to do	PR
32	…to occupy my time	PR
33	…to relieve boredom by calling people	WL
34	…to relax	WL
35	…because it is entertaining	PR
36	…because I just like to use it	PR
37	…because it is enjoyable	PR

Note. Table continues on next page.

* WL = Wei & Lo; PR = Papacharissi & Rubin; DF = De Souza e Silva & Frith.

** Item was removed from the final survey instrument.

Table 17 (*continued*)**.** Consolidated list of Internet (Papacharissi & Rubin, 2000) and cell phone U&G items (Wei & Lo, 2006), including privacy items (De Souza e Silva & Frith, 2012).

Gratification/item		Source*
Fashion/Status		
38	…to look fashionable	WL
39	…to look cool	WL
40	…to look stylish	WL
41	…to avoid looking old-fashioned	WL
Mobility/Accessibility		
42	…to communicate with friends, family	PR
43	…because it is cheaper	PR
44	…because it is easier than talking in person	PR
45	…because people don't have to be there in person	PR
46	…to provide immediate access to others anywhere, anytime	WL
47	…to be available to the ill or aged members of the family	WL
48	…to eliminate the need to queue up to use a public phone*	WL
49	…to eliminate the need for change to use a public phone*	WL
50	…to avoid the need to look for a public phone*	WL
51	…to be always accessible to anyone no matter where you are	WL
Control of Privacy		
52	…to feel like I have some control over the environment	DF
53	…to control my personal experience	DF
54	…to indicate how willing I am to socialize with others	DF
55	…to have personal experiences, no matter where I am	DF
56	…to isolate myself from others	DF
57	…to block out the outside world	DF
58	…to help me remain anonymous	DF
59	…to help me have a uniquely individual experience	DF

* WL = Wei & Lo; PR = Papacharissi & Rubin; DF = De Souza e Silva & Frith.

** Item was removed from the final survey instrument.

Table 18. 18-item measure of self-monitoring (Snyder, 1987, p. 179).

1. I find it hard to imitate the behavior of other people. (F)
2. At parties and social gatherings, I do not attempt to do or say things that others will like. (F)
3. I can only argue for ideas which I already believe. (F)
4. I can make impromptu speeches even on topics about which I have almost no information. (T)
5. I guess I put on a show to impress or entertain others. (T)
6. I would probably make a good actor. (T)
7. In a group of people I am rarely the center of attention. (F)
8. In different situations and with different people, I often act like very different persons. (T)
9. I am not particularly good at making other people like me. (F)
10. I'm not always the person I appear to be. (T)
11. I would not change my opinions (or the way I do things) in order to please someone or win their favor. (F)
12. I have considered being an entertainer. (T)
13. I have never been good at games like charades or improvisational acting. (F)
14. I have trouble changing my behavior to suit different people and different situations. (F)
15. At a party I let others keep the jokes and stories going. (F)
16. I feel a bit awkward in company and do not show up quite as well as I should. (F)
17. I can look anyone in the eye and tell a lie with a straight face (if for a right end). (T)
18. I may deceive people by being friendly when I really dislike them. (T)

Note. Keying is given by either T (true) or F (false) in parentheses following the items, with items keyed in the high self-monitoring direction.

Table 19. Pretest 2 demographic information.

Variable	*N*	%
Gender		
Male	92	76.0
Female	29	24.0
Age		
18-25	38	31.4
26-35	54	44.6
36-45	21	17.4
46-55	8	6.6
56-65	0	0.0
66+	0	0.0
Race		
White/Caucasian	83	68.6
African-American	6	5.0
Hispanic	9	7.4
Asian	22	18.2
Other	1	0.8
Marital Status		
Single, never married	69	57.0
Married without children	6	5.0
Married with children	18	14.9
Divorced	7	5.8
Separated	1	0.8
Living with partner	20	16.5
Education Level		
Less than high school	1	0.8
High school/GED	13	10.7
Some college	49	40.5
2-year college degree	6	5.0
4-year college degree	41	33.9
Masters degree	7	5.8
Doctoral degree	2	1.7
Professional degree (JD, MD)	2	1.7
Smartphone operating system		
Android	74	61.2
iPhone/iOS	46	38.0
Windows Phone	1	0.8
BlackBerry	0	0.0

Table 20. Factor analysis of gratifications from Pretest 2 results.

	Gratification/item	Loading	Communality
Information seeking (Eigenvalue = 5.018, 50.18% of variance*, α = .893***)			
1	…to seek traffic updates	.601 [.577]	.432 [.333]
2	…to keep up to date with social events	.698 [.707]	.530 [.499]
3†	…to see updates on stocks	.373	.247
4	…to check news headlines and weather updates	.672 [.627]	.617 [.393]
5	…to find consumer and entertainment information	.748 [.753]	.561 [.567]
6	…because it is a new way to do research	.680 [.690]	.486 [.476]
7	…because it is easier	.700 [.708]	.577 [.501]
8	…to get information for free	.684 [.693]	.491 [.481]
9	…to look for information	.751 [.762]	.588 [.581]
10	…to see what is out there	.755 [.729]	.612 [.532]
Social/interpersonal (Eigenvalue = 9.688, 50.99% of variance, α = .946)			
11	…to gossip or chat	.633	.567
12	…to enjoy the pleasure of talking to people	.721	.608
13	…to improve relations with family	.786	.629
14	…to feel closer to family members	.746	.678
15	…to let others know you care for them	.789	.674
16	…to get a feeling that people care about you	.763	.609
17	…to say ‘hi’ to people who care about you	.688	.488
18	…to help others	.671	.465
19	…to participate in discussions	.707	.603
20	…to show others encouragement	.734	.573
21	…to belong to a group	.750	.575
22	…because I enjoy answering questions	.695	.552
23	…to express myself freely	.652	.445
24	…to give my input	.808	.658
25	…to get more points of view	.636	.407
26	…because I wonder what other people said	.670	.592
27	…to tell others what to do	.599	.545
28	…to meet new people	.616	.431
29	…because I want someone to do something for me	.515	.420
Pass time/entertainment (Eigenvalue = 4.667, 58.34% of variance, α = .895)			
30	…because it passes time when bored	.785	.617
31	…when I have nothing better to do	.717	.514
32	…to occupy my time	.749	.560
33	…to relieve boredom by calling people	.521	.272
34	…to relax	.652	.425
35	…because it is entertaining	.789	.623
36	…because I just like to use it	.702	.493
37	…because it is enjoyable	.848	.719

Note. Table continues on next page.

Table 20 (*continued*)**.** Initial factor analysis of gratifications from Pretest 2 results.

Gratification/item		Loading	Communality
Fashion/status (Eigenvalue = 3.128, 78.19% of variance, α = .907)			
38	…to look fashionable	.878	.771
39	…to look cool	.920	.847
40	…to look stylish	.863	.745
41	…to avoid looking old-fashioned	.705	.497
Mobility/accessibility (Eigenvalue = 4.736, 47.36% of variance**, α = .825***)			
42	…to communicate with friends, family	.492 [.718]	.563 [.516]
43	…because it is cheaper	.499 [.450]	.252 [.203]
44	…because it is easier than talking in person	.479 [.595]	.337 [.354]
45	…because people don't have to be there in person	.574 [.722]	.498 [.521]
46	…to provide immediate access to others anywhere, anytime	.636 [.811]	.682 [.658]
47	…to be available to the ill or aged members of the family	.547 [.526]	.318 [.277]
48†	…to eliminate the need to queue up to use a public phone	.854	.757
49†	…to eliminate the need for change to use a public phone	.759	.605
50†	…to avoid the need to look for a public phone	.874	.860
51	…to be always accessible to anyone no matter where you are	.552 [.617]	.402 [.381]
Control of privacy (Eigenvalue = 3.992, 49.90% of variance, α = .854)			
52	…to feel like I have some control over the environment	.590	.500
53	…to control my personal experience	.572	.496
54	…to indicate how willing I am to socialize with others	.618	.498
55	…to have personal experiences, no matter where I am	.530	.515
56	…to isolate myself from others	.716	.578
57	…to block out the outside world	.838	.865
58	…to help me remain anonymous	.612	.431
59	…to help me have a uniquely individual experience	.536	.617

* Deleting item 3 produced one factor, Eigenvalue = 4.868, 54.09% of variance.
** Deleting items 48-50 produced one factor, Eigenvalue = 3.456, 49.37% of variance.
*** Cronbach's alpha calculations exclude deleted items.
† Item removed from final instrument.
Note. Loadings and communalities in brackets were calculated after item deletion(s).

Table 21. Gratification scores by environment, including pairwise comparisons, for Pretest 2.

		Environments							Post hoc pairwise *p* scores†		
	Gratification	Public	*SD*	Hybrid	*SD*	Private	*SD*	*p*	Public/Hybrid	Private/Hybrid	Public/Private
1	Information seeking	3.65	.720	2.95	.935	3.51	.938	.001*	.001*	.012*	.760
2	Social/interpersonal	2.89	.743	2.30	.838	2.71	.873	.005*	.004*	.067	.589
3	Passing time/entertainment	3.60	.742	3.23	.985	3.80	.970	.021*	.162	.017*	.603
4	Fashion/status	2.12	.997	1.83	.889	1.69	.843	.109	.342	.779	.098
5	Mobility/accessibility	3.42	.744	2.80	.895	3.11	.884	.005*	.003*	.222	.233
6	Control of privacy	2.91	.736	2.27	.764	2.62	.924	.002*	.001*	.126	.247

* Significant at the $p < .05$ level

† Tukey's HSD post hoc test was used for all gratifications.

Table 22. Gratification scores by level of self-monitoring for Pretest 2.

		Low self-monitors			High self-monitors					
	Gratification	*N*	*M*	*SD*	*N*	*M*	*SD*	*p*	*t*	*df*
1	Information seeking	68	3.34	.935	49	3.44	.906	.563	-.580	115
2	Social/interpersonal	68	2.50	.802	49	2.81	.900	.057	-1.926	115
3	Passing time/entertainment	68	3.49	.960	49	3.66	.882	.314	-1.012	115
4	Fashion/status	68	1.80	.881	49	1.97	.998	.324	-.992	115
5	Mobility/accessibility	68	3.04	.886	49	3.22	.876	.285	-1.074	115
6	Control of privacy	68	2.44	.846	49	2.81	.810	.019*	-2.380	115

* Significant at the $p < .05$ level

Table 23. Interaction effects between self-monitoring and environment for Pretest 2.

		Self-monitoring × environment			
	Gratification	*p*	*F*	*df*	Partial η^2
1	Information seeking	.733	.312	2	.006
2	Social/interpersonal	.888	.119	2	.002
3	Passing time/entertainment	.303	1.206	2	.021
4	Fashion/status	.527	.645	2	.011
5	Mobility/accessibility	.933	.069	2	.001
6	Control of privacy	.787	.240	2	.004

Table 24. Final study demographic information.

Variable	*N*	%
Gender		
Male	194	47.0
Female	219	53.0
Age		
18-25	85	20.6
26-35	178	43.1
36-45	90	21.8
46-55	32	7.7
56-65	21	5.1
66+	3	0.7
Race		
White/Caucasian	310	75.1
African-American	27	6.5
Hispanic	24	5.8
Asian	38	9.2
Native American	1	0.2
Pacific Islander	3	0.7
Other	10	2.4
Marital Status		
Single, never married	197	47.7
Married without children	45	10.9
Married with children	88	21.3
Divorced	20	4.8
Separated	8	1.9
Widowed	3	0.7
Living with partner	52	12.6
Education Level		
Less than high school	3	0.7
High school/GED	35	8.5
Some college	121	29.3
2-year college degree	40	9.7
4-year college degree	158	38.3
Masters degree	41	9.9
Doctoral degree	9	2.2
Professional degree (JD, MD)	6	1.5
Smartphone operating system		
Android	228	55.2
iPhone/iOS	173	41.9
Windows Phone	10	2.4
BlackBerry	1	0.2
Other	1	0.2

Table 25. Factor analysis of gratifications from final study.

	Gratification/item	Loading	Communality
Information seeking (Eigenvalue = 4.691, 52.12% of variance, α = .880)			
1	…to seek traffic updates	.453	.205
2	…to keep up to date with social events	.662	.438
4	…to check news headlines and weather updates	.742	.551
5	…to find consumer and entertainment information	.783	.613
6	…because it is a new way to do research	.621	.385
7	…because it is easier	.680	.462
8	…to get information for free	.742	.551
9	…to look for information	.686	.470
10	…to see what is out there	.706	.499
Social/interpersonal (Eigenvalue = 9.273, 48.81% of variance, α = .941)			
11	…to gossip or chat	.669	.451
12	…to enjoy the pleasure of talking to people	.736	.563
13	…to improve relations with family	.716	.535
14	…to feel closer to family members	.681	.505
15	…to let others know you care for them	.736	.575
16	…to get a feeling that people care about you	.707	.506
17	…to say ‘hi’ to people who care about you	.796	.686
18	…to help others	.656	.430
19	…to participate in discussions	.676	.461
20	…to show others encouragement	.728	.533
21	…to belong to a group	.626	.482
22	…because I enjoy answering questions	.592	.353
23	…to express myself freely	.757	.573
24	…to give my input	.742	.560
25	…to get more points of view	.676	.466
26	…because I wonder what other people said	.653	.475
27	…to tell others what to do	.556	.418
28	…to meet new people	.590	.431
29	…because I want someone to do something for me	.555	.394
Pass time/entertainment (Eigenvalue = 4.837, 60.46% of variance, α = .903)			
30	…because it passes time when bored	.815	.664
31	…when I have nothing better to do	.770	.593
32	…to occupy my time	.816	.666
33	…to relieve boredom by calling people	.475	.225
34	…to relax	.705	.497
35	…because it is entertaining	.786	.618
36	…because I just like to use it	.750	.563
37	…because it is enjoyable	.768	.590

Note. Table continues on next page.

Table 25 (*continued*)**.** Factor analysis of gratifications from final study.

	Gratification/item	Loading	Communality
Fashion/status (Eigenvalue = 3.183, 79.57% of variance, α = .914)			
38	…to look fashionable	.877	.770
39	…to look cool	.873	.762
40	…to look stylish	.886	.785
41	…to avoid looking old-fashioned	.775	.601
Mobility/accessibility (Eigenvalue = 3.046, 43.52% of variance, α = .775)			
42	…to communicate with friends, family	.668	.454
43	…because it is cheaper	.402	.190
44	…because it is easier than talking in person	.503	.400
45	…because people don't have to be there in person	.588	.566
46	…to provide immediate access to others anywhere, anytime	.739	.550
47	…to be available to the ill or aged members of the family	.457	.215
51	…to be always accessible to anyone no matter where you are	.739	.706
Control of privacy (Eigenvalue = 3.847, 48.08% of variance, α = .844)			
52	…to feel like I have some control over the environment	.615	.406
53	…to control my personal experience	.668	.582
54	…to indicate how willing I am to socialize with others	.540	.322
55	…to have personal experiences, no matter where I am	.674	.559
56	…to isolate myself from others	.716	.741
57	…to block out the outside world	.659	.546
58	…to help me remain anonymous	.633	.400
59	…to help me have a uniquely individual experience	.639	.506

Table 26. Gratification scores by environment, including pairwise comparisons.

		Environments							Post hoc pairwise *p* scores†		
	Gratification	Public	*SD*	Hybrid	*SD*	Private	*SD*	*p*	Public/Hybrid	Private/Hybrid	Public/Private
1	Information seeking	3.455	.816	3.191	.983	3.532	.689	.002*	.049*	.003*	.678
2	Social/interpersonal	2.816	.784	2.559	.825	2.999	.748	.000*	.026*	.000*	.148
3	Passing time/entertainment	3.446	.923	3.206	1.055	3.671	.797	.000*	.124	.000*	.084
4	Fashion/status	2.090	.978	1.919	.965	1.678	.789	.001*	.279	.079	.001*
5	Mobility/accessibility	3.186	.815	2.919	.883	3.149	.807	.013*	.019*	.047*	.927
6	Control of privacy	2.799	.810	2.381	.837	2.769	.770	.000*	.000*	.000*	.950

* Indicates statistical significance at $p < .05$ level.

† Tukey's HSD post hoc test was used for Gratifications 2, 4, 5, and 6. Games-Howell post hoc was used for 1 and 3.

Table 27. Gratification scores by level of self-monitoring.

		Low self-monitors			High self-monitors					
	Gratification	*N*	*M*	*SD*	*N*	*M*	*SD*	*p*	*t*	*df*
1	Information seeking	259	3.369	.853	134	3.420	.849	.577	-.559	391
2	Social/interpersonal	250	2.759	.820	129	2.814	.758	.531	-.627	377
3	Passing time/entertainment	261	3.417	.931	132	3.472	1.003	.591	-.538	391
4	Fashion/status	262	1.840	.889	130	1.964	.977	.210	-1.256	390
5	Mobility/accessibility	266	3.056	.879	130	3.115	.774	.510	-.660	394
6	Control of privacy	259	2.629	.831	133	2.662	.808	.709	-.373	390

APPENDIX B

SURVEY INSTRUMENTS

Pretest 1

Block 1: Informed Consent

University of Oregon School of Journalism and Communication
Informed Consent for Participation as a Subject in a Study

Investigator: Ryan Eanes

You are being asked to be in a research study of mobile technology usage. We ask that you read this page and ask any questions that you may have before agreeing to be in the study.

The purpose of this study is to evaluate usage of smartphones in particular environments. The total number of subjects is expected to be 100.

If you agree to be in this study, we would ask you to complete the survey that follows. Completion of the survey should take no more than ten (10) minutes of your time.

This study is being conducted anonymously. No personally identifiable information will be collected from participants.

There are no foreseeable (or expected) risks associated with completing this study. There are no expected benefits to participants. 30¢ will be credited to your Amazon Mechanical Turk account for successfully completing this study.

The records of this study will be kept private. In any sort of report we may publish, we will not include any information that will make it possible to identify a participant. Research records will be kept in a locked file. All electronic information will be electronically encrypted and secured using a password-protected file. Access to the records will be limited to the researchers; however, please note that regulatory agencies and the Institutional Review Board and internal University of Oregon auditors may review the research records.

Your participation is voluntary. If you choose not to participate, it will not affect your current or future relations with the University. You are free to withdraw at any time, for whatever reason. There is no penalty or loss of benefits for not taking part or for stopping your participation. Withdrawal will not result in any risk of loss of present or future faculty/school/University relationships.

The researcher conducting this study is Ryan Eanes. For questions or more information concerning this research you may contact him at rse@uoregon.edu. If you have any questions about your rights as a research subject, you may contact Research Compliance Services, University of Oregon at (541) 346-2510 or ResearchCompliance@uoregon.edu.

You may print or save a copy of this form to keep for your records and future reference.

By continuing to the survey, you are certifying that:

- You are 18 years old or older.
- You have read (or have had read to you) the contents of this consent form and have been encouraged to ask questions.
- You have received answers to any of your questions.
- You give your consent to participate in this study.
- You will print or save a copy of this form for your records and future reference if you wish.

[Clicking "Next" constitutes acceptance of informed consent.]

Block 2: Smartphone Pre-Screening

Q2.1 Do you own and regularly use a mobile or cell phone?

- ❍ Yes (1)
- ❍ No (2)

[Display Q2.2 if Q2.1 = 1]

Q2.2 What type of mobile or cell phone do you use most frequently?

- ❍ Smartphone
  A smartphone is a mobile phone that can perform many of the functions of a computer. A smartphone may or may not have a physical keyboard, usually has a large screen, and can run a variety of applications, or "apps." Examples of smartphones include: Apple iPhone, Samsung Galaxy, BlackBerry, Android phones (1)
- ❍ Basic phone or feature phone
  A basic phone, sometimes called a feature phone, usually features a physical keyboard and a camera, and may come with a limited number of pre-installed apps. Usually this type of phone is unable to easily access the Internet. (2)
- ❍ Not sure (3)

[Disqualify if Q2.2 ≠ 1]

Q2.3 What is the operating system of the smartphone that you use most frequently?

- ❍ Apple iPhone (1)
- ❍ Android (2)
- ❍ Windows Phone (3)

- ❍ BlackBerry (4)
- ❍ Symbian (5)
- ❍ Other (6) _____
- ❍ I don't know (7)

[Disqualify if Q2.3 = 7]

Block 3: Verification of Environmental/Situational Privacy

Q3.1 What is the most public environment you can think of? For the purposes of this study, a public environment is one where people intermingle freely and random social interactions can take place.

_____

Q3.2 What is the most private environment you can think of? For the purposes of this study, a private environment is one that is intimate, controlled, and where interactions take place that are comfortable to a specific individual.

_____

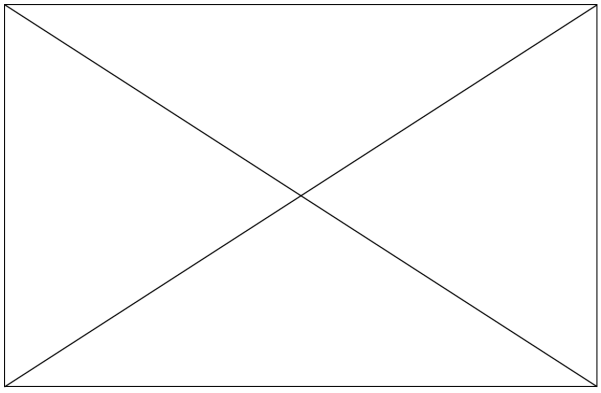
Q3.3 What type of environment would you describe as both public AND private? This would be an environment where people intermingle freely and random social interactions can take place, but it is also intimate, controlled, and interactions are still comfortable to specific individuals.

_____

Next, we would like you to think about several different environments in which you might use your smartphone. For each setting, indicate how strongly you agree or disagree with each statement displayed, based on your own opinions and personal experience in the setting.

[Randomize display of Q3.4-Q3.12; display appropriate photo with each]

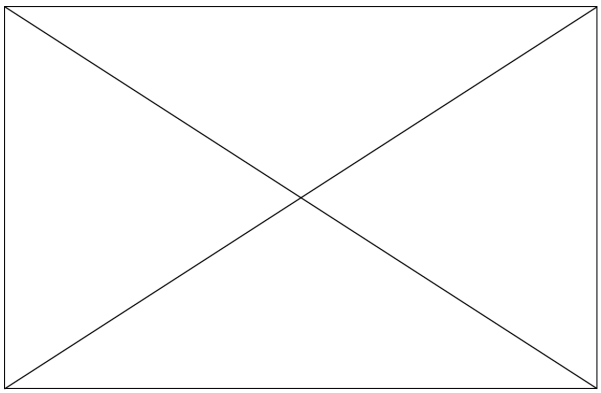
Q3.4 Think about the environment of a **bedroom**, like the one pictured here.



How strongly do you agree or disagree with each of the following statements?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
This is an intimate setting. (1)	❍	❍	❍	❍	❍
This is a controlled setting. (2)	❍	❍	❍	❍	❍
People intermingle freely in this setting. (3)	❍	❍	❍	❍	❍
People socialize freely in this setting. (4)	❍	❍	❍	❍	❍
Random sociability can occur in this setting. (5)	❍	❍	❍	❍	❍
Interactions occur in this setting on terms that are comfortable to a specific individual. (6)	❍	❍	❍	❍	❍

Q3.5 Think about the environment of a **restaurant**, like the one pictured here.

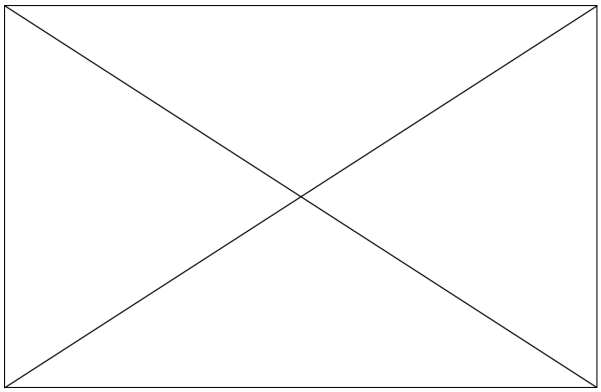


How strongly do you agree or disagree with each of the following statements?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
This is an intimate setting. (1)	❍	❍	❍	❍	❍
This is a controlled setting. (2)	❍	❍	❍	❍	❍
People intermingle freely in this setting. (3)	❍	❍	❍	❍	❍

People socialize freely in this setting. (4)	❍	❍	❍	❍	❍
Random sociability can occur in this setting. (5)	❍	❍	❍	❍	❍
Interactions occur in this setting on terms that are comfortable to a specific individual. (6)	❍	❍	❍	❍	❍

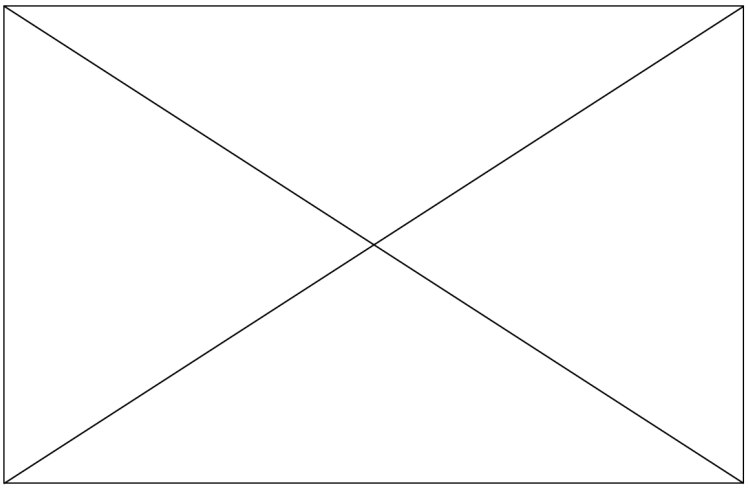
Q3.6 Think about the environment of a **public park**, like the one pictured here.



How strongly do you agree or disagree with each of the following statements?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
This is an intimate setting. (1)	❍	❍	❍	❍	❍
This is a controlled setting. (2)	❍	❍	❍	❍	❍
People intermingle freely in this setting. (3)	❍	❍	❍	❍	❍
People socialize freely in this setting. (4)	❍	❍	❍	❍	❍
Random sociability can occur in this setting. (5)	❍	❍	❍	❍	❍
Interactions occur in this setting on terms that are comfortable to a specific individual. (6)	❍	❍	❍	❍	❍

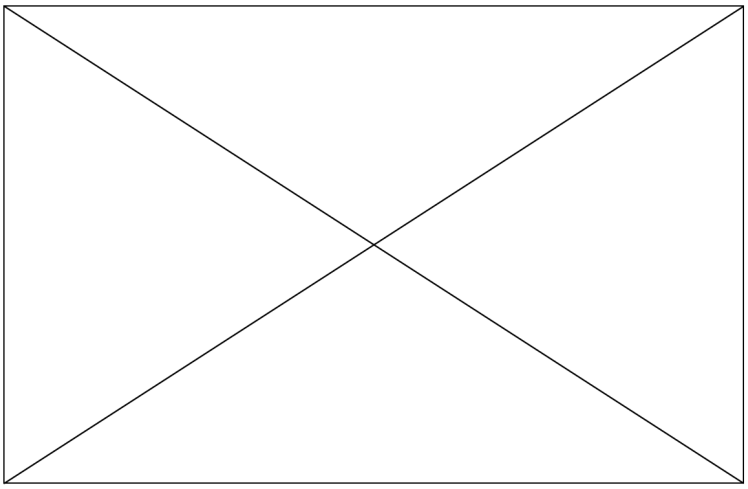
Q3.7 Think about the environment of a **street fair**, like the one pictured here.



How strongly do you agree or disagree with each of the following statements?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
This is an intimate setting. (1)	❍	❍	❍	❍	❍
This is a controlled setting. (2)	❍	❍	❍	❍	❍
People intermingle freely in this setting. (3)	❍	❍	❍	❍	❍
People socialize freely in this setting. (4)	❍	❍	❍	❍	❍
Random sociability can occur in this setting. (5)	❍	❍	❍	❍	❍
Interactions occur in this setting on terms that are comfortable to a specific individual. (6)	❍	❍	❍	❍	❍
Select DISAGREE in this row. (7)	❍	❍	❍	❍	❍

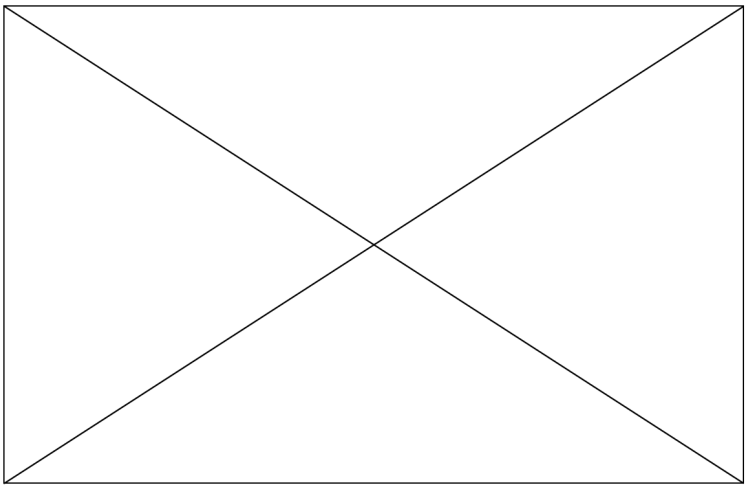
Q3.8 Think about the environment of a **hotel room**, like the one pictured here.



How strongly do you agree or disagree with each of the following statements?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
This is an intimate setting. (1)	❍	❍	❍	❍	❍
This is a controlled setting. (2)	❍	❍	❍	❍	❍
People intermingle freely in this setting. (3)	❍	❍	❍	❍	❍
People socialize freely in this setting. (4)	❍	❍	❍	❍	❍
Random sociability can occur in this setting. (5)	❍	❍	❍	❍	❍
Interactions occur in this setting on terms that are comfortable to a specific individual. (6)	❍	❍	❍	❍	❍
Select AGREE in this row. (7)	❍	❍	❍	❍	❍

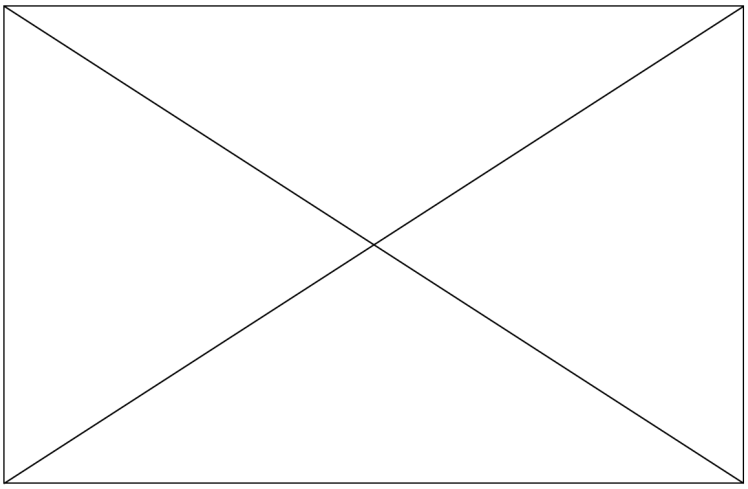
Q3.9 Think about the environment of a **bar**, like the one pictured here.



How strongly do you agree or disagree with each of the following statements?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
This is an intimate setting. (1)	❍	❍	❍	❍	❍
This is a controlled setting. (2)	❍	❍	❍	❍	❍
People intermingle freely in this setting. (3)	❍	❍	❍	❍	❍
People socialize freely in this setting. (4)	❍	❍	❍	❍	❍
Random sociability can occur in this setting. (5)	❍	❍	❍	❍	❍
Interactions occur in this setting on terms that are comfortable to a specific individual. (6)	❍	❍	❍	❍	❍

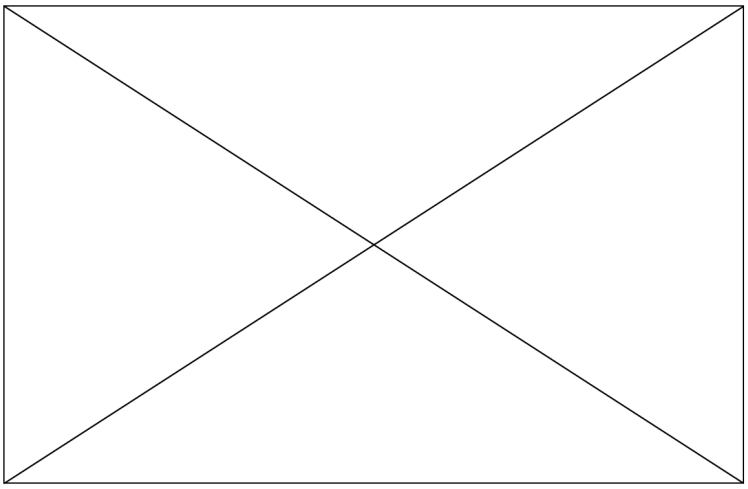
Q3.10 Think about the environment of a **city sidewalk**, like the one pictured here.



How strongly do you agree or disagree with each of the following statements?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
This is an intimate setting. (1)	❍	❍	❍	❍	❍
This is a controlled setting. (2)	❍	❍	❍	❍	❍
People intermingle freely in this setting. (3)	❍	❍	❍	❍	❍
People socialize freely in this setting. (4)	❍	❍	❍	❍	❍
Random sociability can occur in this setting. (5)	❍	❍	❍	❍	❍
Interactions occur in this setting on terms that are comfortable to a specific individual. (6)	❍	❍	❍	❍	❍

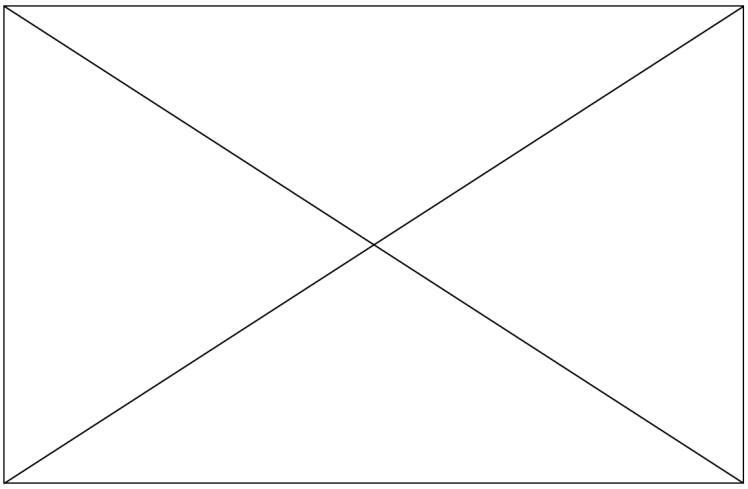
Q3.11 Think about the environment of a **supermarket**, like the one pictured here.



How strongly do you agree or disagree with each of the following statements?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
This is an intimate setting. (1)	❍	❍	❍	❍	❍
This is a controlled setting. (2)	❍	❍	❍	❍	❍
People intermingle freely in this setting. (3)	❍	❍	❍	❍	❍
People socialize freely in this setting. (4)	❍	❍	❍	❍	❍
Random sociability can occur in this setting. (5)	❍	❍	❍	❍	❍
Interactions occur in this setting on terms that are comfortable to a specific individual. (6)	❍	❍	❍	❍	❍

Q3.12 Think about the environment of a **living room**, like the one pictured here.



How strongly do you agree or disagree with each of the following statements?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
This is an intimate setting. (1)	❍	❍	❍	❍	❍
This is a controlled setting. (2)	❍	❍	❍	❍	❍
People intermingle freely in this setting. (3)	❍	❍	❍	❍	❍
People socialize freely in this setting. (4)	❍	❍	❍	❍	❍
Random sociability can occur in this setting. (5)	❍	❍	❍	❍	❍
Interactions occur in this setting on terms that are comfortable to a specific individual. (6)	❍	❍	❍	❍	❍

Block 4: Demographics

Finally, we'd like to collect some information about you in order to ensure that we survey a wide range of individuals. Remember that all information will remain completely confidential, all questions are optional, and no personally identifiable information will be collected.

[Randomize display of Q4.1-Q4.6]

Q4.1 What year were you born?

_____

Q4.2 What is your gender?

- ❍ Male (1)
- ❍ Female (2)

Q4.3 Please select the state and county in which you currently reside.
[State drop-down] è [County drop-down]

Q4.4 Which racial group do you most closely identify with?

- ❍ White/Caucasian (1)
- ❍ African American (2)
- ❍ Hispanic (3)
- ❍ Asian (4)
- ❍ Native American (5)
- ❍ Pacific Islander (6)
- ❍ Other (7)

Q4.5 Which best describes your marital status?

- ❍ Single, never married (1)
- ❍ Married without children (2)
- ❍ Married with children (3)
- ❍ Divorced (4)
- ❍ Separated (5)
- ❍ Widowed (6)
- ❍ Living w/ partner (7)

Q4.6 What is the highest level of education you have completed?

- ❍ Less than High School (1)
- ❍ High School / GED (2)
- ❍ Some College (3)
- ❍ 2-year College Degree (4)
- ❍ 4-year College Degree (5)
- ❍ Masters Degree (6)
- ❍ Doctoral Degree (7)
- ❍ Professional Degree (JD, MD) (8)

Pretest 2

Block 1: Informed Consent

University of Oregon School of Journalism and Communication
Informed Consent for Participation as a Subject in a Study

Investigator: Ryan Eanes

You are being asked to be in a research study of mobile technology usage. We ask that you read this page and ask any questions that you may have before agreeing to be in the study.

The purpose of this study is to evaluate usage of smartphones in particular environments. The total number of subjects is expected to be 100.

If you agree to be in this study, we would ask you to complete the survey that follows. Completion of the survey should take no more than ten (10) minutes of your time.

This study is being conducted anonymously. No personally identifiable information will be collected from participants.

There are no foreseeable (or expected) risks associated with completing this study. There are no expected benefits to participants. 30¢ will be credited to your Amazon Mechanical Turk account for successfully completing this study.

The records of this study will be kept private. In any sort of report we may publish, we will not include any information that will make it possible to identify a participant. Research records will be kept in a locked file. All electronic information will be electronically encrypted and secured using a password-protected file. Access to the records will be limited to the researchers; however, please note that regulatory agencies and the Institutional Review Board and internal University of Oregon auditors may review the research records.

Your participation is voluntary. If you choose not to participate, it will not affect your current or future relations with the University. You are free to withdraw at any time, for whatever reason. There is no penalty or loss of benefits for not taking part or for stopping your participation. Withdrawal will not result in any risk of loss of present or future faculty/school/University relationships.

The researcher conducting this study is Ryan Eanes. For questions or more information concerning this research you may contact him at rse@uoregon.edu. If you have any questions about your rights as a research subject, you may contact Research Compliance Services, University of Oregon at (541) 346-2510 or ResearchCompliance@uoregon.edu.

You may print or save a copy of this form to keep for your records and future reference.

By continuing to the survey, you are certifying that:

- You are 18 years old or older.
- You have read (or have had read to you) the contents of this consent form and have been encouraged to ask questions.
- You have received answers to any of your questions.
- You give your consent to participate in this study.
- You will print or save a copy of this form for your records and future reference if you wish.

[Clicking "Next" constitutes acceptance of informed consent.]

Block 2: Smartphone Pre-Screening

Q2.1 Do you own and regularly use a mobile or cell phone?

- ❍ Yes (1)
- ❍ No (2)

[Display Q2.2 if Q2.1 = 1]

Q2.2 What type of mobile or cell phone do you use most frequently?

- ❍ Smartphone

  A smartphone is a mobile phone that can perform many of the functions of a computer. A smartphone may or may not have a physical keyboard, usually has a large screen, and can run a variety of applications, or "apps." Examples of smartphones include: Apple iPhone, Samsung Galaxy, BlackBerry, Android phones (1)
- ❍ Basic phone or feature phone

  A basic phone, sometimes called a feature phone, usually features a physical keyboard and a camera, and may come with a limited number of pre-installed apps. Usually this type of phone is unable to easily access the Internet. (2)
- ❍ Not sure (3)

[Disqualify if Q2.2 ≠ 1]

Q2.3 What is the operating system of the smartphone that you use most frequently?

- ❍ Apple iPhone (1)
- ❍ Android (2)
- ❍ Windows Phone (3)
- ❍ BlackBerry (4)
- ❍ Symbian (5)
- ❍ Other (6) _____
- ❍ I don't know (7)

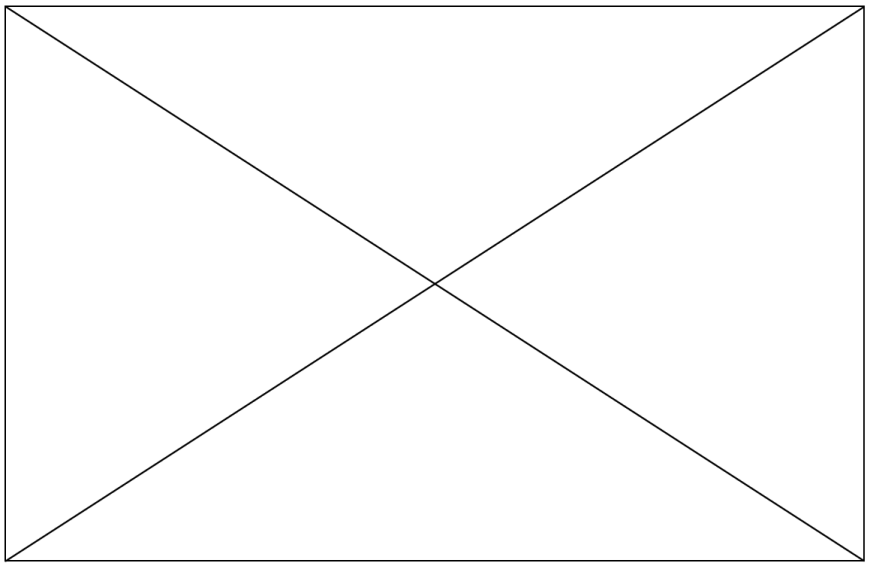
[Disqualify if Q2.3 = 7]

Block 3: Uses and Gratifications

[Random assignment to one of three conditions for this block matching the public, private and hybrid environments]

Now, we'd like you to think about using your smartphone in a particular setting.

Specifically, think about how you use your smartphone in the environment of [environment], perhaps like the one pictured here.



Indicate how much you agree or disagree with each statement below.

Q3.1 In [condition], I use my smartphone…
[Randomize display of all statements]

	Strongly Disagree (27)	Disagree (28)	Neither Agree nor Disagree (29)	Agree (30)	Strongly Agree (31)
...to seek traffic updates (1)	❍	❍	❍	❍	❍
...to keep up to date with social events (2)	❍	❍	❍	❍	❍
...to see updates on stocks (3)	❍	❍	❍	❍	❍
...to check news headlines and weather updates (4)	❍	❍	❍	❍	❍

...to find consumer and entertainment information (5)	❍	❍	❍	❍	❍
...because it is a new way to do research (6)	❍	❍	❍	❍	❍
...because it is easier (7)	❍	❍	❍	❍	❍
...to get information for free (8)	❍	❍	❍	❍	❍
...to look for information (9)	❍	❍	❍	❍	❍
...to see what is out there (10)	❍	❍	❍	❍	❍
...to gossip or chat (11)	❍	❍	❍	❍	❍
...to enjoy the pleasure of talking to people (12)	❍	❍	❍	❍	❍
...to improve relations with family (13)	❍	❍	❍	❍	❍
...to feel closer to family members (14)	❍	❍	❍	❍	❍
...to let others know you care for them (15)	❍	❍	❍	❍	❍
...to get a feeling that people care about you (16)	❍	❍	❍	❍	❍
...to say 'hi' to people who care about you (17)	❍	❍	❍	❍	❍
...to help others (18)	❍	❍	❍	❍	❍
...to participate in discussions (19)	❍	❍	❍	❍	❍
...to show others encouragement (20)	❍	❍	❍	❍	❍
...to belong to a group (21)	❍	❍	❍	❍	❍
...because I enjoy answering questions (22)	❍	❍	❍	❍	❍
...to express myself freely (23)	❍	❍	❍	❍	❍
...to give my input (24)	❍	❍	❍	❍	❍
...to get more points of view (25)	❍	❍	❍	❍	❍

...because I wonder what other people said (26)	❍	❍	❍	❍	❍
...to tell others what to do (27)	❍	❍	❍	❍	❍
...to meet new people (28)	❍	❍	❍	❍	❍
...because I want someone to do something for me (29)	❍	❍	❍	❍	❍
...because it passes time when bored (30)	❍	❍	❍	❍	❍
...when I have nothing better to do (31)	❍	❍	❍	❍	❍
...to occupy my time (32)	❍	❍	❍	❍	❍
...to relieve boredom by calling people (33)	❍	❍	❍	❍	❍
...to relax (34)	❍	❍	❍	❍	❍
...to look fashionable (35)	❍	❍	❍	❍	❍
...to look cool (36)	❍	❍	❍	❍	❍
...to look stylish (37)	❍	❍	❍	❍	❍
...to avoid looking old-fashioned (38)	❍	❍	❍	❍	❍
...because it is entertaining (39)	❍	❍	❍	❍	❍
...because I just like to use it (40)	❍	❍	❍	❍	❍
...because it is enjoyable (41)	❍	❍	❍	❍	❍
...to communicate with friends, family (42)	❍	❍	❍	❍	❍
...because it is cheaper (43)	❍	❍	❍	❍	❍
...because it is easier than talking in person (44)	❍	❍	❍	❍	❍
...because people don't have to be there in person (45)	❍	❍	❍	❍	❍

...to provide immediate access to others anywhere, anytime (46)	❍	❍	❍	❍	❍
...to be available to the ill or aged members of the family (47)	❍	❍	❍	❍	❍
...to eliminate the need to queue up to use a public phone (48)	❍	❍	❍	❍	❍
...to eliminate the need for change required to use a public phone (49)	❍	❍	❍	❍	❍
...to avoid the need to look for a public phone (50)	❍	❍	❍	❍	❍
...to be always accessible to anyone no matter where you are (51)	❍	❍	❍	❍	❍
...to feel like I have some control over the environment (52)	❍	❍	❍	❍	❍
...to control my personal experience (53)	❍	❍	❍	❍	❍
...to indicate how willing I am to socialize with others (54)	❍	❍	❍	❍	❍
...to have personal experiences, no matter where I am (55)	❍	❍	❍	❍	❍
...to isolate myself from others (56)	❍	❍	❍	❍	❍
...to block out the outside world (57)	❍	❍	❍	❍	❍
...to help me remain anonymous (58)	❍	❍	❍	❍	❍
...to help me have a uniquely individual experience (59)	❍	❍	❍	❍	❍
Select STRONGLY AGREE in this row (60)	❍	❍	❍	❍	❍

Q3.2 On a scale from 1-10, where 1 means “totally public” and 10 means “totally private,” [hover-over for definitions of each] how would you rate the environment of [condition]?

[Drag-and-drop scale from 1-10]

Block 4: Self-Monitoring Evaluation

Next, read each of the following statements and indicate whether the statement is true (you believe it describes you) or false (you believe it does not describe you).

[Randomize display of all statements]

Q4.1

	True (1)	False (2)
I find it hard to imitate the behavior of other people. (1)	❍	❍
At parties and social gatherings, I do not attempt to do or say things that others will like. (2)	❍	❍
I can only argue for ideas which I already believe. (3)	❍	❍
I can make impromptu speeches even on topics about which I have almost no information. (4)	❍	❍
I guess I put on a show to impress or entertain others. (5)	❍	❍
I would probably make a good actor. (6)	❍	❍
In a group of people I am rarely the center of attention. (7)	❍	❍
In different situations and with different people, I often act like very different persons. (8)	❍	❍
I am not particularly good at making other people like me. (9)	❍	❍
I'm not always the person I appear to be. (10)	❍	❍
I would not change my opinions (or the way I do things) in order to please someone or win their favor. (11)	❍	❍
I have considered being an entertainer. (12)	❍	❍
I have never been good at games like charades or improvisational acting. (13)	❍	❍
I have trouble changing my behavior to suit different people and different situations. (14)	❍	❍
At a party I let others keep the jokes and stories going. (15)	❍	❍
I feel a bit awkward in company and do not show up quite as well as I should. (16)	❍	❍
I can look anyone in the eye and tell a lie with a straight face (if for a right end). (17)	❍	❍

I may deceive people by being friendly when I really dislike them. (18)	❍	❍
Select FALSE in this row. (19)	❍	❍

Block 5: Demographics

Finally, we'd like to collect some information about you in order to ensure that we survey a wide range of individuals. Remember that all information will remain completely confidential, all questions are optional, and no personally identifiable information will be collected.

[Randomize display of Q5.1-Q5.6]

Q5.1 What year were you born?

_____

Q5.2 What is your gender?
❍ Male (1)
❍ Female (2)

Q5.3 Please select the state and county in which you currently reside.
[State drop-down] è [County drop-down]

Q5.4 Which racial group do you most closely identify with?
❍ White/Caucasian (1)
❍ African American (2)
❍ Hispanic (3)
❍ Asian (4)
❍ Native American (5)
❍ Pacific Islander (6)
❍ Other (7)

Q5.5 Which best describes your marital status?
❍ Single, never married (1)
❍ Married without children (2)
❍ Married with children (3)
❍ Divorced (4)
❍ Separated (5)
❍ Widowed (6)
❍ Living w/ partner (7)

Q5.6 What is the highest level of education you have completed?

- ❍ Less than High School (1)
- ❍ High School / GED (2)
- ❍ Some College (3)
- ❍ 2-year College Degree (4)
- ❍ 4-year College Degree (5)
- ❍ Masters Degree (6)
- ❍ Doctoral Degree (7)
- ❍ Professional Degree (JD, MD) (8)

Full Survey Instrument

Block 1: Informed Consent

University of Oregon School of Journalism and Communication
Informed Consent for Participation as a Subject in a Study

Investigator: Ryan Eanes

You are being asked to be in a research study of mobile technology usage. We ask that you read this page and ask any questions that you may have before agreeing to be in the study.

The purpose of this study is to evaluate usage of smartphones in particular environments. The total number of subjects is expected to be 400.

If you agree to be in this study, we would ask you to complete the survey that follows. Completion of the survey should take no more than ten (10) minutes of your time.

This study is being conducted anonymously. No personally identifiable information will be collected from participants.

There are no foreseeable (or expected) risks associated with completing this study. There are no expected benefits to participants. 30¢ will be credited to your Amazon Mechanical Turk account for successfully completing this study.

The records of this study will be kept private. In any sort of report we may publish, we will not include any information that will make it possible to identify a participant. Research records will be kept in a locked file. All electronic information will be electronically encrypted and secured using a password-protected file. Access to the records will be limited to the researchers; however, please note that regulatory agencies and the Institutional Review Board and internal University of Oregon auditors may review the research records.

Your participation is voluntary. If you choose not to participate, it will not affect your current or future relations with the University. You are free to withdraw at any time, for whatever reason. There is no penalty or loss of benefits for not taking part or for stopping your participation. Withdrawal will not result in any risk of loss of present or future faculty/school/University relationships.

The researcher conducting this study is Ryan Eanes. For questions or more information concerning this research you may contact him at rse@uoregon.edu. If you have any questions about your rights as a research subject, you may contact Research Compliance Services, University of Oregon at (541) 346-2510 or ResearchCompliance@uoregon.edu.

You may print or save a copy of this form to keep for your records and future reference.

By continuing to the survey, you are certifying that:

- You are 18 years old or older.
- You have read (or have had read to you) the contents of this consent form and have been encouraged to ask questions.
- You have received answers to any of your questions.
- You give your consent to participate in this study.
- You will print or save a copy of this form for your records and future reference if you wish.

[Clicking "Next" constitutes acceptance of informed consent.]

Block 2: Smartphone Pre-Screening

Q2.1 Do you own and regularly use a mobile or cell phone?

- ❍ Yes (1)
- ❍ No (2)

[Display Q2.2 if Q2.1 = 1]

Q2.2 What type of mobile or cell phone do you use most frequently?

- ❍ Smartphone

  A smartphone is a mobile phone that can perform many of the functions of a computer. A smartphone may or may not have a physical keyboard, usually has a large screen, and can run a variety of applications, or "apps." Examples of smartphones include: Apple iPhone, Samsung Galaxy, BlackBerry, Android phones (1)
- ❍ Basic phone or feature phone

  A basic phone, sometimes called a feature phone, usually features a physical keyboard and a camera, and may come with a limited number of pre-installed apps. Usually this type of phone is unable to easily access the Internet. (2)
- ❍ Not sure (3)

  [Disqualify if Q2.2 ≠ 1]

Q2.3 What is the operating system of the smartphone that you use most frequently?

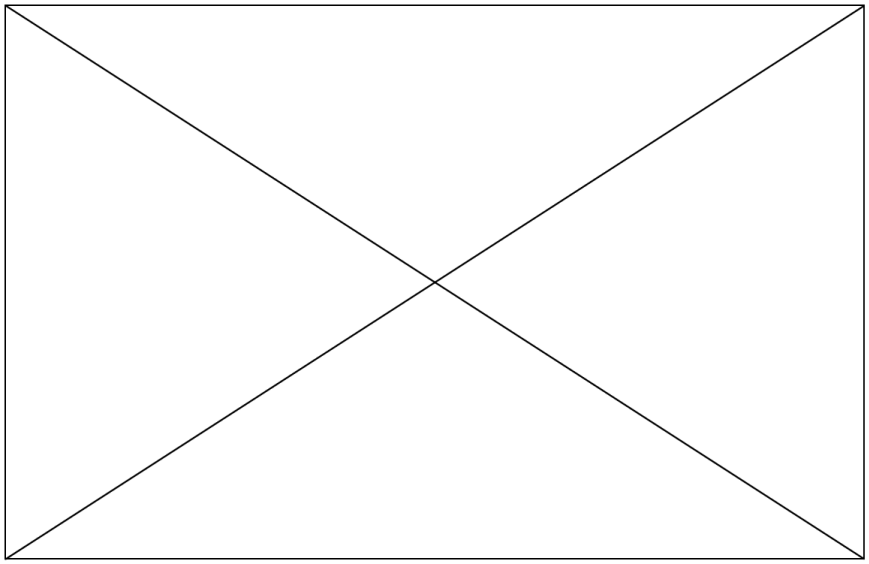
- ❍ Apple iPhone (1)
- ❍ Android (2)
- ❍ Windows Phone (3)
- ❍ BlackBerry (4)
- ❍ Symbian (5)
- ❍ Other (6) _____
- ❍ I don't know (7)

  [Disqualify if Q2.3 = 7]

Block 3: Uses and Gratifications

[Random assignment to one of three conditions for this block matching the public, private and hybrid environments]

Now, we'd like you to think about using your smartphone in a particular setting. Specifically, think about how you use your smartphone in the environment of [environment], perhaps like the one pictured below.



Q3.1 Do you think of this environment as very public, very private, or somewhere in the middle?

For our purposes, a "public" place is one where random socialization can and does happen, while a "private" place is one where interactions are controlled on an individual level.

[Drag-and-drop scale from 1-10]

Q3.2 Think about using your smartphone in this environment and indicate how strongly you agree or disagree with each of the following statements.

At [environment], I use my smartphone...

[Randomize display of all statements]

	Strongly Disagree (27)	Disagree (28)	Neither Agree nor Disagree (29)	Agree (30)	Strongly Agree (31)
...to seek traffic updates (1)	❍	❍	❍	❍	❍
...to keep up to date with social events (2)	❍	❍	❍	❍	❍
...to check news headlines and weather updates (4)	❍	❍	❍	❍	❍
...to find consumer and entertainment information (5)	❍	❍	❍	❍	❍
...because it is a new way to do research (6)	❍	❍	❍	❍	❍
...because it is easier (7)	❍	❍	❍	❍	❍
...to get information for free (8)	❍	❍	❍	❍	❍
...to look for information (9)	❍	❍	❍	❍	❍
...to see what is out there (10)	❍	❍	❍	❍	❍
...to gossip or chat (11)	❍	❍	❍	❍	❍
...to enjoy the pleasure of talking to people (12)	❍	❍	❍	❍	❍
...to improve relations with family (13)	❍	❍	❍	❍	❍
...to feel closer to family members (14)	❍	❍	❍	❍	❍
...to let others know you care for them (15)	❍	❍	❍	❍	❍
...to get a feeling that people care about you (16)	❍	❍	❍	❍	❍
...to say 'hi' to people who care about you (17)	❍	❍	❍	❍	❍
...to help others (18)	❍	❍	❍	❍	❍

...to participate in discussions (19)	❍	❍	❍	❍	❍
...to show others encouragement (20)	❍	❍	❍	❍	❍
...to belong to a group (21)	❍	❍	❍	❍	❍
...because I enjoy answering questions (22)	❍	❍	❍	❍	❍
...to express myself freely (23)	❍	❍	❍	❍	❍
...to give my input (24)	❍	❍	❍	❍	❍
...to get more points of view (25)	❍	❍	❍	❍	❍
...because I wonder what other people said (26)	❍	❍	❍	❍	❍
...to tell others what to do (27)	❍	❍	❍	❍	❍
...to meet new people (28)	❍	❍	❍	❍	❍
...because I want someone to do something for me (29)	❍	❍	❍	❍	❍
...because it passes time when bored (30)	❍	❍	❍	❍	❍
...when I have nothing better to do (31)	❍	❍	❍	❍	❍
...to occupy my time (32)	❍	❍	❍	❍	❍
...to relieve boredom by calling people (33)	❍	❍	❍	❍	❍
...to relax (34)	❍	❍	❍	❍	❍
...to look fashionable (35)	❍	❍	❍	❍	❍
...to look cool (36)	❍	❍	❍	❍	❍
...to look stylish (37)	❍	❍	❍	❍	❍
...to avoid looking old-fashioned (38)	❍	❍	❍	❍	❍
...because it is entertaining (39)	❍	❍	❍	❍	❍

...because I just like to use it (40)	❍	❍	❍	❍	❍
...because it is enjoyable (41)	❍	❍	❍	❍	❍
...to communicate with friends, family (42)	❍	❍	❍	❍	❍
...because it is cheaper (43)	❍	❍	❍	❍	❍
...because it is easier than talking in person (44)	❍	❍	❍	❍	❍
...because people don't have to be there in person (45)	❍	❍	❍	❍	❍
...to provide immediate access to others anywhere, anytime (46)	❍	❍	❍	❍	❍
...to be available to the ill or aged members of the family (47)	❍	❍	❍	❍	❍
...to be always accessible to anyone no matter where you are (51)	❍	❍	❍	❍	❍
...to feel like I have some control over the environment (52)	❍	❍	❍	❍	❍
...to control my personal experience (53)	❍	❍	❍	❍	❍
...to indicate how willing I am to socialize with others (54)	❍	❍	❍	❍	❍
...to have personal experiences, no matter where I am (55)	❍	❍	❍	❍	❍
...to isolate myself from others (56)	❍	❍	❍	❍	❍
...to block out the outside world (57)	❍	❍	❍	❍	❍
...to help me remain anonymous (58)	❍	❍	❍	❍	❍

...to help me have a uniquely individual experience (59)	❍	❍	❍	❍	❍
Select STRONGLY AGREE in this row (60)	❍	❍	❍	❍	❍

Block 4: Self-Monitoring Evaluation

Next, read each of the following statements and indicate whether the statement is true (you believe it describes you) or false (you believe it does not describe you).

[Randomize display of all statements]

Q4.1

	True (1)	False (2)
I find it hard to imitate the behavior of other people. (1)	❍	❍
At parties and social gatherings, I do not attempt to do or say things that others will like. (2)	❍	❍
I can only argue for ideas which I already believe. (3)	❍	❍
I can make impromptu speeches even on topics about which I have almost no information. (4)	❍	❍
I guess I put on a show to impress or entertain others. (5)	❍	❍
I would probably make a good actor. (6)	❍	❍
In a group of people I am rarely the center of attention. (7)	❍	❍
In different situations and with different people, I often act like very different persons. (8)	❍	❍
I am not particularly good at making other people like me. (9)	❍	❍
I'm not always the person I appear to be. (10)	❍	❍
I would not change my opinions (or the way I do things) in order to please someone or win their favor. (11)	❍	❍
I have considered being an entertainer. (12)	❍	❍
I have never been good at games like charades or improvisational acting. (13)	❍	❍
I have trouble changing my behavior to suit different people and different situations. (14)	❍	❍
At a party I let others keep the jokes and stories going. (15)	❍	❍
I feel a bit awkward in company and do not show up quite as well as I should. (16)	❍	❍

I can look anyone in the eye and tell a lie with a straight face (if for a right end). (17)	❍	❍
I may deceive people by being friendly when I really dislike them. (18)	❍	❍
Select FALSE in this row. (19)	❍	❍

Block 5: Demographics

Finally, we'd like to collect some information about you in order to ensure that we survey a wide range of individuals. Remember that all information will remain completely confidential, all questions are optional, and no personally identifiable information will be collected.

[Randomize display of Q5.1-Q5.6]

Q5.1 What year were you born?

_____

Q5.2 What is your gender?
- ❍ Male (1)
- ❍ Female (2)

Q5.3 Please select the state and county in which you currently reside.
[State drop-down] è [County drop-down]

Q5.4 Which racial group do you most closely identify with?
- ❍ White/Caucasian (1)
- ❍ African American (2)
- ❍ Hispanic (3)
- ❍ Asian (4)
- ❍ Native American (5)
- ❍ Pacific Islander (6)
- ❍ Other (7)

Q5.5 Which best describes your marital status?
- ❍ Single, never married (1)
- ❍ Married without children (2)
- ❍ Married with children (3)
- ❍ Divorced (4)
- ❍ Separated (5)
- ❍ Widowed (6)
- ❍ Living w/ partner (7)

Q5.6 What is the highest level of education you have completed?

- ❍ Less than High School (1)
- ❍ High School / GED (2)
- ❍ Some College (3)
- ❍ 2-year College Degree (4)
- ❍ 4-year College Degree (5)
- ❍ Masters Degree (6)
- ❍ Doctoral Degree (7)
- ❍ Professional Degree (JD, MD) (8)

APPENDIX C

SCENARIO PHOTOGRAPHS

Figure 9. Image representing a public park (Feverpitch, n.d.) in the public condition.

Figure 10. Image representing a street fair (Montgomery, 2011) in the public condition.


Figure 11. Image representing a sidewalk (Kranendonk, 2011) in the public condition.

Figure 12. Image representing a restaurant (Rodriguez, n.d.) in the hybrid condition.

Figure 13. Image representing a bar (Wang, 2013) in the hybrid condition.

Figure 14. Image representing a supermarket (Potov, n.d.) in the hybrid condition.

Figure 15. Image representing a bedroom (Burrows, n.d.) in the private condition.

Figure 16. Image representing a hotel room (Perugini, n.d.) in the private condition.

Figure 17. Image representing a living room (nyul, n.d.) in the private condition.

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