

MOBILE PHONE HABITS DURING FACE TO FACE FIRST ENCOUNTERS: AN
INVESTIGATION OF SELF-DISCLOSURE AND NONVERBAL MIMICRY

By

Travis Kadylak

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Information and Media - Doctor of Philosophy

2019

ABSTRACT

Mobile Phone Habits During Face to Face First Encounters: An Investigation of Self-Disclosure and Nonverbal Mimicry

By

Travis Kadylak

Mobile phones are widely adopted around the world. In contemporary society, mobile phone use is acutely integrated into core social and psychological aspects of everyday life, such as verbal and nonverbal interpersonal communication. Though mobile phones offer users many affordances for social connection that can facilitate interpersonal communication and affiliation formation, previous research on phubbing [phone-snubbing] suggests that mobile phone use during face to face (FtF) interactions can breach interpersonal expectations, be perceived as ostracizing, lead to unfavorable interpersonal evaluations, cause conflict within relationships, and impede affiliation formation.

I aimed to advance expectancy violation theory (EVT) by using the axioms of the theory to make predictions involving nonverbal behaviors (e.g., phubbing expectancy violations and mobile phone mimicry), interpersonal judgements, and self-disclosure. Much like self-disclosure, humans evolved to automatically engage in nonverbal mimicry, or synchronous behavioral matching (i.e., automatically or unintentionally touching one's face after their interaction partner engaged in the same behavior), as a means of building affiliation and promoting positive interpersonal judgements. Following this premise, I examined whether mobile phone checking mimicry, or behavioral matching between FtF interaction partners involving how they use their mobile phones, may promote positive interpersonal judgements (e.g., increased perceived liking, trust,

and empathy) that subsequently may be associated with higher levels of self-disclosure.

Phubbing effects research currently maintains that mobile phone use, during FtF interactions, tends to lead to adverse interpersonal outcomes among mobile phone users of all ages. However, I used a 2x1 between subject laboratory experiment with college students (N = 77) to assess whether phubbing, expectancy violations, and mobile phone checking mimicry influenced interpersonal judgements and self-disclosure within the context of a face-to-face get-to-know-you activity. The results suggest that mobile phone checking, perceptions of negative phubbing expectancy violations, and mobile phone checking mimicry, may have limited effects on self-disclosure and interpersonal judgements in a get-to-know-you activity. Specifically, phubbing was inversely associated with self-disclosure; however, mobile phone checking mimicry was positively associated with self-disclosure. Though the external validity of the findings may be limited due to the student sample, this study advances expectancy violation theory by demonstrating the potential prosocial and antisocial effects of mobile phone use during FtF interactions. Additional study limitations, theoretical and practical implications, and directions for future research are discussed.

ACKNOWLEDGEMENTS

This dissertation would not have been possible without support from the Information & Media PhD program, my committee members Dr(s) Anastasia Kononova, Robby Ratan, and Rick Wash, and most importantly my mentor/Dissertation Chairperson Dr. Shelia Cotten whose guidance and encouragement has been fundamental to my academic, professional, and personal development. In addition, the support from my close friends and family was crucial for my successful completion of this project and the Information & Media PhD program. Finally, I had the privilege of working along side many talented graduate students that helped me improve my research skills and enrich my time at MSU. I look forward to our continued collaboration and friendship.

TABLE OF CONTENT

LIST OF TABLES.....	vii
LIST OF FIGURES.....	viii
CHAPTER 1: INTRODUCTION.....	1
CHAPTER 2: BACKGROUND LITERATURE AND THEORY.....	9
Chapter Overview.....	9
Mobile Communication Habits.....	9
Phubbing: A Brief Conceptual Explication.....	16
Expectancy Violation Theory and Phubbing.....	21
Research on Phubbing Effects.....	28
Phubbing and Perceived Communication Quality.....	32
Phubbing and Self-Disclosure.....	34
Mobile Phone Mimicry during FtF Interactions.....	39
Significance of The Present Study.....	42
Hypotheses.....	44
CHAPTER 3: METHODS.....	46
Sample.....	46
Study Procedure.....	48
Measures.....	53
Analytical Procedures.....	59
CHAPTER 4: RESULTS.....	60
Descriptive Results.....	60
Regression Results for Perceived Phubbing EV (H1a supported).....	61
Regression Results for Perceived Liking (H1b partially supported).....	62
Regression Results for Perceived Trust and Empathy.....	64
Regression Results for Self Disclosure (H1c partially supported).....	67
Indirect Effect Between Mobile Checking and Liking (H2 partially supported).....	70
Mobile Phone Checking Mimicry Results.....	71
CHAPTER 5: DISCUSSION.....	74
Chapter 5 Overview.....	74
Summary of Results.....	74
Discussion of Results.....	75
Contributions to EVT Theory.....	78
Practical Implications.....	80
Study Limitations.....	82
CHAPTER 6: CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS.....	85

APPENDICES	90
Appendix A: Confederate Instructions.....	91
Appendix B: Measures.....	93
REFERENCES	95

LIST OF TABLES

Table 1 Descriptive Statistics for Dependent, Independent, and Control Variables.....	60
Table 2 Regression Results for Perceived Phubbing EV as Dependent Variable.....	62
Table 3 Regression Results for Perceived Liking as Dependent Variable.....	63
Table 4 Regression Results for Perceived Trust and Empathy as Dependent Variables.....	65
Table 5 Regression Results for Self Disclosure Behavioral Measure as Dependent Variable.....	67
Table 6 Regression Results for the Self-Reported Self Disclosure Measures as Dependent Variable.....	70

LIST OF FIGURES

Figure 1 Phubbing Habits & Technoference.....	16
Figure 2 Full Conceptual Model for Determinants of Interpersonal Evaluations.....	43
Figure 3 Full Conceptual Model for Determinants of Self-Disclosure.....	44
Figure 4 Python Randomization Procedure.....	47
Figure 5 Statistical Power.....	48
Figure 6 Sensitivity Analysis.....	48
Figure 7 Experimental Design.....	51
Figure 8 Between Condition Difference in Self-Disclosure.....	69
Figure 9 Mediation Analysis.....	72
Figure 10 Phone Mimicry and Behavioral Measure of Self-Disclosure.....	74
Figure 11 Phone Mimicry and Self-Reported Measure of Self-Disclosure.....	74

CHAPTER 1: INTRODUCTION

In today's digital age, people are more connected to others and have more opportunities for affiliation than ever before in recorded history (Chayko, 2007, 2017); yet, ostracism is still a common social experience (Nezlek, Wesselmann, Wheeler & Williams, 2015; Wesselmann & Williams, 2017; Williams, 2007). The same technologies that provide affordances for social connection and affiliation, also afford avenues that may lead to the experience of social rejection and ostracism online (Williams & Jarvis, 2006; Wolf, Levordashka, Ruff, Kraaijeveld, Lueckmann & Williams, 2015) and offline (e.g., David & Roberts, 2017; Gergen, 2002; Hales, Dvir, Wesselmann, Kruger & Finkenauer, 2018; Turkle, 2017). As a social species, human beings inherently seek to fulfil their need for affiliation and belonging, which is achieved through nonverbal and verbal interpersonal communication (Argyle & Dean, 1965; Burgoon, 1978; Leary & Baumeister, 2017; Leary & Cox, 2008). People also actively strive to avoid affiliative threats, such as experiencing ostracism (i.e., feeling ignored or socially rejected from a group) (Balcetis, 2016; Williams, 2007, 2009). The experience of ostracism can be distressing and physically uncomfortable due to the neurological overlap between the brain circuitry that is responsible for physical pain and social pain (Eisenberger & Lieberman, 2004). As William James (1890) famously wrote,

If no one turned around when we entered, answered when we spoke, or minded what we did, but if every person we met 'cut us dead,' and acted as if we were non-existing things, a kind of rage and impotent despair would ere long well up in us, from which the cruelest bodily tortures would be a relief; for these would make us feel that however bad might be our plight, we had not sunk to such a

depth as to be unworthy of attention at all (p. 293–294).

Since James' time, philosophers, psychologists, sociologists, and communication scholars have studied both the causes and effects of ostracism. For at least the past three decades, researchers have studied how using information and communication technologies (ICTs) can facilitate affiliation formation and bonding as well as have adverse effects on relationships and well-being (i.e., technoferece). Mobile phones, for example, are the most widely adopted ICT around the world (Poushter, Bishop & Chwe, 2018). They have become deeply embedded into the social and psychological configuration of contemporary daily life (Bayer, Campbell & Ling, 2016; Hampton, 2016; Ling, 2012).

A substantial body of mobile communication research, or research on untethered mobile ICT use for mediated communication purposes (Campbell, 2013), demonstrates the affiliative and connecting affordances of mobile communication (e.g., Vanden Abeele, De Wolf & Ling, 2018; Bayer, Campbell & Ling, 2016; Campbell, 2013; Castells, Fernandez-Ardevol, Qiu & Sey, 2009; Katz, Katz & Aakhus, 2002; Ling, 2004, 2008). Mobile phone use can allow people to develop and maintain close relational bonds with others (e.g., Katz, 2011; Licoppe & Smoreda, 2005; Pettigrew, 2009; Campbell & Ling, 2017), enhance a sense of connected presence across vast distances (Cui, 2016; Licoppe, 2004), promote computer mediated self-disclosure (Desjarlais & Joseph, 2017), micro-coordinate daily activities (Ling & Yttr, 2002; Vanden Abeele, Schouten & Antheunis, 2017), and create shared experiences through augmented reality (Hjorth & Richardson, 2017).

The anytime and anyplace affordances for social connectivity, that are made possible by mobile phone use, have also led to an array of evolving, and at times conflicting, social norms (Gergen, 2002; Hall, Baym & Miltner, 2014; Kelly, Miller-Ott & Duran, 2017; Ling, 2005; Ling & McEwen, 2010; Srivastava, 2005). Most people in contemporary society have developed some degree of internalized connectedness (Burchell, 2015; Bayer, Campbell & Ling, 2016), whereby the internalized social norms of being accessible and responsive to one's social network necessitate the development of mobile communication habits, or *connection* habits (Bayer, Campbell & Ling, 2016; LaRose, Connolly, Lee, Li, & Hales, 2014). Competing social norms for being attentive to one's FtF interaction partner and to be response to one's social network through mobile communication can come into conflict with each other when mobile communication habits are enacted and subsequently perceived as inappropriate by one's FtF communication partner.

Mobile communication habits allow one to efficiently manage social expectations for being accessible to remote others and manage one's limited cognitive resources (Bayer, Campbell & Ling, 2016; LaRose et al. 2014; LaRose, 2015). Mobile communication, or connection, habits are mobile communication behaviors, such as text messaging or checking one's mobile phone, that involve limited conscious awareness, attention, or deliberation (Bayer, Dal Cin, Campbell & Panek, 2016) – for instance, the behavior can occur with cognitive automaticity or automatic mental processes (Bargh, 1994; Bargh & Ferguson, 2000).

Mobile media and communication habits, such as automatic mobile phone-checking behaviors, are widely pervasive throughout contemporary society (Bayer,

Campbell & Ling, 2016; Bayer, Dal Cin, Campbell & Panek, 2016; LaRose, 2015). For example, on average, adults age 18-24 check their mobile phone around 80 times per day (Deloitte, 2016) – which could likely be an underestimate given that self-reported frequencies of media habit behaviors are notoriously unreliable because of the potential for one to enact the behavior without conscious deliberation or without realizing one engaged in the behavior (Ellis, Davidson, Shaw & Geyer, in press; LaRose, 2015). In addition, about 85-89% of mobile phone users also engage with their mobile phone during recent FtF interactions (Rainie & Zickuhr, 2015; Richter, 2018).

During FtF dyadic interactions, people are expected to appear at least moderately attentive and psychologically present (Burgoon, 2015). When excessive mobile phone use during FtF interactions is viewed as inappropriate, the behavior is a negative expectancy violation (Miller-Ott & Kelly, 2015). Though people can intentionally engage in phubbing as an avoidance behavior, mobile phone-checking, which is perhaps the most prominent behavior perceived as phubbing, involves a high degree of cognitive automaticity. People do not typically actively, and intentionally, try to negatively breach interpersonal expectations or make others feel ignored/socially rejected by engaging in excessive mobile phone use during FtF interactions. Instead, phubbing behaviors usually occur with limited cognitive deliberation (Bayer, Campbell & Ling, 2016; LaRose, 2015).

Although phubbing can occur as an intention driven behavior (e.g., averting one's attention to check their mobile phone can occur as a goal-driven avoidance strategy), mobile checking and mobile messaging (sending/receiving messages) behaviors typically occur with a high degree of cognitive automaticity (Bayer, Dal Cin, Campbell &

Panek, 2016; LaRose, 2010, 2015). As such, the potential effects of inappropriate mobile phone use behaviors (i.e., one's communication partner feels ignored/rejected during a FtF interaction because of excessive mobile phone use) are thought to occur as unintended consequences of non-deliberative/unintentional (habitual) mobile media behaviors (LaRose, 2015).

The widespread embeddedness of mobile communication habits can engender competing norms and expectations during face-to-face (FtF) interactions (Campbell, 2008; Kelly, Miller-Ott & Duran, 2017; Ling & McEwen, 2010). People must balance their expectations to be available and responsive to remote others and also to attend to one's physically co-present communication partners, without breaching implicit expectations for nonverbal behaviors that signal attention (e.g., gaze or body language). For example, excessive mobile phone use during FtF interactions, or phubbing [phone-snubbing] (Bianchi & Phillips, 2005; Roberts & David, 2016), can breach expectations for undivided attention during FtF encounters, such as first dates (Miller-Ott & Kelly, 2015).

Mobile communication and phubbing effects research has consistently documented the potential ostracizing (Hales, Dvir, Wesselmann, Kruger & Finkenauer, 2018) and adverse effects that phubbing expectancy violations (e.g., mobile phone usage behaviors that are perceived as breaching normative demands to appear attentive and adhere to expected etiquette during FtF interactions) can have on impression formation during first encounters (Vanden Abeele et al., 2016), romantic relationships (Roberts & David, 2016), and subjective well-being (e.g., Halpern & Katz, 2017; Roberts & David, 2016). Fewer studies explicitly investigate how phubbing affects

the act of interpersonal communication or actual verbal and nonverbal communication processes.

One key aspect of interpersonal communication that is paramount for developing close relational bonds is self-disclosure, defined as communicating information about oneself to other people (e.g., Cozby, 1973, Tardy & Smithson, 2018; Utz, 2015). Self-disclosure works as a social adhesive that promotes bonding by reducing uncertainty and enhancing trust. Systematic literature reviews and empirical studies consistently demonstrate that self-disclosure helps individuals cultivate affiliation and intimacy within all types of interpersonal relationships (Collins & Miller, 1994; Laurenceau, Barrett & Pietromonaco, 1998; Wenzel, Sprecher & Harvey, 2018). In large part, self-disclosure processes have been overlooked within the phubbing literature. Given that self-disclosure works as a social glue that acts as a building block for interpersonal relationships, it is important to understand whether the widely pervasive behavior of phubbing hinders self-disclosure processes.

Significance of the Study

I use arguments from the disclosure decision model (DDM) (Omarzu, 2000) and social penetration theory (Altman & Taylor, 1973) to make a priori predictions about how phubbing may influence self-disclosure processes. In addition, phubbing expectancy violations may be especially salient if phubbing transgressions (i.e., the enactment of phubbing behavior) occur during potentially face-threatening situations, such as conversations that involve self-disclosure (Przybylski & Weinstein, 2013). Therefore, in this study I investigate phubbing effects during meaningful dyadic first encounters, where *meaningful* refers to conversations in which people disclose a subjectively

meaningful event that has occurred in their life during the past year. This type of conversation has been shown to be an appropriate get-to-know-you-activity during first encounters (Aron, Melinat, Aron, Vallone & Bator, 1997) and it has also been successfully applied to the mobile communication domain (e.g., Przybylski & Weinstein, 2013).

This study may help explain phubbing effects because phubbing expectancy violations have been shown to be ostracizing (David & Roberts, 2017; Hales, Dvir, Wesselmann, Kruger & Finkenauer, 2018), which ultimately could be detrimental to interpersonal communication processes. Furthermore, I synthesize social psychology literature on nonverbal behavioral mimicry, which demonstrates that nonverbal mimicry is an evolved and cognitively automatic behavior (Chartrand & Bargh, 1999) that also builds affiliation and increases favorable interpersonal evaluations, during FtF interactions (Lakin & Chartrand, 2003). I examine nonverbal mobile phone mimicry (i.e., imitating a FtF communication partner's mobile phone-checking behaviors) through the lens of Bayer, Campbell and Ling's (2016) socio-cognitive model of connection cues, connection norms, connection habits, as well as other mobile communication habit studies (e.g., Bayer, Dal Cin, Campbell & Panek, 2016; LaRose et al., 2014; LaRose, 2015).

The present study attempts to contribute novel insights into how phubbing, a pervasive and common mobile communication behavior (Chotpitayasunondh & Douglas, 2016, 2018), may influence verbal (e.g., self-disclosure) and nonverbal (e.g., mobile phone-checking mimicry) interpersonal communication processes that have historically facilitated the satisfaction of one's need for affiliation. Phubbing can occur

intentionally (e.g., as an avoidance behavior) but also as a habit – involving little to no conscious awareness. Mobile phone-checking behaviors are one of the most common mobile communication behaviors and also one of the most cognitively automatic types of mobile communication (Bayer, Campbell and Ling, 2016; Bayer, Dal Cin, Campbell & Panek, 2016; Deloitte, 2016). As such, this study aims to advance interpersonal communication theory and potentially observe unintended consequences of mobile communication habits (i.e., mobile phone-checking behaviors) that breach interpersonal expectations. This study also attempts to contribute to the literature by investigating both verbal and nonverbal interpersonal behaviors during phubbing interactions, which may yield a unique understanding of how mobile communication habits (e.g., automatic mobile phone-checking) influence verbal and nonverbal interpersonal communication during FtF dyadic interactions.

CHAPTER 2: BACKGROUND LITERATURE AND THEORY

Chapter Overview

In this chapter, I synthesize previous research on mobile communication habits and interpersonal communication during FtF interactions. The chapter begins by discussing relevant background literature on mobile communication habits. I maintain that phubbing is a type of mobile communication habit that breaches interpersonal expectations for attention and behavioral etiquette. Consistent with previous mobile communication research (e.g., Kelly, Miller-Ott & Duran, 2017; Miller-Ott & Kelly, 2015, 2017; Vanden Abeele, Antheunis & Schouten, 2016; Vanden Abeele & Postma-Nilsenova, 2018), I extend expectancy violation theory (Burgoon & Hale, 1988) to develop predictions about novel phubbing effects on interpersonal communication processes – with a specific focus on self-disclosure and nonverbal behavioral mimicry.

Mobile Communication Habits

Habit, defined as a type of cognitive automaticity, is a fundamental aspect of daily life and it is made possible because the brain has evolved to use cognitive resources efficiently to translate sensory input into one's perceived reality (Bargh, 1994; Verplanken & Orbell, 2003). The brain naturally and continuously processes sensory input to detect neural network patterns, which serve as the biological foundations that allow automatic mental processes to develop (Eagleman, 2015). Mobile communication habits are mobile communication behaviors (e.g., texting, checking Twitter, Facebook, or Instagram feeds, etc.) that involve limited attention or cognitive resources (Bayer, Campbell & Ling, 2016; LaRose, 2015). Though these mobile communication behaviors do not necessarily involve limited attention or resources for all who do the behaviors,

mobile communication behaviors likely take place with some degree of cognitive automaticity if the behavior is enacted routinely (LaRose, 2015).

Mobile communication behaviors that one does without thinking or deliberation, without having to consciously remember that they enacted the behavior, or that one starts doing before they even realize they are engaging in the actual mobile communication behavior are considered mobile communication habits (LaRose, 2015; Verplanken & Orbell, 2003). In general, habits develop out of repeated behaviors in stable environments, which over time, allow for the development of mental representations that become triggered into action by environmental cues (i.e., cognitive automaticity) (Bargh, 1994). This notion of habit predates the 19th century in classic psychological studies, such as Bryan and Harter (1899). From neurological and socio-cognitive perspectives, mobile communication habits are not thought to differ much from any other type of habit (LaRose, 2015).

Mobile communication habits, much like all habits, develop because the human brain has finite (or limited) cognitive resources (LaRose, 2015). When people frequently engage in routine mobile communication behaviors in stable conditions, future enactment of the behavior can start to be triggered into action by various types of cues (e.g., environmental cues). This process is made possible by the creation and maintenance of synapses (i.e., the links between neurons) in the brain.

However, media habits in general and mobile media communication habits specifically (e.g., phubbing and mobile phone-checking behaviors) are distinct from other types of habits in at least one key way – the cues that trigger the automatic mental processes that guide media habits are not confined by time nor space, as opposed to

non-media habits, such as the automatic mental processes involved with cooking or bathing habits (Bayer, Campbell & Ling, 2016; LaRose, 2010, 2015; LaRose et al. 2014). Traditional habits are confined to the stable environments which trigger the behavior into action, while interactive media devices, such as mobile phones, can be considered stable environments that trigger the automated cognition that can drive media use (LaRose, 2015).

This conceptualization of mobile communication habits is complimentary to LaRose's (2015) explication of interactive media habits. Mobile communication habits are a type of interactive media habit (i.e. checking the weather by using an application on one's mobile phone). Media habits typically develop out of routines – however, not all routines are necessarily habits. For example, one might routinely make a phone call home to a friend or relative (e.g., perhaps a grandparent) every couple of weeks. But, the routine may not involve a high degree of cognitive automaticity – in other words, the behavior involves conscious deliberation.

While on the other hand, routine mobile media behaviors, such as checking one's Instagram feed many times throughout the day, might involve far fewer cognitive resources (more cognitive automaticity). In addition, mobile communication habits may develop stronger synapses that are deeply ingrained in the brain's hardware relative to non-social habits, because human beings are an inherently social species and, as such, experience visceral pleasure from the release of oxytocin and dopamine that results from the satisfaction of affiliative needs (Lakin & Chartrand, 2003; Leary & Baumeister, 2017).

Consistent with this conceptualization of the neurological foundation of cognitive automaticity and social habits, Bayer, Campbell and Ling (2016) proposed a socio-cognitive model of *connection cues, connection norms, and connection habits*, which explicates the social and cognitive mechanisms that explain when and where people enact mobile communication or, *connection*, habits. Specifically, they focused on mobile phone-checking behaviors because of the prevalence of the behavior in contemporary society and the limited attention required to perform the behavior. The approach is premised on the concept of *internalized connectedness* (e.g., Burchell, 2015; Bayer, Campbell and Ling, 2016; Ling & McEwan, 2010), which maintains that given the widespread adoption (Poushter, Bishop & Chwe, 2018) and pervasive social embeddedness of mobile phones (Ling, 2012), individuals in contemporary society commonly internalize the social norm of being accessible to others.

People can adhere to the normative expectation of being accessible to others by being responsive to mobile messages and by checking their mobile phone throughout the day to avoid breaching interpersonal expectations to be responsive (Burchell, 2015; Gray, 2018; Ling, 2012). Bayer, Campbell and Ling (2016) refer to the social norm and responsibility to be accessible and responsive to others by using mobile communication as a type of *connection norm*, which through the process of becoming internalized leads one to develop cognitive schema, or mental shortcuts, that can guide mobile phone-checking behaviors. As connection norms become more internalized, the associated behaviors (e.g., cue – response link for connection habits) likely become more hardwired into one’s brain (LaRose et al., 2014; LaRose, 2015).

Through the cognitive processes of priming and spreading activation, schema

work to make connection norms salient or accessible to the individual (LaRose, 2015). As connection norms become more cognitively accessible, they are more likely to influence behavior – specifically, by guiding one’s attention to connection cues which trigger mobile communication or, connection, habits (Bayer, Campbell and Ling, 2016). According to Bayer, Campbell and Ling (2016), connection norms can affect connection habits (e.g., automatic mobile phone-checking behaviors) via two distinct cognitive routes – direct activation and by spreading activation through selective attention processes.

Along the direct activation route, the key prime that makes the connection norm salient is a temporal cue (i.e., the longer that one goes without checking their mobile phone) the more likely they will be to breach their normative responsibility to be accessible and responsive. Therefore, as the time lapse between one’s last checking behavior increases, so does the likelihood that one will attend to a connection cue and automatically check their mobile phone. Along the indirect socio-cognitive pathway that can facilitate the enactment of connection habits, or automatic checking behaviors, Bayer, Campbell and Ling (2016) identify three main types of cues that can trigger automatic checking behaviors.

Connection cues, as defined by Bayer, Campbell and Ling (2016), consist of technical, mental, and spatial cues. Technical cues include notification features of mobile phones, such as alert sounds, vibrations, and various types of message and alert notifications that can appear on one’s mobile phone screen. In addition, technical cues are thought to be the most prominent cue for connection habits because notification and attention-grabbing cues are built into the design of mobile phones, but

also because multiple technical cues can trigger an array of associated connection habits.

Mental cues consist of mood-states, motivations, and thoughts that prime a connection norm that can aid in guiding a connection habit into action. Spatial cues are aspects of one's proximal environment that include physical objects, places, and other people. For example, the mere sight of another person using their device can trigger a multitude of mobile media and connection habits by observers (e.g., David & Roberts, 2017; Katz, 2006; Finkel & Kruger, 2012). Much like technical cues, spatial cues, such as observing a nearby person using their mobile phone, can trigger connection habits in an exponential manner (i.e., mobile checking has been shown to beget mobile checking by proximal others).

As connection norms become more cognitively salient, which occurs as a function of time-lapse between checking behaviors, in conjunction with one's idiosyncratic social network expectations, and environmental factors, the individual becomes primed to selectively attend to connection cues (i.e., technical, spatial, or mental) that trigger connection habits (i.e., mobile phone-checking behaviors) (Bayer, Campbell and Ling, 2016). Mobile phone-checking behaviors, as opposed to other aspects of mobile messaging behavior such as message sending behaviors, require less attention and involve more cognitive automaticity; checking behaviors are more likely to be initiated out of habit (Bayer, Dal Cin, Campbell & Panek, 2016).

Mobile communication behaviors can occur with varying degrees of cognitive automaticity (Bayer, Dal Cin, Campbell & Panek, 2016; LaRose, 2015). As such, phubbing can occur both because of connection habits (cognitive automaticity) and

deliberative behavioral processes that have varying intentions (i.e., turning towards one's mobile phone as an intentional avoidance behavior in a crowded elevator). Taken together, Bayer, Campbell and Ling's (2016) model focused on automatic mobile phone-checking behaviors provides both social and cognitive mechanisms that explain a range of behaviors that may be classified as mobile phone-checking, such as phubbing as well as nonverbal and automatic mobile phone mimicry behaviors (i.e., mobile checking imitations).

In subsequent sections I discuss how phubbing can have unintended and adverse impacts on interpersonal communication. Though most mobile phone users report that they attempt to limit their mobile phone use during FtF interactions, their attempts to do so are often unsuccessful (Richter, 2018). Many people are always connected through their mobile phones and engage in mobile phone-checking frequently throughout the day, which allows for untold possible phubbing scenarios. Given that today's digital society is anticipated to continue to become more digitally/virtually connected through mobile technologies, it is important to consider how common and pervasive mobile communication habits, such as phubbing, potentially influence interpersonal communication processes, such as self-disclosure, that are imperative for affiliation formation.

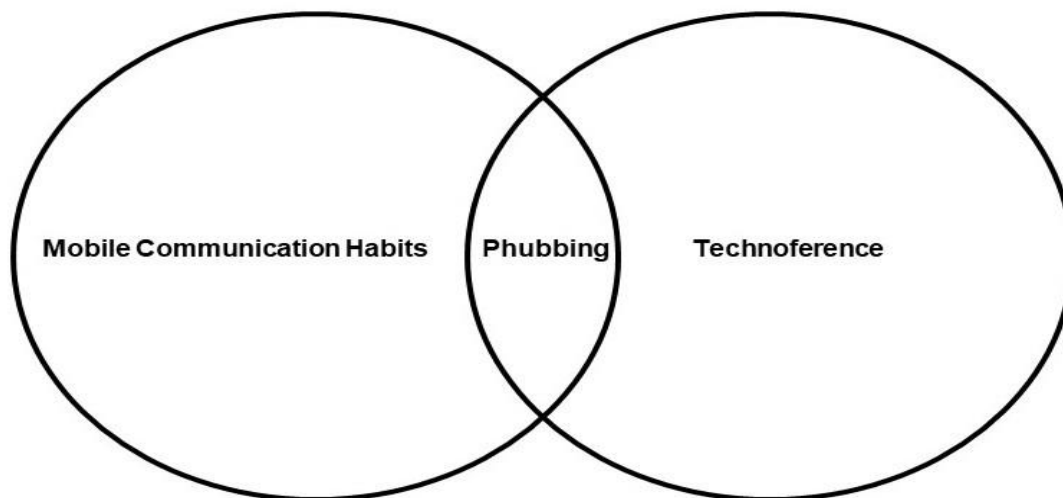
In the next section, I briefly explicate the concept of phubbing by synthesizing how the concept has been defined in previous literature. Subsequently, I conceptualize phubbing as mobile phone use during FtF interactions that breaches implicit social expectations and etiquette. From this perspective, phubbing can occur as a result of automatic checking behaviors, or as a result of intention driven behavior, that violates

behavioral expectations during a given FtF interaction. However, I suspect that most phubbing behaviors involve at least some degree of cognitive automaticity. As such I conceptualize phubbing as both a mobile communication habit and a type of technoference (defined below) (McDaniel & Coyne, 2016).

Phubbing: A Brief Conceptual Explication

Common phubbing behaviors, such as automatic mobile phone-checking behaviors (Bayer, Dal Cin, Campbell & Panek, 2016), can occur out of habit. In addition, phubbing is inherently a type of technoference, defined as the interference of technology use on central aspects of everyday life (e.g., interpersonal communication and relationships) (McDaniel & Coyne, 2016). Therefore, before reviewing previous definitions of phubbing, I first maintain that phubbing is both a type of mobile communication habit and also a specific form of technoference (Figure 1).

Figure 1 Phubbing Habits & Technoference



Conceptual ambiguity, or inconsistent definitions for a concept, can be detrimental to theory building and the advancement of knowledge within a given field (Dance, 1970). Unfortunately, conceptual ambiguity is present in the phubbing literature.

Definitions of phubbing differ along several conceptual fault lines. One of the key issues in the phubbing literature is that some researchers have defined phubbing very broadly. Other definitions of phubbing encompass all mobile phone behaviors that occur around physically present others, or in specific relational contexts. For example, a recent and novel study by Vanden Abeele and Postma-Nilsenova (2018) defined phubbing as “the practice of using one’s phone during FtF social interaction” (p. 304). This conceptualization of phubbing is flawed because it is too encompassing, and it describes behaviors that are not phubbing. For instance, this definition does not exclude mobile phone use during FtF interactions for shared purposes – such as using one’s mobile phone to help a physically co-present friend navigate driving directions or take a photo together, which should not be considered phubbing because these mobile phone use behaviors do not involve snubbing, ignoring, or expectancy violations related to desired attention.

Another recent definition of phubbing offered by Krasnova, Abramova, Notter and Baumann (2016) defined phubbing as, “excessive use of smartphones in the romantic contexts” (p. 1), which is also a potentially imprecise definition for several reasons. First, the use of “excessive” is nebulous and requires additional clarification, which is not provided. Also, the term “romantic contexts” is ambiguous because this definition could describe both FtF and CMC interactions (e.g., excessive text messaging behavior directed at one’s romantic partner). In addition, Krasnova et al.’s (2016) definition of phubbing could also include actions that are not “snubbing” behaviors, such as excessively showing one’s romantic partner photographs on their mobile phone, which could be an expectancy violation by being too excessive in a sense but still not qualify

as snubbing or ignoring behaviors.

Others provide slightly more precise definitions, while still leaving room for (mis)interpretations. For example, a rigorous longitudinal study by Halpern and Katz (2017) defined partner phubbing (Pphubbing) as “A partner is Pphubbed when the significant other decides to attend the cellphone instead of communicating with him/her” (p.387). This definition specifies that the act of phubbing involves deliberative cognitive functions, which is inconsistent with the notion that mobile checking behaviors can consist of both deliberative and automatic cognitions (Bayer, Campbell & Ling, 2016; Bayer, Dal Cin, Campbell & Panek, 2016). As such, the definition does not allow phubbing to be categorized as a type of mobile communication habit.

Moreover, Karadag et al. (2015) defined phubbing as “an individual looking at his or her mobile phone during a conversation with other individuals, dealing with the mobile phone and escaping from interpersonal communication” (p. 60). Though this definition highlights the potential for phubbing to disrupt interpersonal communication, the first portion [clause of the sentence] of the definition leaves open the possibility that merely looking at one’s mobile phone during an interaction is considered phubbing (i.e., the definition does not specify that phubbing is inherently a perceived expectancy violation). For instance, this definition does not exclude mobile checking behaviors that are enacted to search online for conversation relevant information. If partner A checks her phone to look up information about a restaurant that partner B is planning to visit, partner A may withdraw momentarily from verbal communication; however, because partner B knows partner A is looking up conversationally relevant information, they may not perceive Partner A’s verbal withdrawal as conveying a lack of attention or breaching

expected etiquette. Therefore, the behavior would not be considered a snubbing behavior.

The definition offered by Karadag et al. (2015) also implies that phubbing is an intentional act of “escaping from interpersonal communication.” However, phubbing behaviors such as mobile phone-checking can occur with limited awareness and devoid of intention (e.g., Bayer, Dal Cin, Campbell & Panek, 2016). Therefore, this definition is too narrow in scope to include mobile media habits (automatic cognitive processes), which likely drive most mobile media behaviors (Bayer, Campbell & Ling, 2016; LaRose, 2015), including phubbing.

Another conceptual issue found in the phubbing literature is that some researchers have overtly labeled phubbing behaviors as a type of pathological disorder. For example, in an article titled “The Virtual World’s Current Addiction: Phubbing,” Karadag et al. (2016) defined phubbing as “using a smartphone instead of actively participating in an on-going discussion being had by one’s surrounding peers” (p. 250). In addition, the authors proposed conclusions that stressed the inherent addictive properties of mobile phones and warn that mobile phone addiction could cause “*serious psychopathological*” issues throughout the Turkish population. This conceptualization of phubbing is limited.

Karadag et al.’s (2016) definition is devoid of any consideration of behavioral self-control, which is a key psychological component of media addiction (LaRose, 2015). Therefore, if someone uses their mobile phone frequently, while they are physically around their peers, it does not necessarily indicate that one is addicted to using their mobile phone. As an alternative approach, for example, Bayer, Campbell,

and Ling's (2015) notions of connection cues, connection norms, and connection habits provide socio-cognitive explanations for mobile checking behaviors. In doing so, their approach avoids making alarmist claims about widespread mobile pathology and instead outlines socio-cognitive mechanisms that help explain *when* and *why* people engage in mobile phone-checking behaviors.

Other definitions include the portmanteau [phone-snubbing] in their definition of phubbing – which could be a step towards conceptual clarity; however, this conceptualization might be too broad because it is unclear as to whether the “snubbing” is perceived by the sender, the receiver, or both. For example, definitions that include the portmanteau may leave open the question as to whether one is referring to phubbing as a goal directed avoidant communication strategy or whether snubbing is *perceived* to occur by the phubbee.

An individual can be phubbed (receiver) even if the phubber (sender) is not intending on making the other communication partner feel snubbed during the interaction. Because the theoretical approaches used to study phubbing tend to examine how people perceive others' behaviors, such as politeness theory and expectancy violation theory, the literature could benefit from a refined conceptualization of phubbing that emphasizes the interactional nature of phubbing behaviors. More precisely, if the phubbee does not *perceive* the behavior as rude or conveying a lack of attention (an expectancy violation), then the communication partner that is using their mobile phone is not snubbing the other – they are merely using their mobile phone (regardless of their intent).

Studies by Chotpitayasunondh and Douglas (2016) as well as Vanden Abeele et

al. (2016) offer definitions of phubbing which define the behavior as the act of snubbing another person during a FtF interaction by focusing one's attention to their mobile phone instead of towards the other. This conceptualization of phubbing requires fewer assumptions than some of the others discussed above. In addition, this conceptualization is consistent with the notion that *phubbing is a negative expectancy violation*. If mobile phone-checking behaviors are not perceived as an expectancy violation (i.e., as inappropriate), then the behavior is likely innocuous and should not be labeled, or referred to, as phubbing. More specifically, the phubbing expectancy violation must be perceived by the non-phubber (i.e., the person being phubbed).

Expectancy Violation Theory and Phubbing

Consistent with previous mobile communication research (e.g., Kelly, Miller-Ott & Duran, 2017; Miller-Ott & Kelly, 2015, 2017; Vanden Abeele, Antheunis & Schouten, 2016; Vanden Abeele & Postma-Nilsenova, 2018), I will use expectancy violation theory (EVT) (Burgoon & Hale, 1988) to investigate novel phubbing effects. Phubbing is an appropriate phenomenon to be studied with EVT because phubbing is a type of expectancy violation. If one feels snubbed or ignored by their interaction partner's mobile phone use, then social norms, or anticipated behavioral etiquette, were breached, which constitutes an expectancy violation. By conceptualizing phubbing as an expectancy violation, EVT can be used to explain why phubbing influences interpersonal communication and relationships.

Background on EVT

All human interactions inherently involve some degree of implicit and/or explicit behavioral expectations (i.e., anticipated verbal or nonverbal behaviors) (Burgoon,

1993, 2015). Humans have evolved to strive to make predictions about the behavior of others as a survival mechanism (e.g., Eagleman, 2015). Expectancy violation theory (EVT) (Burgoon & Hale, 1988) was originally developed to explain how unexpected nonverbal behaviors influence interpersonal communication and relationships (Burgoon & Hale, 1988; Burgoon, 2015). The primary concepts involved in EVT include expectancy violations, arousals, and the rewardingness (i.e., social status or attractiveness) of the communication partners (White, 2008). The theory posits that when expectancy violations (e.g., not adhering to an implicit social norm or breaching idiosyncratic interpersonal expectancies) are perceived to occur, such expectancy violations can give rise to positively or negatively valenced arousals (Burgoon, 1993, 2015).

Expectancy violations occur when anticipated or endorsed (i.e., what one perceives as appropriate) behaviors are not met, which is a judgement that is dependent upon the context of the interaction, the relationship between the communication partners, and indicators of how rewarding or socially attractive the communication partners are perceived to be (e.g., status and physical attraction) (Burgoon, Guerrero & Floyd, 2016). Due to humans' evolved need for affiliation with rewarding others, more rewarding communication partners are less likely to be perceived to enact negative expectancy violations (White, 2008). In addition, expectancy violations that are perceived as a welcomed surprise (positive expectancy violations) lead to positive arousals, while disappointing expectancy violations (negative expectancy violations) lead to negatively valenced arousals (White, 2008).

Expectancy violations can lead to both positive and negative interpersonal

evaluations and relationship outcomes – which can also work as a function of uncertainty (Afifi & Burgoon, 2000). More specifically, negative expectancy violations can lead to uncertainty that can diminish interpersonal judgements and affinity (White, 2008). Expectancy violations are more likely to give rise to uncertainty when the behavior is incongruent with previous behavior with a specific communication partner (Burgoon, 2015). For instance, if one’s coworker is usually friendly and outgoing and then suddenly becomes more distant and less friendly. This behavioral change may lead to a negatively valenced incongruent expectancy violation. The example consists of an incongruent expectancy violation because the coworker’s behavior departed from their expected course of action (i.e., friendly to unfriendly), which could give rise to uncertainty and potentially lead to unfavorable interpersonal evaluations (Berger, 1993). Conversely, if one’s coworker is normally distant and unfriendly but then suddenly starts to become friendlier and more outgoing – this could be classified as an incongruent, but positively valenced, expectancy violation.

By increasing the amount of information communicated between the coworkers, and due to the positive valence of the behavior, they may experience lower levels of uncertainty and more favorable interpersonal evaluations (i.e., increased liking), which can cultivate affiliation and change the way they interact with one another in the future (White, 2008). However, congruent expectancy violations are less arousing and tend to lead to less severe violations (i.e., if one’s unfriendly coworker acts slightly more distant and unfriendly than normal) his behavior may create a less severe arousal compared to when a friendly coworker breaches one’s expectations by being unfriendly (i.e., a negative expectancy violation).

Moderately negative expectancy violations (e.g., decreases in expected affection) can lead to more severely negative interpersonal judgements of the transgressor in comparison to moderately positive expectancy violations (e.g., increases in expected affection), which can lead to positive interpersonal judgements (e.g., increased liking) (Floyd & Voloudakis, 2006). However, positive expectancy violations tend to be less arousing and have a smaller overall effect than negative expectancy violations. In general, though, negative nonverbal expectancy violations usually result in negatively valenced arousals and less favorably interpersonal outcomes (e.g., less perceived affinity) (Burgoon, Guerrero & Floyd, 2016).

Research repeatedly demonstrates that the environmental and situational context of a given interaction, the relationships between the communication partners, and characteristics of the communicators (e.g., status, attractiveness, and liking) all work in conjunction to determine whether a given behavior elicits an arousal and is perceived and evaluated as an expectancy violation (Burgoon, 1993, 2015). Similarly, more likable and rewarding transgressors are evaluated less harshly by the person judging the transgressor in comparison to those that are less likable and rewarding (Burgoon, 2015) – which can be manipulated by subtle nonverbal behaviors, such as smiling (LaGrance & Hecht, 1995). For the past two decades, mobile communication researchers have investigated nonverbal expectancy violations, during FtF and computer mediated interactions.

Mobile communication research has documented distinct types of mobile communication norms and expectancy violations (e.g., Forgays, Hyman & Schreiber, 2014; Katz, Katz & Aakhus, 2002; Lacohee, Wakeford & Pearson, 2003; Ling, 1998,

2012; Ling & McEwen, 2010; Lipscomb, Totten, Cook & Lesch, 2007; Miller-Ott, Kelly & Duran, 2012; Miller-Ott & Kelly, 2015, 2017; Vanden Abeele & Postma-Nilsenova, 2018). Phubbing expectancy violations are thought to arise from the rivaling normative expectancies that people have to be responsive and appear at least moderately attentive during FtF interactions (Burgoon, 2015), but also to be responsive to their social network through the use of their mobile phone (Ling, 2012; Miller-Ott, Kelly & Duran, 2012; Miller-Ott & Kelly, 2015). As a result of these competing norms, negative mobile communication expectancy violations often involve a lack of responsiveness (Ling, 2012; Sbarra, Briskin & Slatcher, in press).

Much like all other expectancy violations, phubbing expectancy violations are contingent on social and environmental contexts, relationship contexts, and characteristics of the communication partners. Consistent with other studies in this domain (e.g., Rainie & Zickuhr, 2015), people have different mobile etiquette expectations for themselves and their relationship partners depending upon the intimacy of the social setting (i.e., private vs. public locations) (Hall, Baym and Miltner, 2014). For example, in public settings compared to private/intimate settings, breaches to mobile etiquette injunctive norms may be perceived as less severe of an expectancy violation and less likely to influence interpersonal evaluations.

College students in romantic relationships report that they expect their partner to convey higher levels of attention by not excessively using their mobile phone during intimate settings, such as when they are on a date, and relatively lower levels of attention during less intimate settings, such as when they are relaxing and watching television (Miller-Ott & Kelly, 2015). In addition, partners in less established

relationships tend to view direct communication about phubbing behaviors as potentially face-threatening and inappropriate (Miller-Ott et al., 2012). However, participants in more established romantic relationships, relative to partners on a first date, have been shown to be more likely to use direct communication strategies to set idiosyncratic rules about excessive mobile phone use during intimate FtF interactions with each other and to directly address phubbing expectancy violations.

Even within the same social context, not all phubbing behaviors are equally arousing (Vanden Abeele et al., 2016). For example, proactive phubbing behaviors (i.e., engaging with one's mobile phone without being prompted by a technical cue or message alert) is a more severe expectancy violation in comparison to responsive phubbing (i.e., checking one's mobile phone in response to a message or technical prompt, such as vibration or an alert sound). Vanden Abeele et al. (2016) explained this discovery by maintaining that because others understand that people have a normative responsibility to be responsive via their mobile phone, responsive phubbing is less face-threatening and ostracizing than proactive phubbing.

Previous research on phubbing expectancy violations also demonstrates that norms about mobile phone use during FtF interactions can differ between age-cohorts (e.g., Rainie & Zickuhr, 2015) and between different cultures (e.g., normative differences in Japan and the United States) (Campbell, 2007; Ito, Okabe & Matsuda, 2005). For example, older adults (aged 65 and above) tend to be less likely to engage in phubbing and they also tend to hold less permissive views about mobile phone use during FtF interactions compared to younger adults (e.g., Kadylak et al., 2018; Rainie & Zickuhr, 2015; SawChuk & Crow, 2012). As such, older adults may view phubbing as a

more severe expectancy violation relative to younger adults. While, on the other hand, phubbing may be a relatively less severe expectancy violation among homogeneous samples of young adults (Hall, Baym & Miltner, 2014).

Together, the research focused on phubbing effects suggests that expectancy violation theory plays a key role in both defining and describing phubbing expectancy violations. EVT provides a framework to explain *why* phubbing may affect interpersonal evaluations (e.g., perceived liking and trust), communication processes (e.g., self-disclosure), and ultimately affiliation and relationship formation. However, the bulk of the research has focused on interpersonal and relationship outcomes, while limited attention has been given to important verbal and nonverbal interpersonal communication processes that enhance affiliation, such as self-disclosure and nonverbal behavioral mimicry. This research provides insights into the mechanisms of EVT, thereby extending the theory. I aim to extend EVT by investigating a novel communication outcome (actual self-disclosure) in the phubbing context and by investigating a novel mechanism (nonverbal mobile phone-checking mimicry) that may mitigate phubbing effects. The following section further discusses relevant phubbing effects research and considers the findings within an expectancy violation framework.

Research on Phubbing Effects

Though not directly relevant to this study, a sizable body of research has investigated the negative impacts that phubbing can have on interpersonal relationships among marital partners (Roberts & David, 2016) and coupled adults (Halpern & Katz, 2017). More specific to the present study, phubbing can take away from interpersonal interactions and potentially disrupt interpersonal communication processes, among

young adults (Misra et al, 2016). In this section, research is classified by specific types of phubbing effects that occur during FtF interpersonal interactions among young adults. Research consistently shows that phubbing decreases perceived communication quality and interpersonal judgements (e.g., perceived liking and trust). In the subsections that follow, I synthesize the relevant phubbing literature and discuss directions for future research, which I then propose to test in this study.

When people are phubbed, they are more likely to have their perceptions of the phubber biased in a negative manner, because phubbing is a negative interpersonal expectancy violation (e.g., Vanden Abeele et al., 2016). Phubbing involves nonverbal immediacy behaviors that can breach interpersonal expectations (e.g., averting one's eye-contact/attention away from the communication partner and towards one's mobile phone instead) (Vanden Abeele & Postma-Nilsenova, 2018). Communication partners that engage in phubbing are perceived as less attentive and less polite compared to non-phubbers (Kelly, Miller-Ott & Duran, 2017; Vanden Abeele et al., 2016). However, not all phubbing behaviors have equivalent effects.

Responsive phubbing (e.g., checking one's mobile phone in response to a text message alert) can have less severe effects on interpersonal and conversational judgements in comparison to proactive phubbing (e.g., checking one's mobile phone without being noticeably prompted) (Vanden Abeele et al., 2016). Proactive phubbing is a more severe expectancy violation compared to responsive phubbing because other people understand that interaction partners have a normative responsibility to be responsive to their social network through mobile communication, which highlights the value of expectancy violation theory in phubbing research.

Proactive phubbing does not actually need to be an intention driven, proactive behavior – though at times it could be. Proactive phubbing may appear to be unsolicited and therefore potentially a more severe expectancy violation than reactive phubbing. However, a proactive phubber can unknowingly use automatic mental processes which guide them to enact the mobile phone-checking behavior (Bayer, Dal Cin, Campbell & Panek, 2016) that could be perceived as phubbing. For example, Bayer, Campbell and Ling (2016) maintained that spatial connection cues (e.g., perceiving that a nearby customer in a restaurant is checking their phone) can activate mobile communication norms (e.g., one’s own responsibility to be responsive to their social network) and ultimately trigger a connection habit (e.g., automatic mobile phone-checking – which could be perceived as an expectancy violation, and therefore categorized as proactive phubbing).

Though phubbing effects are contingent on the type of phubbing behavior enacted (e.g., proactive vs. reactive), a considerable body of literature shows that phubbing effects are also contingent upon conversational contexts (e.g., Misra et al, 2016; Przybylski & Weinstein, 2013). For example, research repeatedly shows support for the *mere presence hypotheses* (i.e., that the mere physical presence of a mobile phone between people in a FtF dyadic interaction can disrupt affiliation formation processes, such as decreased perceived trust and empathy) (Dwyer, Kushlev & Dunn, 2018; Misra et al., 2016; Przybylski & Weinstein, 2013). However, the effects of the mere presence of a mobile phone (not even actual phubbing behaviors) have been shown to be moderated by the intimacy of the given conversation (i.e., casual conversational topic about plastic holiday decorations vs. a meaningful conversation

involving self-disclosure) (Misra et al., 2016; Przybylski & Weinstein, 2013).

Mobile phone use during casual FtF conversations is less likely to be deemed an expectancy violation and subsequently hinder interpersonal evaluations (e.g., lower perceived trust and empathy), compared to mobile phone use during more intimate FtF conversations (e.g., interactions that involve self-disclosure) (Przybylski & Weinstein, 2013). Therefore, it follows that severe phubbing behaviors (e.g., excessive proactive phubbing) during intimate FtF conversations (e.g., interactions that consist of self-disclosure) can be expected to lead to more negative effects than less severe phubbing expectancy violations.

In line with Bayer, Campbell, and Ling's (2016) socio-cognitive approach to mobile communication habits, one explanation for the evidence found in support of the "mere presence" hypothesis is that interactive media devices, such as a mobile phone, can work as the stable environmental conditions, or cues, that make relevant norms and attitudes more assessable. As a result, the relevant norms and attitudes related to social connection and responsiveness can promote the likelihood that a connection cue will trigger a connection habit into action. Therefore, in past studies participants may have reported less favorably interpersonal evaluations, as well as lower levels of conversational quality, whilst in the presence of a mobile phone because their connection norm (e.g., expectation to be responsive to one's social network through mobile communication) and connection habit (e.g., checking behavior to view potential messages/alerts) was primed. However, because they did not have their own mobile phone with them to enact their mobile phone-checking habit, they could have become distracted by the primed attitudes/norms.

This type of dynamic could be an unusual experience relative to the rest of emergent adults daily FtF interactions. For instance, some young people report symptoms of separation anxiety when they do not have their mobile phone (Cheever, Rosen, Carrier & Chavez, 2014). Participants in 'mere presence' studies could be distracted by perceiving a mobile phone in the room because they are reminded that they themselves are without their own mobile phone and that they are unable to be responsive to their social ties.

Though the mere presence of a mobile phone can be disruptive to FtF interactions and diminish interpersonal evaluations, research consistently shows that phubbing expectancy violations (i.e., engaging in excessive mobile phone-checking or messaging behaviors) have more adverse impacts on interpersonal evaluations than the mere presence effects (Vanden Abeele et al., 2016). More specifically, phubbing expectancy violations signal inattention and a lack of interest in the given communication partner. However, aside from highlighting that phubbing negatively affects interpersonal judgements, research also shows that phubbing decreases perceived communication quality.

In the next section, I synthesize findings on the relationship between phubbing and perceived communication quality. Subsequently, a series of hypotheses about the relationship between phubbing with verbal and nonverbal aspects of interpersonal communication.

Phubbing and Perceived Communication Quality

Much like phubbing research that focuses on interpersonal judgements, research on perceived communication quality and other conversational indicators, such as

conversational enjoyment and flow (Dwyer, Kushlev & Dunn, 2018), are oriented towards studying FtF interactions instead of investigating long-term phubbing effects (e.g., such as relationship satisfaction or relational conflict) (Roberts & David, 2016). In addition, the conversational context (e.g., intimate vs. casual) of an interaction moderates phubbing effects on interpersonal communication indicators, such as perceived communication quality (Przybylski & Weinstein, 2013).

Research, typically in experimental settings, consistently has shown that phubbing can curtail perceived communication quality and closeness (Misra, Cheng, Genevie & Yuan, 2016; Przybylski & Weinstein, 2013; Vanden Abeele, et al. 2016) as well as undermine affiliative needs, such as a sense of belonging by engendering ostracism (Chotpitayasunondh & Douglas, 2018; Hales, Dvir, Wesselmann, Kruger & Finkenauer, 2018), among FtF dyadic communication partners. Aside from investigating judgements about interpersonal communication during FtF interactions, in which phubbing occurs, research has fallen short in terms of generating knowledge about how phubbing impacts actual interpersonal communication processes. Previous 'mere presence' research repeatedly has shown that potential technoferece effects (e.g., being distracted by the mere sight of a mobile phone) are more severe during meaningful conversations involving self-disclosure compared to conversations about plastic holiday decorations (e.g., Przybylski & Weinstein, 2013; Misra, Cheng, Genevie & Yuan, 2016). Mobile communication research has yet to investigate whether phubbing influences self-disclosure processes.

This study expands work in this area by examining nonverbal and verbal aspects of interpersonal communication during FtF dyadic interactions – with a specific focus on

self-disclosure. One of the most important aspects of interpersonal communication, which has evolved to be a fundamental building block that allows humans to satisfy their evolved need for affiliation and cultivate bonding, is self-disclosure (Sbarra, Briskin & Slatcher, in press; Sprecher & Treger, 2015).

Though disclosing information about one's self is one of the most common forms of interpersonal communication needed to cultivate relationships (e.g., Collins & Miller, 1994), this aspect of interpersonal communication has yet to be thoroughly examined as an outcome in phubbing research. Specifically, I seek to answer the question: do people self-disclose less while their interaction partner engages in phubbing compared to FtF interactions in which mobile phones are not physically present? By investigating this question, this study goes beyond assessing perceptions of conversational quality and instead investigate whether phubbing influences the verbal and nonverbal interpersonal communication responses enacted by the communication partner that is not engaging in the phubbing behavior.

Previous mobile communication research has recommended that because phubbing hinders interpersonal evaluations (e.g., trust, liking, etc), which are prerequisites for self-disclosure to occur during interpersonal interactions, future phubbing effects research must examine whether phubbing influences actual self-disclosure processes (Sbarra, Briskin & Slatcher, in press; Vanden Abeele et al., 2016). As such, this study builds from previous phubbing effects research to investigate the relationship between phubbing and self-disclosure. Because research shows that phubbing undermines existing relationships and potentially even subjective well-being, among many types of samples and relationship partners (Dwyer, Kushlev & Dunn,

2018; Roberts & David, 2016; Wang, Xie, Wang, Wang & Lei, 2017), studying the relationship between phubbing and self-disclosure could help to explain previous research that has focused on potential long-term effects of phubbing as well (i.e., on relationship satisfaction, conflict, and dissolution).

Phubbing and Self-Disclosure

Self-disclosure is defined as disclosing information about one's self (e.g., thoughts, feelings, emotions, past experiences, future aspirations) with another person (Cozby, 1973; Laurenceau, Barrett & Pietromonaco, 1998). Self-disclosure brings people together, helps satisfy fundamental affiliation needs, and initiate rapport during FtF first encounters (Laurenceau, Barrett & Pietromonaco, 1998; Sprecher & Treger, 2015), which needs to occur reciprocally (i.e., both interactions partners utilize similar breadth and depth of self-disclosure) to maintain balance in the interaction (Berg, 1987; Sprecher, Treger, Wondra, Hilaire & Wallpe, 2013).

There are two different types of reciprocal self-disclosure behaviors, extended reciprocity, which occurs over long periods of time over the course of a relationship, and reciprocal turn-taking, which occurs during a given interaction (Sprecher et al., 2013). Some findings suggest that over long periods of time self-disclosure within relationships tends to approach an equilibrium through extended reciprocity processes (Greene, Derlega & Mathews, 2006), while turn-taking self-disclosure reciprocity (within a given interaction) is thought to be more volatile relative to extended or relational reciprocity (i.e., the balance of self-disclosure between partners in a relationship over time) (Wenzel, Sprecher & Harvey, 2018).

Social penetration theory (SPT) (Altman & Taylor, 1973) is used to explain self-

disclosure in first encounters and throughout relationship development. Consistent with much of the previous research on self-disclosure, SPT maintains that relationships develop, in large part, as a function of self-disclosure processes. Self-disclosure promotes bonding and increases the intimacy of a given relationship (Carpenter & Greene, 2016). From this perspective, affiliation formation and relationship development are thought to occur along a continuum of intimacy. The more that communication partners disclose information about themselves, in a reciprocal manner, the more intimate and close the relationship can become (Carpenter & Greene, 2016; Collins & Miller, 1994). In addition, as relationships develop, the *depth* of self-disclosure tends to increase (i.e., people disclose more personal and revealing information about themselves, while during early relationship stages and first encounters people tend first discuss a wider breadth of self-disclosure).

In this study, I plan to investigate depth of disclosure during FtF dyadic first encounters because depth of disclosure enhances intimacy more than a wide breadth of disclosure about an array of topics. If phubbing disrupts depth of disclosure, it would provide evidence for a novel avenue by which phubbing can negatively affect the development of interpersonal relationships.

The disclosure decision model (DDM), which is complimentary to SPT, proposes that people strategically assess whether disclosing information about oneself is advantageous or risky (Omarzu, 2000). According to the DDM, depth of disclosure is more likely than breadth of disclosure to be hindered by perceptions of subjective risk – for instance, one’s expectation that their disclosure will be met with social rejection or ostracism. Self-disclosure is most common in close intimate relationships because

revealing personal information about oneself is most likely to occur when one can anticipate how the receiver will respond and when the receiver is perceived as trustworthy and caring. However, reciprocal disclosure is especially important during initial encounters because it is the most common way to promote the intimacy of the relationship. Self-disclosure reduces uncertainty and promotes affiliative bonds that helps satisfy one's innate need for social connection and belonging (Reis, Maniaci, Caprariello, Eastwick & Finkel, 2011).

Humans are most likely to self-disclose to other people that they have favorable interpersonal evaluations of during FtF first encounters (e.g., people that they like, trust, and perceive as caring), because people are more likely to self-disclose to other people they expect to respond favorably (Greene, Derlega & Mathews, 2006; Sprecher et al., 2013). In addition, if a potential disclosure target is perceived to display availability signals that may indicate one's attempt to self-disclose will be met by rejection (e.g., nonverbal cues that convey a lack of attention, such as averting one's gaze), then the likelihood that one will self-disclose declines (Omarzu, 2000). Nonverbal immediacy cues (e.g., facial expressions, eye contact/gaze, body language, and proximity, etc.) can influence disclosure processes during first encounters. Though phubbing research indicates that phubbing can disrupt nonverbal immediacy cues that hinder interpersonal evaluations, research has yet to examine if phubbing influences depth of self-disclosure, which could likely influence affiliation formation and relationship maintenance processes.

Phubbing behaviors involve nonverbal immediacy cues (e.g., averting one's gaze, that can signal expectancy violations) (Vanden Abeele & Postma-Nilsenova,

2018), which can directly undermine perceptions of interpersonal trust, empathy, and liking (e.g., Vanden Abeele et al., 2016). In addition, researchers have insisted the need to examine how phubbing affects specific communication processes (i.e., self-disclosure) (e.g., Przybylski & Weinstein, 2013; Sbarra, Briskin & Slatcher, in press; Vanden Abeele et al., 2016). As such, I not only aim to test Vanden Abeele et al.'s (2016) prediction, I also propose to incorporate previous phubbing effects findings with arguments formalized in the DDM to test potential explanatory mechanisms between phubbing expectancy violations and self-disclosure.

Phubbing has been shown to be a negative expectancy violation that can be perceived as ostracizing (e.g., David & Roberts, 2017; Hales, Dvir, Wesselmann, Kruger & Finkenauer, 2018). Because normative expectancy violations and perceived indicators of social rejection impede self-disclosure (e.g., Burgoon, 1993; Omarzu, 2000), I expect that phubbing will negatively affect self-disclosure.

Mediating role of Interpersonal Evaluations - Perceived Trust, Empathy, and Liking

In support of SPT and the DDM, research shows that people self-disclose more to others that they like, trust, and perceive as empathetic. Phubbers (the person using their mobile phone) are more likely to be perceived as less trustworthy and less empathetic (Vanden Abeele et al., 2016; Przybylski & Weinstein, 2013; Roberts et al., 2017).

Because the previous literature clearly shows that phubbing expectancy violations can be ostracizing for the person being phubbed, it is plausible to consider that phubbing expectancy violations impede other fundamental interpersonal communication processes. One area that has received limited phubbing research

attention, but that is also affected by nonverbal behavior cues relevant to the phubbing context (e.g., averting one's gaze), is nonverbal behavioral mimicry. Nonverbal behavioral mimicry is an evolved and automatic process that promotes affiliative bonds and influences interpersonal evaluations (e.g., liking) (Duffy & Chartrand, 2015). This study contributes to the literature by assessing self-disclosure as a potentially salient outcome in the phubbing context, but also by assessing the interrelations between nonverbal (e.g., mimicry) and verbal (self-disclosure) aspects of interpersonal communication, during FtF interactions, which could have implications for affiliation formation and human bonding.

Mobile Phone Mimicry during FtF Interactions

In line with EVT's focus on nonverbal behaviors (Burgoon, 1993, 2015), Chartrand & Bargh's (1999) notion of the *chameleon effect* maintains that during FtF interactions people unconsciously mirror the nonverbal behaviors (e.g., body language, proximity, facial expressions, etc.) of their interaction partner and automatically coordinate their body movements (Bernieri, 1998). Research has consistently shown that when an individual observes a behavior being enacted by an interaction partner they are more likely to also engage in the same behavior (Bargh et al. 1996; Chartrand & Bargh, 1999). Behavioral matching is an evolved and pervasive aspect of everyday FtF communication (Duffy & Chartrand, 2015). More precisely, during FtF interactions, people tend to engage in nondeliberative imitation of, and coordination with, their interaction partners' gestures (e.g., Bernieri, 1988; Chartrand & Bargh, 1999; Chartrand & Lakin, 2013).

Research indicates that during dyadic interactions, when confederates scratch

their nose frequently, in response their interaction partners also scratch their nose more times throughout the interaction - compared to participants in baseline experimental conditions (e.g., Chartrand & Bargh, 1999). In addition, studies have observed a similar pattern for other nonverbal gestures, such as foot shaking, which is especially pronounced with socially rewarding or attractive (e.g., high status) communication partners (e.g., Chartrand & Bargh, 1999; Duffy & Chartrand, 2015; Lakin & Chartrand, 2003).

Premised in part on prior findings, I maintain that mobile phone-checking behaviors are likely to be mimicked by FtF interaction partners. In addition, Bayer, Campbell and Ling (2016) explicated a theoretical model focused on connection cues, norms, and habits that incorporates socio-cognitive mechanisms, which can be applied to mobile checking mimicry, during FtF interactions. Theoretically, observing one's interaction partner check their mobile phone during a FtF interaction can work as a connection cue (specifically, a spatial cue). Connection cues make one's own connection norms more salient (e.g., one's responsibility to be accessible and responsive to their social network through the affordances of mobile communication), which can subsequently make one more likely to automatically engage in one's own mobile communication habits (i.e., checking one's mobile phone for messages).

In this context, I refer to *mobile phone-checking mimicry*, instead of phubbing, because if both communication partners are engaging in the same behavior, then one may be less likely to deem the other's mobile checking behavior as inappropriate (i.e., a phubbing expectancy violation). I define *mobile checking mimicking* as behavioral matching of nonverbal mobile phone use during FtF interactions, while *mobile*

mimicking synchronicity can be described as the amount of time between mobile mimicking reciprocation. For example, mobile *mimicking synchronicity* is the timespan between when communication Partner A checks their phone until Partner B responsively checks their mobile phone. If the behavioral matching occurs within 5 seconds of the initial behavior, then the nonverbal behavioral matching is considered mimicry (Chartrand & Lakin, 2013).

The nondeliberative mimicry of gestures is an evolutionary process that has both survival and social functions – primarily, to build affiliations and ultimately cultivate human bonding (Lakin & Chartrand, 2003; Hove & Risen, 2009) – which is consistent with the finding that mimicking is positively associated with interpersonal evaluations (e.g., liking), during FtF interactions (e.g., Chartrand & Bargh, 1999; Duffy & Chartrand, 2015). For example, a series of studies by Hove and Risen (2009) showed that during FtF dyadic interactions, behavioral mimicking in real-time (synchronicity) had positive effects on affiliation and building rapport.

Mimicry consistently increases affiliation and rapport, which can subsequently increase empathy, interpersonal evaluations (e.g., liking), prosocial behaviors, and social attraction (Duffy & Chartrand, 2015). In addition, recent findings have shown that imitation during FtF dyadic interactions increases oxytocin levels (Spengler et al., 2017), which is a hormone that is widely accepted as a biological factor that promotes relational bonding and affiliation (Feldman, Weller, Zagoory-Sharon & Levine, 2007).

Because axioms of social penetration theory and the disclosure decision model suggest that people strategically disclose more information about one's self to those that one has a stronger affiliative bond with and that one likes more (Duffy & Chartrand,

2015), I also expect that higher levels of mobile checking mimicry will be positively associated with higher levels of self-disclosure – a relationship that I anticipate will be mediated by higher levels of liking (i.e., positive interpersonal evaluations). Research consistently shows that mimicry enhances interpersonal evaluations and that people self-disclose more to others they like, trust, and perceive as empathetic (Collins & Miller, 1994; Duffy & Chartrand, 2015).

Although previous mobile communication research has investigated different types of mobile communication synchrony and mimicry (i.e., mimicry in response times/synchrony of text-messages) (e.g., Ling, 2012; Gray, 2018) and CMC research, more generally, has shown that lexical mimicry (e.g., mimicking an interaction partners diction) can cultivate trust in conjunction with affiliation and rapport (e.g., Scissors, Gill & Gergle, 2008), research has yet to examine mobile checking mimicry within a phubbing context. However, as discussed above, the notion of mobile checking mimicry is consistent with Bayer, Campbell and Ling's (2016) socio-cognitive approach to mobile communication habits as well as the existing research on nonverbal mimicry (e.g., Duffy & Chartrand, 2015).

In this study, I argue that the socio-cognitive mechanisms of mobile communication checking behaviors as well as evolved automatic mimicking processes will work in a complementary manner to facilitate automatic mobile phone-checking mimicry. As such, mobile phone mimicking behavior may counterintuitively be a unique avenue by which mobile checking behaviors, during FtF interactions, help to bring people together by increasing interpersonal evaluations (e.g., liking) and self-disclosure, which have been shown to enhance affiliation and the intimacy of relationships.

Significance of The Present Study

First encounters have been studied by previous phubbing effects researchers (e.g., Vanden Abeele et al., 2016; Przybylski & Weinstein, 2013). By examining first encounters I will be able to investigate impression formation without having their past relationship experience influence interpersonal evaluations or self-disclosure, which is likely to occur in more established relationships. In addition, first encounters are particularly useful when studying phubbing because it allows one to avoid interfering with idiosyncratic interpersonal dynamics that could confound the findings and alert study participants as to the purpose of the study. For example, when manipulating phubbing behaviors – if participants have a past history with one another to draw from, it may become obvious that the behaviors that are being manipulated are out of the ordinary and highlight what the researchers are attempting to test, which could influence outcomes being examined.

In established relationships, people tend to use direct communication strategies to address phubbing expectancy violations, compared to less established relationships (Miller Ott and Kelly, 2015). Direct communication strategies (i.e., directly asking one's interaction partner "who keeps texting you?" or "why do you keep looking at your phone?") could put a participant in a precarious position by forcing them to either explicitly deceive their friend/relationship partner or, instead, inform their partner that they were instructed to use their mobile phone during the interaction (i.e., a phubbing induction) – all of which could hinder the naturalness of the study. In addition, according to the social penetration theory, societal norms play a more salient role in shaping self-disclosure processes during first encounters and earlier relationship stages compared to

established relationships, which is another benefit of studying phubbing expectancy violations during FtF first encounters in an experimental setting.

Imprudent, or inappropriate, mobile phone use during formal first encounters, such as a first date, is typically viewed as an expectancy violation (i.e., viewed as phubbing) because people tend to have higher expectations for undivided attention during first encounters (Miller-Ott & Kelly, 2015). Therefore, this study takes place within a first encounter setting in which same-sex participants will discuss meaningful subject matter, as opposed to a completely casual conversational topic. This study assesses mobile phone checking behaviors, perceived phubbing, expectancy violations, interpersonal judgements, and self-disclosure among previously unacquainted college students. The study hypotheses are recapped in the conceptual models below (Figures 2-3).

Figure 2 Full Conceptual Model for Determinants of Interpersonal Evaluations

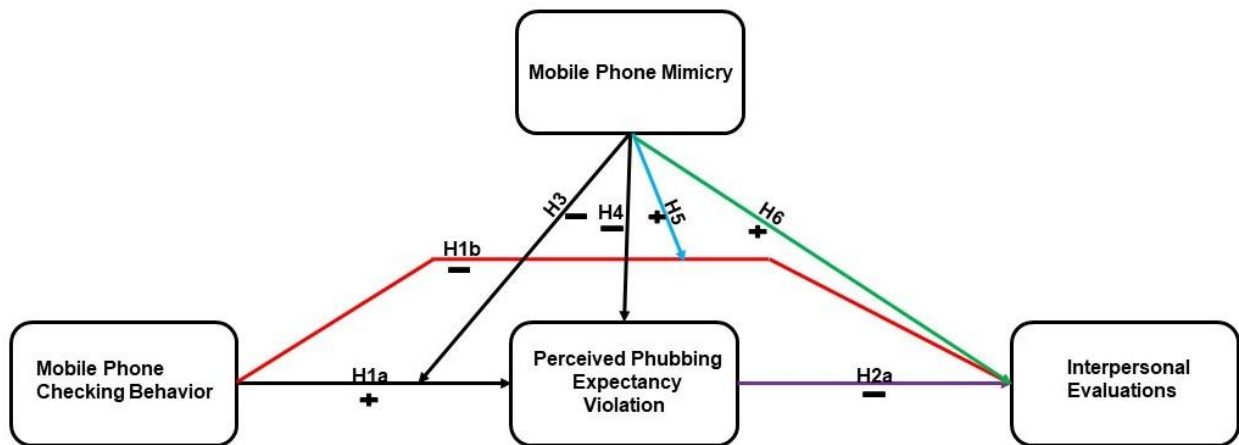
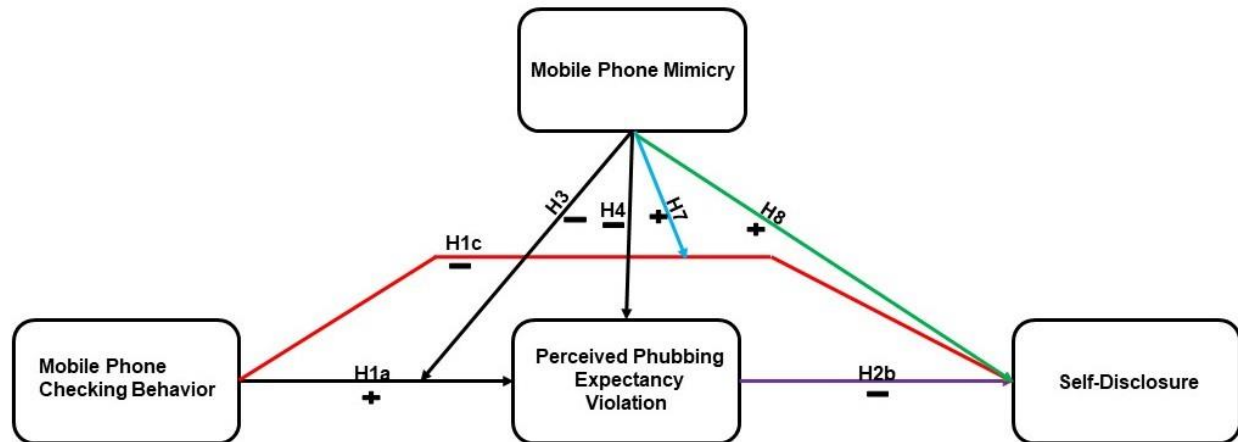


Figure 3 Full Conceptual Model for Determinants of Self-Disclosure



Hypotheses:

H1a. On average, participants in the phubbing condition will report higher levels of perceived phubbing expectancy violations than those in the true control condition.

H1b. On average, participants in the phubbing condition will report lower levels of interpersonal evaluations than those in the true control condition.

H1c. On average, participants in the phubbing condition will report lower levels of self-disclosure than those in the true control condition.

H2. Perceived phubbing expectancy violations will mediate the relationship between study conditions and interpersonal evaluations (H2a) as well as with self-disclosure (H2b)

H3. Mobile phone mimicry will moderate the association between study conditions and perceived phubbing expectancy violation.

H4. Mobile phone mimicry will be inversely associated with perceived phubbing expectancy violations (within both conditions).

H5. Mobile phone mimicry will moderate the association between study conditions and interpersonal evaluations.

H6. Mobile phone mimicry will be positively associated with interpersonal evaluations (within both conditions)

H7. Mobile phone mimicry will moderate the association between study conditions and self-disclosure.

H8. Mobile phone mimicry will be positively associated with self-disclosure (within both conditions)

CHAPTER 3: METHODS

Sample

Participants were recruited through the SONA Student Pool, an online research platform at a large Midwestern university in the U.S. SONA allows university researchers to recruit students and community members to participate in studies that have been approved by the Institutional Review Board (IRB). The study participants were undergraduate students from a large Midwestern university (aged 18-25). All study sessions occurred in a lab space in the Communication building at the university. Inclusion criteria also required participants to own a mobile phone (all participants had a smartphone). Participants were compensated 1.0 SONA credit for their participation. Sixty one percent of the sample was female (39% male). Dyads consisted of same-sex strangers to avoid potential confounding effects outlined in previous sections – specifically, to help rule out the potential confounding impacts that physical and sexual attraction can have on self-disclosure and nonverbal behavioral mimicry (Collins & Miller, 1994; Dindia & Allen, 1992; Duffy & Chartrand, 2015). In order to ensure participants were assigned a same-sex interaction partner, I created separate SONA recruitment pages for males and females that were otherwise identical.

Dyads were randomly assigned to one of two study conditions (phubbing condition (PC) vs. control condition (CC)). Dyads were randomized into conditions using a simple Python program that I created (Figure 4):

Figure 4 Python Randomization Procedure

```
1 import random
2 # even numbers = control, odd = phubbing
3 for i in range(1):
4     condition = random.randint(1000, 9999)
5     print (condition)
6     if condition % 2 == 0:
7         print ("control condition")
8     else:
9         print ("phubbing condition")
10
```

Prior to each interaction, participants confirmed that they had not previously met their interaction partner. Participants were told that if they happened to accidentally or randomly sign-up for a timeslot with someone that they were previously acquainted with, they were compensated but excluded from the study (which occurred once). Because I randomized the dyads into one of two study conditions, there was an equal chance that any dyads that successfully hid their past relationship experience ended up in either condition – though no dyads raised such suspicions. As such, I do not think participant dishonesty skewed results.

A preliminary power analysis was computed using the statistical software program G*Power Version 3.0 (Faul, Erdfelder, Lang & Buchner, 2007). Based on previous research (e.g., Misra et al., 2016), I expected to observe between condition T-test results with small to medium effect sizes (i.e., Cohen's $d = 0.2$ to 0.6) with 90% confidence and an alpha error probability of 0.05. The power analysis indicated that a total sample size of 88 participants (Critical $t = 1.66$, $Df = 86$) was required in order to reach the desired statistical power. Though 18 people that signed up for the study did not show up for their study timeslot, data were collected from 180 participants in 90 total interactions. With data cleaning (-10) ($n = 41$ treatment, control = 39, $n = 80$) and then missing cases (-3), 77 total participants were included in the analyses. The total N per

group was: 38 treatment, 39 control. Figures 5 and 6 show the sensitivity and power analyses.

Figure 5 Statistical Power

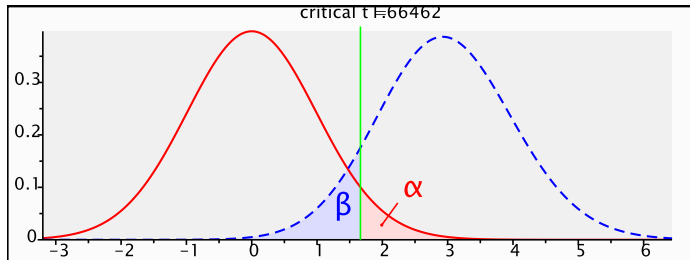
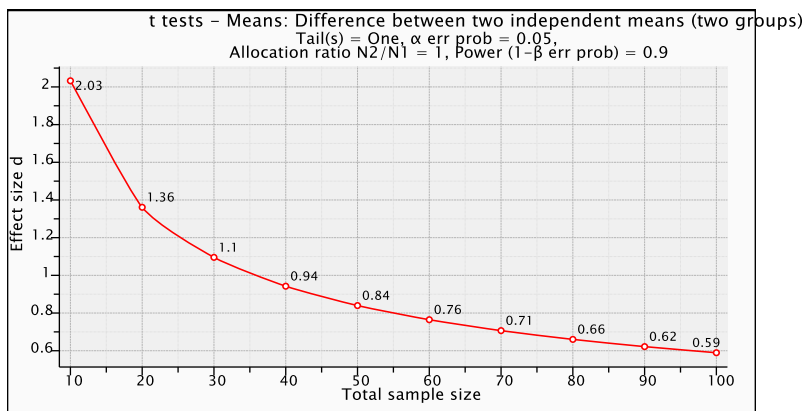


Figure 6 Sensitivity Analysis



Study Procedure

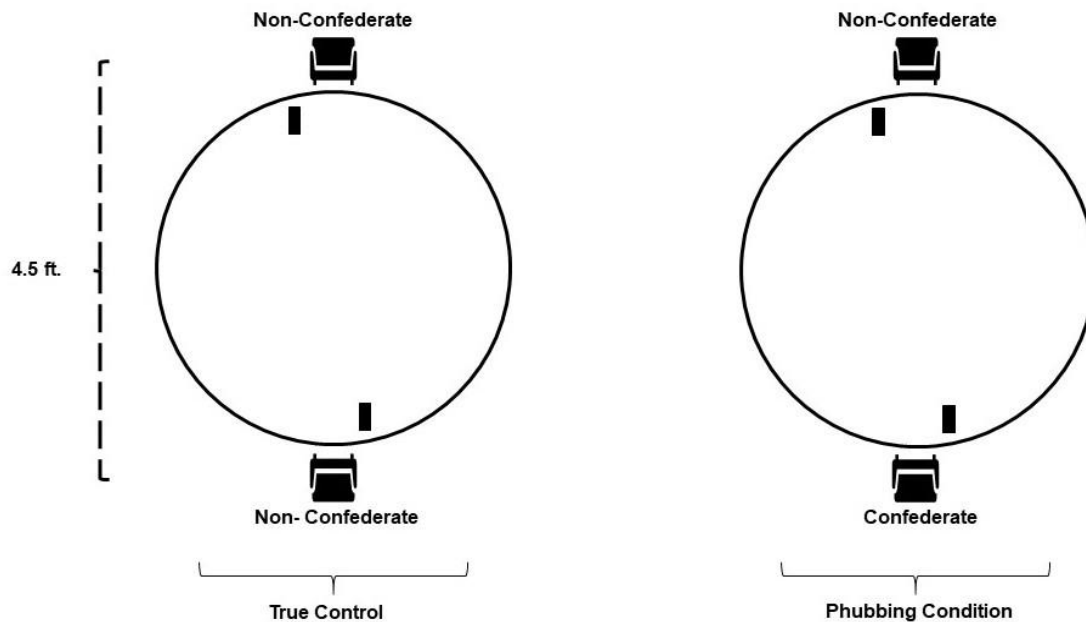
The present study was designed to manipulate mobile phone use during meaningful face-to-face first encounters. The study had a 2x1 between-subjects design: 2 (mobile phone (phubbing) condition vs. true condition) x 1 (meaningful conversation topic). Given this study's interest in automatic processes (e.g., mobile phone habits/mimicry) and depth of self-disclosure, an experimental design was advantageous compared to other methods. For example, fully observational methods could also continue to provide novel insights regarding mobile phone habits and interpersonal communication outcomes (i.e., depth of self-disclosure). However, in observational settings researchers are likely to assess ad-hoc self-reported accounts regarding the conversational and relational context of the people interacting (i.e., one dyad might be talking about holiday decorations or the local weather, while other groups could be discussing an intimate topic involving self-disclosure), which is important because conversational and relational context influence phubbing effects (e.g., Przybylski & Weinstein, 2013) as well as nonverbal mimicry behaviors (Duffy & Chartrand, 2015).

Prior to beginning the study, participants completed informed consent forms along with pre and post-test pencil and paper surveys immediately preceding and following their 10-minute interaction. Participants were recruited to partake in a 10-minute get-to-know-you interaction activity, which is a common duration for phubbing related experiments (e.g., Przybylski & Weinstein, 2013; Vanden Abeele et al., 2016; Vanden Abeele et al., in press). In line with similarly designed studies (Misra et al, 2016; Vanden Abeele et al., 2016), participants in all study conditions were instructed to discuss a personally *meaningful event* that occurred in their life during the past year

(e.g., Przybylski & Weinstein, 2013). All dyadic interactions were recorded with a 360-degree video camera (360fly HD). The video recordings were used to assess nonverbal mobile phone-checking mimicry behaviors. The recordings were also used to assess the behavioral measure of self-disclosure, which will be discussed in the measures section below.

In both study conditions, participants were physically positioned a little over four feet from one another during the interaction and they had a table positioned between them (Figure 7). The diameter of the table was exactly 4 feet. Though other mobile communication studies have opted for slightly closer physical proximity (e.g., in an experiment by Przybylski and Weinstein (2013) dyads sat 3 feet away from one another), I separated participants by an extra 1.5 feet because less than 4 feet of distance may be considered an intimate personal space, while proxemic distances greater than 4 feet are considered less intimate social zones (Hall, 1966, Walters et al., 2005). In addition, it was important that non-confederate participants were close enough to see that their interaction partner received a message and the subsequent technical connection cues (i.e., that their mobile phone screen lit up, vibrated, and received an alert message) but that the non-confederate was not close enough to read the content of the message and/or sender information.

Figure 7 Experimental Design



In each condition, the participant that arrived at the lab second was instructed to start the interaction in the speaker role, while the participant that arrived at the lab first was instructed to start the interaction in the listener role. The speaker role consisted of being the participant that discussed their meaningful event first during the interaction. Both participants were informed that they did not have set time-limits as to how long each person needed to discuss their meaningful event. In addition, participants in all conditions were instructed to otherwise communicate back and forth as they otherwise would while getting to know someone.

Within each dyad, the participant that arrived at the lab first was selected as the confederate. The confederates were briefly trained prior to the interaction (see Appendix A for confederate instructions). They were instructed to lift their phone from the table and read/look at their phone for about 2 to 3 seconds, clear the message off their screen by swiping, and then place their phone back on table as naturally as possible.

Confederates were trained to check their phone for 2 to 3 seconds because evidence suggests that is the average duration of phubbing behaviors (Vanden Abeele, Hendrickson, Pollmann & Ling, 2019). The confederate received 3 text messages during the interaction – 1 minute into the interaction, 3 minutes and 30 seconds, and 6 minutes and 30 seconds into the interaction. Similar responsive messaging techniques and frequencies have been demonstrated to induce phubbing effects in previous research (e.g., Vanden Abeele et al. 2016).

In addition, confederates were instructed to try to gaze at their mobile phone for the same amount of time throughout the interaction. To ensure quality control, data was only included for dyads in which all participants, including the confederates, followed all instructions accurately. For example, if the confederate missed one of the text-messages or checked their device for less than 2 seconds, data from the dyad was excluded from all analyses. The non-confederates kept their mobile phones with them during the interaction as well. The non-confederate participants were also instructed to place their mobile phone on the table, which allowed for the possibility of mobile phone checking mimicry behaviors to occur. During each interaction, the confederate-participant always started the interaction activity in the listener role and their survey responses were excluded from the analysis.

In the true control condition, the participants also had their mobile phones during the interaction. However, within each dyad, neither participant was instructed to use their mobile phone by study personnel nor trained as a confederate. In the true control condition, the interaction activity followed the same format as the phubbing condition. I also used the same randomization technique to select confederates vs. non-

confederates to randomly exclude half of the control group data (N = 50) to maintain balance. This exclusion technique has been used in similarly designed phubbing experiments (e.g., Vanden Abeele et al., 2016). Specifically, the participants that arrived first to the lab were instructed to sit in the same seat as that the confederates sat in within the phubbing condition, they started the interaction in the listener role, and their survey responses were excluded from the analysis. By having the excluded participants start as the listener in each condition, it helped avoid the confounding potential that the excluded participants' depth of self-disclosure could have on the included participants' self-disclosure (i.e., people disclose more to people that disclose more to them) and it allowed me to assess the behavioral measure of self-disclosure.

Measures

The key dependent variable that was assessed immediately following the interaction activity is self-disclosure, measured by 3-items adapted from Laurenceau, Barrett and Pietromonaco (1998). Example items included "During the interaction I disclosed my thoughts" and "During the interaction I disclosed my emotions." Each item was measured by a 5-point Likert scale ranging from 1 (very little) to 5 (a great deal). Participant responses were averaged together to compute a composite measure ($\alpha = 0.7$). All measures are listed in Appendix B along with previously observed reliability findings.

The behavioral measure of self-disclosure was computed by observing the number of seconds that the participant initially engaged in self-disclosure from the start of the interaction. The measure is consistent with previously validated behavioral approaches used to assess self-disclosure during first encounters (Sprecher et al.,

2013; Vondracek, 1969). The timer used for this measurement was connected to the 360-degree camera – both of which started at the exact moment the speaker started to engage with their interaction partner. This behavioral measure of self-disclosure may be more accurate/valid measure of actual self-disclosure compared to other options, such as the total word count. Specifically, each participant was instructed to start the conversation by discussing a meaningful event/experience, which forced them to engage in self-disclosure. While reviewing the audio/video footage of each interaction, study personnel assessed whether the participant followed the instruction to start the conversation by discussing their recent meaningful event. If the participant did not start the conversation by discussing their meaningful event and, instead, discussed some other topic or started by asking their partner a question (e.g., “hey, how’s your day going today?”) then data from the interaction was excluded from analysis. Study personnel observed the first turn-taking switch, whereby the participant’s interaction partner started to speak and/or started discussing their meaningful event – which was guided by previous studies on self-disclosure and turn-taking (Sprecher et al., 2013).

In the phubbing condition, the time measure captured participants’ response (i.e., they stop speaking) or non-response (they continue speaking) after their confederate-partner checked their mobile phone at exactly 1-minute into the interaction. The total word count measure, on the other hand, would include much more noise (i.e., potentially many words that do not involve any self-disclosure and perhaps reflect how fast participants speak more than actual self-disclosure) and not necessary observe responses (or non-responses) to checking behaviors. Though the time measure could also be confounded by how fast participants are speaking, the measure has the added

affordance of assessing mobile phone checking behaviors disrupt self-disclosure in response to the first phubbing behavior by the confederate.

Following other recent phubbing studies (e.g., Vanden Abeele et al., 2016), interpersonal evaluations (e.g., liking/social attraction) were assessed by using the social attraction measure developed by Weisband and Atwater (1999). The scale consisted of 3-items to evaluate one's interaction partner: "I like my interaction partner," "I would like to see my interaction partner again (dropped based on factor analysis results)," and "I dislike my interaction partner (this item was reverse coded)." Response options ranged from 1 (strongly disagree) to 5 (strongly agree). Responses were averaged into a composite measure of interpersonal liking ($\alpha = 0.81$).

Perceived partner trust and empathy were assessed by measures used in prior experimental phubbing effects research (Misra et al, 2016; Przybylski & Weinstein, 2013). Trust was assessed by a 5-item measure originally developed by Larzelere and Huston (1980). Response options ranged from 1 (strongly disagree) to 5 (strongly agree) ($\alpha = 0.86$). In addition, perceived emotional empathy was assessed by a 6-itemed scale developed by Reis and Carmichael (2006). Response options ranged from 1 (not true at all) to 5 (completely true) ($\alpha = 0.84$).

Perceived phubbing expectancy violation was assessed by a 2-itemed measure of mobile etiquette that was compatible with Chotpitayasunondh and Douglas's (2016) measure of injunctive phubbing norm. The items stated, "my interaction partner's mobile phone use was appropriate during our interaction" and "my interaction partner's mobile phone use made me feel ignored during our interaction." I reverse coded the first item, so that a higher score reflected a more severe expectancy violation. Response options

range from 1 (strongly disagree) to 5 (strongly agree) ($\alpha = 0.84$).

The primary independent variable was the pair-wise comparisons between the two experimental study conditions. Specifically, I was interested in comparing the two study groups' depth of self-disclosure and interpersonal evaluations of the confederates (perceived liking, trust, empathy). In addition, a key interest was to assess potential differences between the two conditions regarding perceptions of phubbing expectancy violations as well as mobile phone checking mimicry (which was otherwise considered a predicting variable for several hypotheses). After data collection was completed, I assessed mobile phone checking mimicry by reviewing the video footage of each of the dyadic interactions that occurred.

Consistent with Chartrand & Lakin's (2013) definition of behavioral mimicry, mobile phone checking mimicry was operationally defined as behavioral matching of the confederate's mobile phone checking behavior, within 5 seconds or less of the initial behavior. While reviewing the video footage of each interaction, phone checking behaviors were classified as phone mimicry if the participant met the following criteria: 1) the checking behavior occurred with 5 seconds or less of the confederate's phone checking behavior, 2) the checking behavior involved the physical touching of one's device, and 3) the participant glanced at their phone (averted their gaze towards their device) while engaging in the checking behavior. If the participant's checking behavior did not meet all three criteria, then the behavior was not classified as phone mimicry. The 360-degree video footage allowed for detailed inspection of nonverbal behaviors, including one's gaze and engagement with their phone. The mobile phone checking mimicry measure was dummy coded as (1 = the participant engaged in at least 1 mobile

phone mimicry behavior, 0 = the participant did not engage in any mobile phone mimicry behaviors). This coding was used because among participants that engaged in mimicry all participants only engaged in 1 mobile phone mimicry behavior.

The analysis controlled for sex (1 = female, 0 = male) and pre-interaction positive affect, which was assessed by the Diener and Emmons (1984) mood index, because prior mobile communication research suggests that it is an appropriate measure of positive affect in this experimental domain (Przybylski & Weinstein, 2013). Mood states can work as a covariate that affects impression and relationship formation processes in the mobile communication domain (Misra et al., 2016; Przybylski & Weinstein, 2013). Participant's mood was assessed following their completion of the informed consent form prior to the interaction activity ($\alpha = 0.89$). In addition, I controlled for personality factors, specifically extraversion, using the 10-item version of the Big Five inventory (Rammstedt & John, 2007). The extraversion measure consisted of two items "I see myself as someone who is reserved (this item was reverse coded)" and "I see myself as someone who is outgoing and sociable." Response options ranged from 1 (strongly disagree) to 5 (strongly agree) ($\alpha = 0.63$). I also controlled for participants' age (ordinal measure ranging from 18 - 25) and race (African American, Asian, Caucasian, Other).

Though the sample was homogenous in terms of age (18-25) and education (college students), I also collected data on participants' age and college level (freshman, sophomore, etc.); however, age was also used as a control variable because it could otherwise confound perceptions of expectancy violations, interpersonal evaluations, and self-disclosure. In addition, I controlled for the non-confederate participants' mobile phone checking habit, because it could influence mobile phone

mimicry and perceived phubbing expectancy violations. Mobile phone checking habit was assessed by 4-items developed and validated by Verplanken and Orbell (2003). Response options ranged from 1 (strongly disagree) to 5 (strongly agree) ($\alpha = 0.90$). However, investigating what influences one to be more likely to engage in mobile phone mimicry was not the central focus of this study; future research could examine this topic.

Analytical Procedures

A series of t-tests and OLS linear regression models were used to assess the hypotheses previously outlined in this study, which allowed me to assess potential direct effects of the study conditions on the outcomes of interest and allow for sex, race, age, mobile phone habit, extraversion, and positive affect (pre-interaction) to be controlled. Similar data analysis procedures have been used in previous phubbing effects experiments (e.g., Vanden Abeele et al., 2016).

The analysis was performed using IBM SPSS Statistics software version 25, which afforded the use of multiple comparisons tests and generate a range of descriptive statistics (e.g., means, standard deviations, Cohen's d , etc.) that helped contextualize effect sizes (Lakens, 2013). In addition, Hayes PROCESS macro version 3.0 was used with multiple regression analysis to test the proposed mediation effects. All effect sizes were reported regardless of whether the association was statistically significant (i.e., $p < .05$). For the multiple regression analysis, the variables were entered in the model in steps to assess mediation effects. Specifically, step 1 consisted of a simple bivariate regression model to assess the association between study conditions and each outcome. Step 2 included perceived phubbing expectancy violations, while the final step entered in the mobile phone mimicry variable and the control variables.

All scales used in the analysis factored together and also had internal consistency ($\alpha = 0.7$ or greater). In addition, the behavioral measure of self-disclosure had 3 outliers; however, removal of those cases did not meaningfully change the results. Interestingly, within the phubbing condition, 2 of the 3 outliers on the behavioral measure of self-disclosure also happened to be in the minority of participants that also engaged in mobile phone mimicry – which happened to be consistent with the study hypotheses.

CHAPTER 4: RESULTS

Descriptive Results

The analytical sample had a mean age of 20 years old (range = 18-24) and was 61% female and 39% male. The racial composition of the sample was 17% Asian, 10% African American, 8% "Other," and 65% White/Caucasian. Participants had strong mobile phone checking habits ($M = 4.4$, $SD = 0.80$, range = 1 to 5). In addition, all descriptive mean differences between the two study conditions were in the expected direction. See Table 1 for descriptive statistics.

Table 1 Descriptive Statistics for Dependent, Independent and Control Variables

	Full Sample Means (n = 77)	SD	Phubbing Condition Means (n = 38)	SD	Control Condition Means (n = 39)	SD
Condition (1 = PC)	49%					
First Self Discloser Stop (in seconds)	105.10	73.86	75.24	60.68	134.21	74.59***
Self-Reported Self Disclosure	3.69	0.90	3.55	0.89	3.82	0.90
Perceived Liking	4.80	0.41	4.70	0.50	4.90	0.26***
Perceived Trust	4.18	0.61	4.12	0.70	4.25	0.52
Perceived Empathy	4.36	0.49	4.32	0.44	4.40	0.55
Perceived Phubbing Expectancy Violations	1.84	1.12	2.61	1.16	1.10	0.29***
Phone Mimic (1 = yes)	4%	0.19	8%	0.27	0.00	0.00

*Note: PC = phubbing condition, CC = control condition. Phone mimic 1 = 1 or more mimics, 0 = no mimics, *** $p < .001$.*

Table 1 (cont'd)

	Full Sample Means (n = 77)	SD	Phubbing Condition Means (n = 38)	SD	Control Condition Means (n = 39)	SD
Age	20.32	1.25	20.26	1.27	20.38	1.25
Female	61%		63%		59%	
Asian	17%		21%		13%	
African American	10%		8%		13%	
Other	8%		5%		10%	
White	65%		66%		64%	
Extraversion (pre)	3.32	1.01	3.17	1.01	3.46	1.00
Positive Affect (pre)	3.36	0.68	3.27	0.73	3.46	0.62
Mobile Habit (post)	4.37	0.80	4.47	0.61	4.27	0.95

*Note: PC = phubbing condition, CC = control condition. Phone mimic 1 = 1 or more mimic, 0 = no mimics, ***p < .001.*

Regression Results for Perceived Phubbing EV (H1a supported)

H1a was supported by the descriptive findings and regression results (see Table 2). On average, participants in the phubbing condition were more likely to perceive their interaction partner's mobile phone use as inappropriate during the interaction ($\beta = 1.59$, $SE = 0.21$, $p < .001$) – net of all controls. Simple bivariate regression analysis showed that the between condition difference explained about 45% of the variance in perceived phubbing expectancy violations ($\beta = 1.50$, $SE = 0.19$, $p < .001$, $F = 61.89$, $R^2 = 0.45$). According to Cohen's d , the between group effect size was large (a mean difference of more than 1 standard deviation) (Cohen's $d = 1.79$). I anticipated that the between condition difference would be associated with a large portion of variance in perceived phubbing expectancy violations because of the experimental manipulation (i.e., confederate mobile phone checking). None of the control variables were related to

perceived phubbing expectancy violations; hence, the Adjusted R Square was smaller in the full model (Adj. $R^2 = 0.40$) compared to the simple bivariate model ($R^2 = 0.45$).

Table 2 Regression Results for Perceived Phubbing EV as Dependent Variable

	b	SE	t	p-value
Condition	1.59	0.21	7.50	< .001
(1 = PC)				
Phone Mimicry	-0.76	0.53	-1.44	.16
Age	0.03	0.08	0.32	.78
Female	-0.05	0.22	-0.22	.83
Asian	-0.16	0.31	-0.50	.62
African	0.03	0.37	0.07	.95
American				
Other	0.05	0.39	0.13	.90
Extraversion	-0.00	0.11	-0.04	.97
Positive Affect	-0.08	0.15	-0.55	.59
Mobile Phone	-0.10	0.15	-0.70	.48
Habit				
Constant	1.34	1.92	0.70	.49
F	6.14			< .001
Adjusted R^2	.40			

Notes: N= 77, PC = phubbing condition

Regression Results for Perceived Liking (H1b partially supported)

H1b was partially supported. Statistically significant between condition differences were only observed for liking and not for empathy or trust. Specifically,

participants in the phubbing condition were more likely to report lower levels of liking than participants in the control condition ($\beta = -0.20$, $SE = 0.09$, $p < .05$, $R^2 = 0.06$). The Cohen's d was $= 0.5$, which indicates a medium effect size. The bivariate regression between study condition and liking indicated that the between condition difference explained about 6% of the variance in liking. In addition, the association between study condition and liking was potentially mediated by perceived phubbing expectancy violation, which will be discussed below in the section on H2. In the full model (Step 3), perceived phubbing expectancy violations had a statistically significant and inverse association with perceived liking ($\beta = -0.16$, $SE = 0.05$, $p < .01$). Table 3 below shows the independent variables entered in steps.

Table 3 Regression Results for Perceived Liking as Dependent Variable

	Step 1		Step 2		Step 3	
	b (se)	t	b (se)	t	b (se)	t
Condition (1 = PC)	-0.20* (0.53)	0.09	0.08 (0.12)	0.63	0.11 (0.13)	0.87
Phubbing EV			-0.17** (0.05)	-3.12	-0.16** (0.05)	-2.95
Phone Mimicry			-0.36 (0.23)	-1.53	-0.40 (0.23)	-1.72
Age					-0.01 (0.04)	-0.19
Female					0.08 (0.10)	0.79
Asian					0.06 (0.14)	0.46
African American					0.21 (0.16)	1.31
Other					0.13 (0.17)	0.80
Extraversion					0.04 (0.05)	0.92
Positive Affect					0.12 (0.07)	1.77
Mobile Phone Habit					0.01 (0.07)	0.21
Constant	4.90*** (0.06)	6.91	5.08*** (0.08)	60.57	4.50*** (0.84)	5.39
F	4.87*		5.36**		2.17*	
R ² /Adjusted R ²	.06		.15		.15	

*Notes: standard errors for each test statistic are shown in parentheses. ***p < .001, **p < .01, *p < .05. N = 77*

Regression Results for Perceived Trust and Empathy

On average, participants in both conditions reported high levels of perceived trust (M = 4.2, SD = 0.61, range = 1 to 5). The between condition mean difference was in the

predicted direction (e.g., control group scored higher than phubbing group) but the effect size was small according to Cohen's d and not statistically significant. In addition, the between condition difference only explained about 1% of the variance in perceived trust ($R^2 = 0.01$) and the regression results were not statistically significant ($p = 0.30$) (Table 4). As such, the findings do not suggest that mobile phone checking influenced perceptions of perceived trust (i.e., on average both conditions reported the same response option, $M = 4.1$ and $M = 4.3$, both round to the nearest integer response option "4").

Similarly, the mean perceived empathy scores for participants in both conditions were high ($M = 4.4$, $SD = 0.49$, range = 1 to 5). Much like perceived trust, the between condition mean difference was in the predicted direction (e.g., control group scored higher than phubbing group) but the effect size was small according to Cohen's d . In addition, the between condition difference only explained less than 1% of the variance in perceived empathy ($R^2 = -0.01$) and was not statistically significant ($p = 0.52$). The findings do not suggest that mobile phone checking influenced perceptions of perceived trust (i.e., on average both conditions reported the same response option - $M = 4.3$ and $M = 4.4$, both also round to the nearest integer response option "4."

Table 4 Regression Results for Perceived Trust and Empathy as Dependent Variables

	Trust b (se)	t	Empathy b (se)	t
Condition (1 = PC)	0.05 (0.19)	0.28	0.08 (0.16)	0.49
Phubbing EV	-0.10 (0.08)	-1.24	-0.07 0.07	-1.00
Phone Mimicry	0.24 (0.36)	0.67	0.18 (0.29)	0.60
Age	-0.04 (0.06)	-0.67	0.04 (0.05)	0.95
Female	0.02 (0.15)	0.10	0.18 (0.12)	1.45
Asian	-0.38 (0.21)	-1.81	-0.23 (0.17)	-1.35
African American	-0.01 (0.25)	-0.06	0.32 (0.21)	1.58
Other	0.23 (0.26)	0.88	0.17 (0.21)	0.83
Extraversion	0.14 (0.07)	1.87	0.07 (0.06)	1.25
Positive Affect	0.05 (0.10)	0.50	0.04 (0.08)	0.47
Mobile Phone Habit	0.10 (0.10)	1.01	0.03 (0.08)	0.43
Constant	4.06** (1.28)	3.17	2.91** (1.05)	2.78
F	1.87		1.67	
Adjusted R ²	.11		.09	

*Notes: standard errors for each test statistics are shown in parentheses. ***p < .001, **p < .01, *p < .05. N = 77*

Regression Results for Self Disclosure (H1c partially supported)

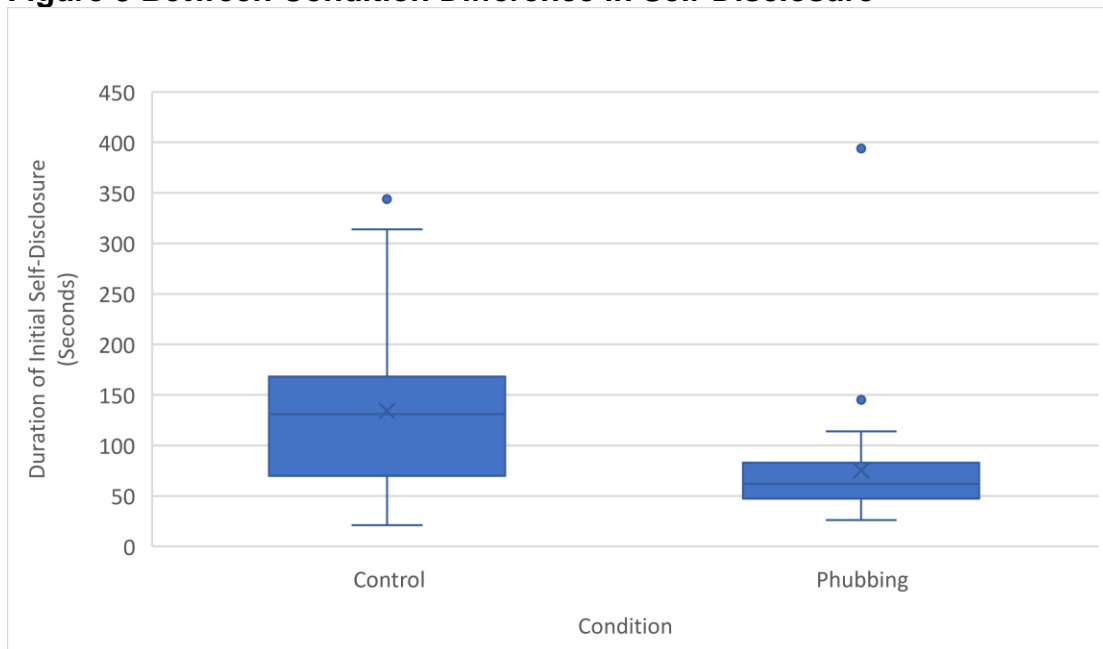
H1c was partially supported (Table 5). On average, participants in the treatment condition scored lower on all the self-disclosure measures than participants in the control condition (self-report and behavioral measure). However, statistically significant between group differences were only observed for the behavioral measure of self-disclosure ($\beta = -80.47$, $SE = 21.06$, $p < .001$) – net of all controls. In the full model, mobile phone mimicry was also positively associated with longer lengths of initial self-disclosure compared to participants that did not mimic their partner’s mobile phone use ($\beta = 136.20$, $SE = 38.50$, $p < .001$). In addition, participants that had a self-reported race of “other” engaged in longer self-disclosure than white participants ($\beta = 58.36$, $SE = 27.53$, $p < .05$).

Without accounting for control variables, the between condition mean difference was about 59 seconds ($\beta = -58.97$, $SE = 15.52$, $p < .001$, $R^2 = 0.16$) and there was an 80 second difference when accounting for all control variables (control group engaged in more than a full minute of initial self-disclosure compared to the phubbing group) (Adj. $R^2 = 0.30$). The predictor variables in the full model explained about 30% of the total variance in the initial amount of time the participant engaged in self-disclosure. The Cohen’s d test statistic also indicated a large effect size between the two study conditions (0.87). The boxplot below (Figure 8) highlights that a large portion of the participants in the treatment condition stopped engaging in self-disclosure within several seconds of their confederate-partner’s first mobile phone checking behavior 1-minute into the interaction (in the phubbing condition).

Table 5 Regression Results for Self Disclosure Behavioral Measure as Dependent Variable

	b	SE	t	p-value
Step 1				
Condition (1 = PC)	-58.97	15.52	-3.80	< .001
Constant	134.21	10.90	12.31	< .001
F	14.44***			
R ²	00.16			
Step 2				
Condition (1 = PC)	-80.47	20.59	-3.91	< .001
Phubbing EV	10.54	8.79	1.20	.24
Phone Mimicry	135.20	38.50	3.54	.001
Age	-1.67	6.00	-0.28	.78
Female	-2.76	16.00	-0.17	.87
Asian	34.90	22.28	1.57	.12
African	4.36	26.37	0.17	.87
American				
Other	58.36	27.53	2.12	.04
Extraversion	11.59	7.82	1.48	.14
Positive Affect	-7.81	11.04	-0.71	.48
Mobile Phone Habit	-15.18	10.61	-1.43	.16
Constant	199.20	137.33	1.45	< .001
F	3.89***			
Adjusted R ²	.30			
<i>Notes: ***p < .001, **p < .01, *p < .05. N = 77</i>				

Figure 8 Between Condition Difference in Self-Disclosure



NOTE: The self-disclosure measure had 3 key outliers, however removal of those cases did not lead to meaningful changes in the results. Interestingly, within the phubbing condition, 2 of the 3 outliers for the behavioral measure of self-disclosure also happened to be in the minority of participants that engaged in mobile phone mimicry, which supports the prediction that phone mimicry may lead to prosocial outcomes.

On average, participants in both conditions reported moderate to high levels of self-disclosure ($M = 3.7$, $SD = 0.90$). The between condition mean difference was in the predicted direction (control group scored higher than phubbing group) but the effect size was small according to Cohen's d ($d = 0.30$). In addition, the between condition difference only explained about 1% of the variance in self-disclosure ($R^2 = 0.01$) and was not statistically significant ($p = 0.20$) (See Table 6). The group means also both round to response option 4, which suggests that there was not a substantive between group difference with this measure. The mobile phone mimicry results will be discussed in the mobile phone checking mimicry subsection below and interpreted through the use of boxplots.

Table 6 Regression Results for the Self-Reported Self Disclosure Measure as Dependent Variable

	b	SE	t	p-value
Condition	-0.44	0.30	-1.49	.14
(1 = PC)				
Phubbing EV	0.06	0.13	0.45	.66
Phone	1.13	0.56	2.04	.05
Mimicry				
Age	-0.02	0.09	-0.25	.81
Female	-0.07	0.23	-0.32	.75
Asian	-0.52	0.32	-1.62	.11
African	-0.15	0.38	-0.40	.69
American				
Other	-0.75	0.40	-1.88	.07
Extraversion	0.002	0.11	-0.01	.99
Positive Affect	0.03	0.16	0.21	.83
Mobile Phone	0.02	0.15	0.11	.91
Habit				
Constant	4.22	1.98	2.13	.04
F	1.14			
Adjusted R ²	.02			

Notes: N = 77

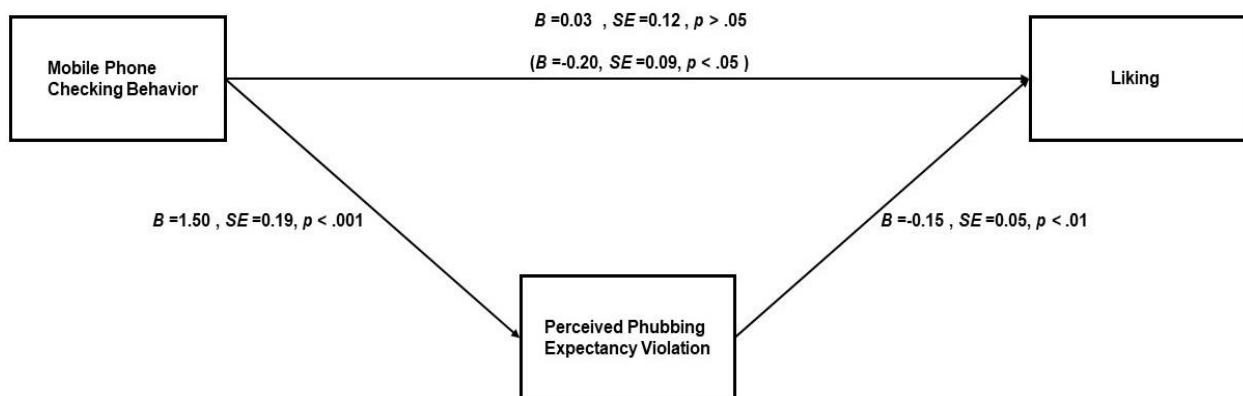
Indirect Effect Between Mobile Checking and Liking (H2 partially supported)

Only one interpersonal evaluation outcome (liking) met the necessary preconditions to test for mediation analysis (H2a). Sobel and Process mediation analyses were used to assess if perceived phubbing expectancy violations mediated the

association between study conditions and liking. Both the Hayes PROCESS mediation analysis (indirect effect: -0.25, SE = 0.13, CI: -0.51, -0.03) and Sobel analysis ($z = -2.95$, SE = 0.09, $p = 0.003$) suggested that there was an indirect association between mobile phone checking and perceived liking that was mediated by perceived phubbing expectancy violation.

The size of the association between the study conditions and liking decreased by 85% and was not statistically significant when perceived phubbing expectancy violation was entered into the regression model (Figure 9). The associations between study condition and perceived phubbing expectancy violations explained around 13% of the variance in perceived liking. Specifically, the results suggest that participants in the treatment condition were more likely to perceive phubbing expectancy violations and subsequently to report lower levels of partner liking – which supported H2a.

Figure 9 Mediation Analysis



Note: The coefficients in parentheses indicate the association between mobile phone checking and liking before perceived phubbing expectancy violation was entered in the regression model

Mobile Phone Checking Mimicry Results

Only 8% of the participants in the treatment condition engaged in mobile phone mimicry and none of the participants in the control condition engaged in mobile phone checking mimicry. Specifically, 2 of the 3 participants in the treatment condition that

engaged in mobile phone checking mimicry also had the outlier scores on the behavioral measure of self-disclosure. Within the treatment condition, the 3 participants that engaged in mobile phone mimicry reported higher levels of trust (H6), empathy (H6), and self-disclosure (H8) and lower levels of perceived phubbing expectancy violations (H4) compared to the rest of the participants in the treatment condition. However, statistically significant differences with large effect sizes were observed between mobile phone checking mimicry and self-disclosure – both with the behavioral measure ($\beta = 136.20$, $SE = 38.50$, $p < .01$) and the short 3-item self-disclosure measure ($\beta = 1.13$, $SE = 0.56$, $p < .05$).

The between condition moderation hypotheses, H3, H5, and H7 were not tested because phone mimicry (nor phone checking) occurred in the control condition. Though mobile phone mimicry was inversely associated with perceived phubbing expectancy violations ($\beta = -0.76$, $SE = 0.53$, $p = .16$) and positively associated with interpersonal evaluations (e.g., trust ($\beta = 0.24$, $SE = 0.36$, $p > .05$) and empathy ($\beta = 0.18$, $SE = 0.29$, $p > .05$), the mean differences were not statistically significant. The differences shown in Figures 10 and 11 were statistically significant for both indicators of self-disclosure ($p < .05$).

Figure 10 Phone Mimicry and Behavioral Measure of Self-Disclosure

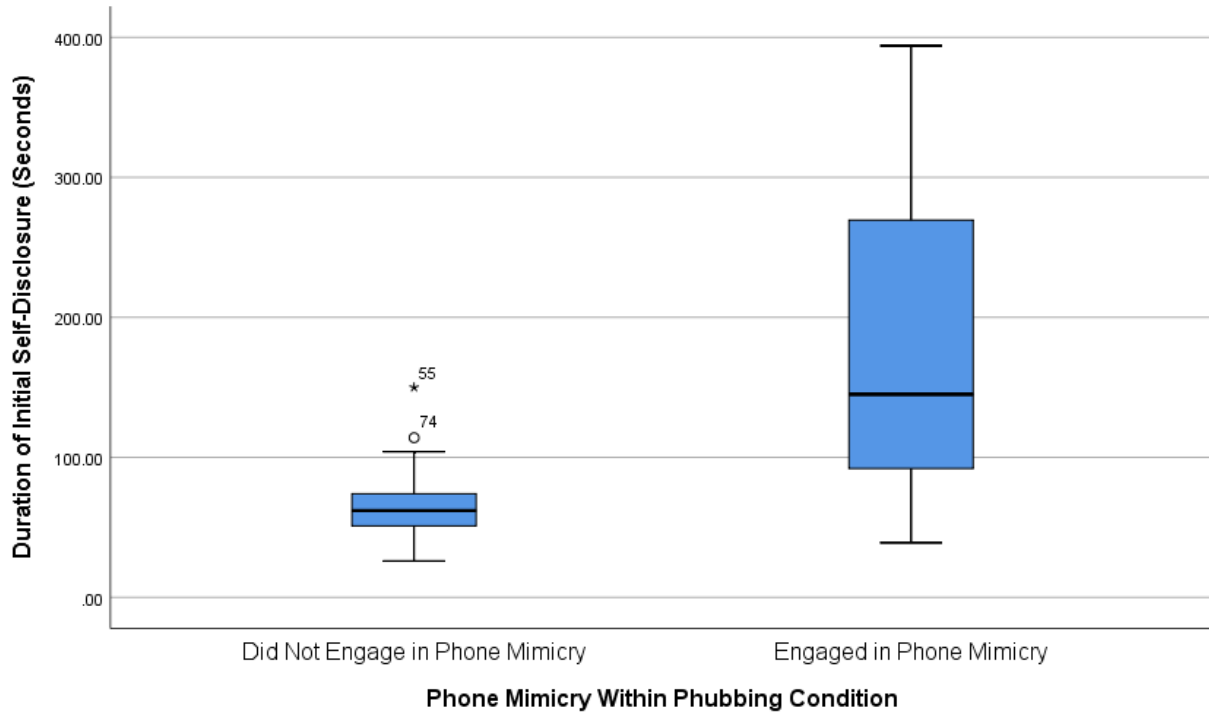
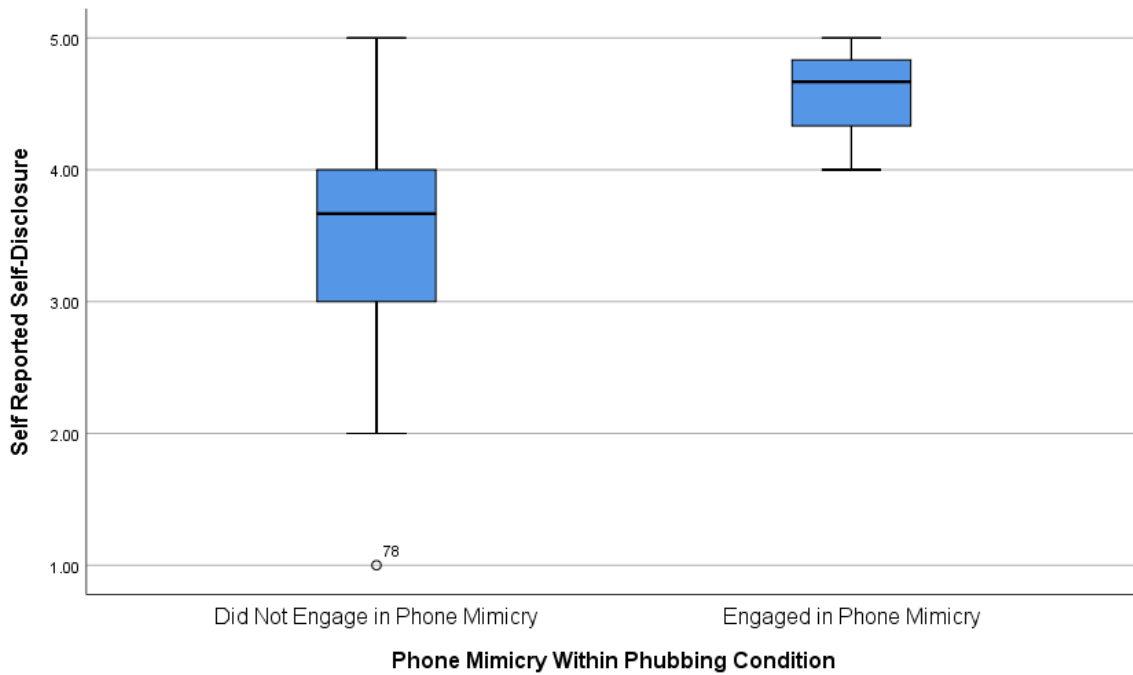


Figure 11 Phone Mimicry and Self-Reported Measure of Self-Disclosure



CHAPTER 5: DISCUSSION

Chapter 5 Overview

In Chapter 5, I recap the results, discuss the findings in the context of EVT theory and previous literature, consider practical implications, and scrutinize the study limitations. The remaining chapters/sections highlight the potential prosocial and antisocial effects of mobile phone checking, during FtF first encounters among young adults. The findings point to the dynamic aspect of FtF interpersonal communication and extend phubbing research by identifying possible novel mechanisms of action (e.g., mobile phone checking mimicry).

Summary of Results

This study investigated the potential effects of mobile phone checking during FtF first encounters, among a sample of young adult college students (aged 18-25). Specifically, I assessed whether mobile phone checking may influence a specific communication outcome, self-disclosure. In addition, I examined whether mobile phone checking mimicry potentially mitigate adverse mobile checking effects. Participants in the treatment condition reported higher levels of perceived phubbing expectancy violations than participants in the control condition (H1a supported). Participants in the control condition reported higher levels of perceived liking, trust, and empathy than participants in the treatment condition; however, only the mean difference for perceived liking was statistically significant (H1b partially supported). Participants in the treatment condition self-reported lower levels of self-disclosure and scored lower on the behavioral measure of self-disclosure compared to participants in the control condition; however, only the between condition mean differences were statistically significant for

the behavioral measure (H1c partially supported).

I also observed evidence that perceived phubbing expectancy violations mediated the association between study conditions and perceived liking (H2a partially supported) but not self-disclosure (H2b not supported). Perceived phubbing expectancy violations had an inverse bivariate association with the behavioral measure of self-disclosure, which suggested each unit increase in perceived phubbing expectancy violations was associated with about 13 seconds less on the behavioral measure of initial self-disclosure. Moreover, only 8% of the participants in the treatment condition and none of the participants in the control condition engaged in mobile phone checking mimicry. Mobile phone checking mimicry was inversely associated with perceived phubbing expectancy violations (H4) and positively associated with indicators of interpersonal evaluations (e.g., trust and empathy) (H6) and self-disclosure (H8). However, within the phubbing condition, only the association between mobile phone checking mimicry and self-disclosure was statistically significant (with both the behavioral measure and self-reported measure) (H8 supported). Because none of the participants in the control condition engaged in mobile phone checking mimicry, I was not able to test the between condition mimicry moderation hypotheses (H3, H5, & H7). Eight of the 11 predictions were tested, with 5 of the 8 receiving at least partial support.

Discussion of Results

Inappropriate mobile phone use can cause conflict within relationships and potentially be detrimental for well-being (e.g., Halpern & Katz, 2017; Roberts & David, 2016). Phubbing can have effects on interpersonal interactions, such as hinder interpersonal evaluations and influence perceptions of communication quality

(Chotpitayasunondh & Douglas, 2016, 2018; Misra et al., 2016). Prior to this study, the existing research did not yet indicate whether phubbing can influence actual communication outcomes, such as self-disclosure, or the sharing of information about one's self to another person (thoughts, feelings, emotions) (Tardy & Smithson, 2018; Utz, 2015). When people meet for the first time, self-disclosure tends to be one of the most common forms of interpersonal communication and it can help build affiliation and intimacy within relationship (Wenzel, Sprecher & Harvey, 2018). Other phubbing researchers have also considered the notion that phubbing may influence aspects of interpersonal communication, such as self-disclosure, but had yet to investigate it (e.g., Vanden Abeele et al., 2016, Vanden Abeele, forthcoming).

The findings from the present study suggest that mobile phone checking behaviors can disrupt self-disclosure processes. Within the phubbing condition, about 70% of participants responded to the confederates first mobile checking behavior by immediately ending their turn to discuss their meaningful event. However, this association was not mediated by perceived phubbing expectancy violations, which could suggest that mobile checking, whether deemed as inappropriate (i.e., phubbing) or not, may influence self-disclosure. Alternatively, other mechanisms of action, such as specific attentional cues (e.g., gaze diversion), could facilitate the association between mobile checking and adverse interpersonal outcomes (Vanden Abeele, forthcoming). One may perceive that their interaction partner is communicating nonverbal cues that signal inattention and disinterest, which may hinder self-disclosure, without necessarily perceiving a negative violation of mobile etiquette. Nevertheless, the result highlights the salience of considering how mobile checking habits may influence other

components of everyday interpersonal conversations, which could be altered in subtle but potentially meaningful ways.

Counter to previous research (e.g., Karadag et al., 2016), participants in this study showed nearly flawless behavioral control over their checking behaviors. No mobile checking or mimicry occurred in the control condition and non-confederates only checked their mobile phone while mimicking the confederate. But, the mobile phone checking mimicry findings in the phubbing condition support the notion that synchronized mobile checking could have prosocial outcomes (Humphreys & Hardeman, 2019), which contradicts the assumption that all mobile phone checking during FtF interactions has either negative or benign effects. For example, mobile phone mimicry was positively associated with self-disclosure.

Though the mobile phone mimicry findings were limited by the sparse occurrence of mobile phone mimicry behaviors (potentially due to the length of the interaction, experimental setting, and unacquainted compared to established relationship between interaction partners), the findings suggest that when mobile phone checking occurs, it can disrupt self-disclosure during first encounters, but this effect might be lessened by mobile phone checking mimicry. Specifically, mobile phone mimicry was positively associated with self-disclosure. This study may be the first to observe evidence that suggests that mobile phone checking behaviors may influence a specific type of interpersonal communication (self-disclosure) required for affiliation formation and relationship development during FtF first encounters. However, in line with the expectancy violation theory framework applied to the phubbing context (Vanden Abeele et al., in press; Vanden Abeele, forthcoming), mobile phone checking mimicry may

promote prosocial outcomes as well (e.g., higher levels of self-disclosure).

Contributions to EVT Theory

This study was informed by several different theories and bodies of literature, but the theoretical underpinning for this study came primarily from expectancy violation theory (EVT). EVT proposes that expectancy violations, or deviations from expected etiquette or interpersonal behavior can disrupt interpersonal evaluations and communication processes (Burgoon, 2015). The theory assumes that when people encounter a departure from expected interpersonal behavior, one is likely to experience an emotional arousal that can be positively or negatively valenced (Burgoon, 1993). Phubbing constitutes a negatively valenced expectancy violation because being snubbed or ignored can be perceived as a threat to one's need for affiliation (Roberts & David, 2016; Vanden Abeele et al., 2016; Vanden Abeele, forthcoming). In addition, negatively valenced expectancy violations can hinder interpersonal evaluations and communication processes, during FtF first encounters among young adults – even though young adults tend to have permissive views towards mobile phone use during FtF interactions (Rainie & Zickuhr, 2015; Richter, 2018).

Premised on EVT, a key mechanism of action for why phubbing is a negative expectancy violation is gaze aversion or shifting one's gaze away from their interaction partner and towards another object of focus (Miller-Ott & Kelly, 2015, 2017; Vanden Abeele & Postma-Nilsenova, 2018). During FtF interpersonal interactions, gaze aversion can diminish affiliation formation and negatively influence interpersonal evaluations of one's interaction partner. Gazing at one's phone is more likely to be perceived as ostracizing, by threatening one's need for affiliation, compared to non-

interactive media such as averting one's gaze towards a newspaper (Vanden Abeele & Postma-Nilsenova, 2018). Because negative expectancy violations that involve gaze aversion can be disruptive to interpersonal communication in general (Burgoon, 2015) and specifically to self-disclosure (e.g., Omarzu, 2000), this study purported to extend the EVT by investigating a relevant communication outcome that is also inextricably linked to affiliation formation processes (e.g., the exchange of self-disclosure). The findings provide evidence that mobile phone checking may influence self-disclosure processes (i.e., lead to less self-disclosure), which could have implications for relationship formation.

However, perceived phubbing expectancy violations only mediated the association between mobile checking and interpersonal judgements (specifically, perceived liking), but not with the behavioral indicator of self-disclosure. Perhaps, perceptions of phubbing expectancy violations could play more of a role in shaping interpersonal evaluations, compared to self-disclosure. Nonverbal communication cues can trigger automatic affiliation formation processes (Burgoon, 2015). Mobile checking behaviors that lead one to avert their gaze from their interaction partner may inhibit self-disclosure because people view phubbing and gaze aversion as a sign of disinterest and lack of desire to affiliate (Hales, Dvir, Wesselmann, Kruger & Finkenauer, 2018). It is possible that even if participants were not consciously aware that they stopped engaging in self-disclosure, immediately following their partner's responsive mobile phone check, they could have automatically processed the nonverbal cues of disinterest and lack of immediacy, which hinders interpersonal evaluations and perhaps communication processes without one even realizing it.

EVT also maintains that perceived similarity and imitation (or mimicry) may make one less likely to view a specific behavior as a negative expectancy violation (Burgoon, 2015). Following this premise, mobile phone checking mimicry may also lessen phubbing effects – though mimicry might occur more often in social settings, compared to first encounters in an experimental environment such as in this study. In addition, other phubbing researchers have recently proposed that prosocial phone use can mitigate negative phubbing effects (e.g., Vanden Abeele, forthcoming). This notion is supported by recent findings that suggest that young people commonly share their screen with their interaction partners (e.g., “look at this picture”) during conversations that also include phubbing (i.e., perceived phone snubbing). As such, the dual potential for prosocial and antisocial consequences of phubbing and mobile phone checking may have a myriad of practical implications.

Practical Implications

Evidence suggests that young adults’ mobile communication habits are activated ubiquitously throughout daily life (Bayer, Dal Cin, Campbell & Panek, 2016; LaRose, 2010, 2015). As such, it was reasonable to assume that in both conditions participants would engage with their mobile phones more than was observed in the study. Although the mimicry results were limited, I recommend that phubbing researchers should not throw out the notion that mobile phone checking mimicry may also mitigate perceptions of interpersonal judgements in situations that invoke more natural checking habits, relative to a laboratory setting.

Conditions in which mobile checking occurs normatively are less likely to engender negative phubbing expectancy violations and perhaps more likely to promote

the potential prosocial benefits of phone mimicry, perhaps through the mechanism of perceived similarity. It was anticipated, for example, that mobile phone checking mimicry would occur in both conditions – which did not happen because of the lack of checking in the control condition. This “non-finding” could also have practical implications that encourage a focus on mobile communication habits and dissuade researchers from foregoing the conclusion that most young adults are addicted to their mobile phones, which inherently implies a lack of behavioral control that differs from cognitive automaticity/habit (LaRose, 2015; Verplanken & Orbell, 2003).

This study provides support for the notion that young adults have strong mobile phone checking habits (evidenced by their responses to the mobile phone checking habit scale), but that they exerted behavioral control by not checking their mobile phone in the control condition (even though they were NOT instructed that they had to abstain from use). To the best of my knowledge, this study was the first phubbing experiment to allow participants in the control condition to have their phones during the interaction.

Consistent with the notion of mobile checking habit, some participants in the treatment condition (all of whom encountered mobile phone checking) also engaged in mobile phone checking mimicry – which could indicate the activation of the participant’s own mobile checking habits. This research is aimed at provoking a broader discussion of the potential interpersonal communication processes couched in widely pervasive mobile checking habits, which are relevant for all types of interpersonal relationships. The future of mobile technologies, though widely unknown, will likely involve even more embeddedness of mobile communication habits in everyday life. Emerging mobile technologies such as augmented and mixed reality (e.g., Magic Leap headset) may

likely involve novel sets of evolving accepted norms and behaviors (e.g., mixed-reality snubbing), which could also have implications for interpersonal communication and relationships. Because interpersonal communication is a core component of everyday life, it is paramount to consider the prosocial and antisocial effects of mobile communication habits in daily life.

Study Limitations

Like all studies, this investigation is not without limitations. One limitation is that the sample design only included student participants from one university. Though the study achieved statistical power, a larger and more diverse sample of young adults could benefit future research to improve external validity and generalizability of the findings. Given that this study was the first to examine self-disclosure in the phubbing context, I used a self-reported and behavioral measure of self-disclosure. However, future research could benefit from the use of other self-disclosure measures as well, including assessments of one's interaction partners self-disclosure, text mining/total word count measures, and/or qualitative approaches. The experimental study design allowed me to rule out confounding factors that are potentially associated with the study hypotheses, such as relationship history, conversational topic, status, age, and sex; yet, the laboratory setting could have limited the activation of norms and expectations associated with social settings. For example, previous field experiments have reported much higher rates of mobile phone checking than was observed in this study, which could reflect the activation of normative expectations to be responses via one's mobile phone that might increase the possibility of mobile phone checking mimicry. In addition, future work could specifically match participants by their language abilities as well,

particularly if the sample will include both domestic and international students/young adults.

Moreover, this study suggests that phubbing may lead to mild negative effects on interpersonal evaluations and self-disclosure processes. But, the incorporation of longitudinal data would allow for the assessment of these processes over time, which could shed light on potential effects that disruption of such processes may have on affiliation formation and relationship development. For example, on average, participants reported high levels of perceived trust. However, phubbing within romantic relationships has been shown to decrease trust over time (Halpern & Katz, 2017). As such, the relationship between mobile phone checking/mimicry, perceived phubbing expectancy violations, and perceived trust may yield divergent patterns (more distinct differences) if assessed outside of the context of unacquainted strangers as well as by types of phubbing (e.g., responsive phone checking, discussion length, etc.) (Miller-Ott & Kelly, 2015) and phone mimicry behaviors.

It is plausible that the short length of the interaction (10 minutes), use of responsive mobile checking (which is less severe than proactive checking violations), and the context of a get-to-know-you activity that required the discussion of a meaningful event were limiting factors for phone mimicry. In addition, further intercoder reliability test statistics could be used to ensure accurate interpretation of the video/behavioral data for mimicry and self-disclosure. The mimicry results are also limited because they were only assessed within the phubbing condition and they did not occur in the control condition. Therefore, I cannot rule out the possibility that the mimicry findings were indicative of individual differences. It is also possible that how participants

placed their phone on the table (facing up vs facing down) could have confounded the mimicry findings because confederates always kept their phone facing upwards, while non-confederate participants placed their devices either way. The following section elaborates further on study conclusions and directions for future research.

CHAPTER 6: CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

The affordances of mobile communication allow for people to build affiliation and connect with others more than ever before in recorded history (Chayko, 2017). An underlying assumption of this study rests on decades of research that suggests that humans have a need for affiliation and are motivated to avoid affiliative threats, such as experiencing social rejection (Nezlek, Wesselmann, Wheeler & Williams, 2015; Wesselmann & Williams, 2017). When mobile communication habits occur during FtF interactions, it is possible for phubbing, a negative expectancy violation, to occur. Given that mobile phone checking habits, for example, occur commonly throughout the day – especially among young adults that tend to check their mobile phones more than other age cohorts (e.g., older adults) (Rainie and Zickuhr, 2015). In addition, most young adults encounter phubbing daily (Chotpitayasunondh & Douglas, 2018). Consistent with previous phubbing and EVT research, I suspected that mobile checking would hinder interpersonal judgements and self-disclosure during first encounters among young adult college students, which was anticipated to be mediated by perceptions of phubbing expectancy violations. Partial support was found for the predictions.

Despite the limitations, the study contributes to EVT theory by extending the theory to the investigation of phubbing and communication outcomes (self-disclosure), which is both consistent with the theory and novel in the phubbing context. In addition, EVT proposes that nonverbal behavioral mimicry naturally promotes affiliation, in part by mitigating perceptions of negative expectancy violations. To this end, the present study also makes a modest contribution to theory by reporting on the potential role of mobile phone mimicry during first encounters among young adults. In lieu of the findings and

given the prevalence of mobile communication habits and phubbing among young adults, it is important that future research continues to examine how such mobile communication behaviors potentially influence key aspects of interpersonal communication and affiliation formation. The following subsection further elaborates on potential future research directions, open questions, and conclusions.

Although this study sheds light on novel research questions, it also sets the stage for future research. In this conclusion subsection, I lay out a framework for a future research agenda and propose several open research questions. Much is yet to be learned about both the causes and effects of phubbing behaviors. In addition, the application of EVT based approaches to this domain has much to offer. Moreover, it is plausible that phubbing processes may become reincarnated in the context of emerging mobile media and communication technologies (Vanden Abeele, forthcoming); for instance, other types of technology-use-snubbing behaviors may develop during FtF interactions. In short, interactive mobile media habits, which are thought to be a driving force behind phubbing behaviors, surface in the context of a myriad of interactive media technologies (e.g., mixed-reality technology such as Magic Leap) and will likely continue to do so in the future (LaRose, 2015). As such, considering how widely pervasive interactive media habit behaviors may influence interpersonal evaluations, communication processes, and relationships is paramount to understanding the potential impacts of use.

At the present time, however, there is still much to be discovered about how mobile checking habits, phubbing, expectancy violations, and interpersonal communication processes work together. One area that is especially in need of

continued research attention is on the potential prosocial effects of mobile phone use during FtF interactions, which may mitigate the adverse effects of negative phubbing expectancy violations and disruptive mobile phone checking. The present study was the first to attempt to assess whether mobile phone checking mimicry can work to engender prosocial outcomes (e.g., more favorable interpersonal evaluations, less likely to perceive negative expectancy violations and/or promote self-disclosure). In addition, recent formulations of EVT in the phubbing context have also attempted to explicate additional mechanisms that could help explain potential prosocial effects of mobile phone use during FtF interactions (Vanden Abeele, forthcoming).

A new study by Vanden Abeele et al. (in press) suggests that phubbing occurs in most FtF interactions; however, a sizable portion of such interactions involve sharing one's screen with their interaction partner, thus highlighting another possibly related avenue to pursue prosocial phone use during FtF interactions. Another recent field study also indicates that parallel mobile phone use, such as two partners holding hands while they are both interacting with their own mobile phones, may lead to prosocial outcomes (Humphreys & Hardeman, 2019). As such, future research could continue to investigate mobile phone mimicry, parallel use, and forms of device sharing in relation to negative expectancy violations and interpersonal outcomes.

Moreover, there is still much unknown about the potential adverse effects of phubbing – especially in regard to the exchange of verbal messages. This study focused on self-disclosure given its relevance for affiliation formation and relationship development. However, self-disclosure and other important forms of interpersonal communication, such as the exchange of social support, can develop over time

throughout a given relationship. As such, future research could continue to examine phubbing, expectancy violations, and self-disclosure in a myriad of relationship domains.

Much of the phubbing research, though diverse in some respects (e.g., culturally), tends to focus on young adults and romantic relationship domains. Previous research, however, has examined phubbing within intergenerational family relationships (e.g., Kadylak et al., 2018; SawChuk & Crow, 2012). If one does take on the pursuit of investigating phubbing and interpersonal communication within other relationship domains, it may also be important to consider different types of phubbing (e.g., proactive vs responsive phubbing) (Vanden Abeele et al., 2016). Given previous findings, one may expect to potentially observe more severe phubbing effects on self-disclosure than in the present study if proactive, or unsolicited phubbing, is assessed in conjunction with responsive phubbing (which was the only type of phubbing tested in this study).

Future mobile communication research could also consider gaze length variations in the context of phubbing. Such an approach might help parse out the mechanisms of action between mobile phone checking and prosocial/antisocial outcomes during FtF interactions. By investigating gaze length, mimicry, perceptions of phubbing expectancy violations, and varying types of phubbing behaviors one might procure a deeper understanding of how mobile communication habits develop and influence interpersonal communication and affiliation formation processes.

In summary, this study suggests that mobile phone checking and phubbing among young adults may influence key aspects of interpersonal communication and

affiliation formation. Though mobile checking habits and phubbing occur frequently throughout the daily lives of young adults, potential phubbing effects (i.e., less favorable interpersonal evaluations and less self-disclosure) should generally be thought of as unintended consequences of mobile checking habits that tend to occur with limited to no deliberation (Bayer et al., 2016). In other words, phone-snubbing (phubbing) occurs as a result of mobile phone checking habits – instead of deliberately attempting to make one’s interaction partner feel ignored. Similarly, automatic behavioral mimicry may also play a key role in shaping potential phubbing effects. By advancing this research agenda, we will be able to better grasp how widely pervasive mobile communication habits influence daily life.

APPENDICES

Appendix A: Confederate Instructions

Purpose/Overview:

The purpose of the study is to assess emerging adults during a face-to-face get-to-know-you activity. Specifically, you will interact with your study partner for 10-minutes. During the interaction, you and your study partner will take turns discussing a **meaningful event that has occurred in both your lives during the past year**. Based on SONA IDs, study personnel have already randomized which participant will start the discussion. When you are in the speaker role, you will discuss a meaningful event that has occurred in your life. While you are in the listener role you will discuss the meaningful event that occurred in your study partner's life.

You have been randomly selected to start in the listener role. In addition, you have also been selected to be the confederate in this study. This means we need you to perform one extra task during the interaction. Specifically, you will receive 3 text messages from study personnel during the interaction. We need you to visually confirm that each message is delivered. And, we need you to clear the message as naturally as possible, while lifting your phone from the table. Aside from naturally checking your phone for messages, we would like you to engage in the discussion as you otherwise would.

Checklist/Procedures:

- Please confirm that you reviewed the consent form and completed the pre-interaction survey
- Please sit in the seat that the researcher has asked you to sit in and take a few moments to consider a meaningful event that you might wish to discuss during the get-to-know-you-activity
- Do not worry about the time during the interaction
- If you have a backpack, purse, coat, or any other small personal item make sure they are in the specified location
- During the interaction, please put your mobile phone on the table in front of you and please make sure your phone is in silent mode and facing upwards
- As instructed above, please check your phone for 3 “test messages” throughout the interaction. When the message alert appears on your mobile phone, please read the message while lifting your phone from the table.

- Please do not rearrange or move the chairs or other furniture in the interaction room
- Once the Interaction has ended, please complete the brief post-interaction survey

THANK YOU FOR YOUR PARTICIPATION!

Appendix B: Measures

Self-Disclosure (Laurenceau, Barrett & Pietromonaco, 1998)

1. During the interaction I disclosed my thoughts
2. During the interaction I disclosed my emotions
3. During the interaction I disclosed intimate information about myself

Response options: 1 (very little) to 5 (a great deal)

Interpersonal Evaluations

Liking/Social Attraction (Weisband & Atwater, 1999, Vanden Abeele et al., 2016)

1. I like my interaction partner
2. I dislike my interaction partner (R)
3. I would like to see my interaction partner again (dropped due to factor analysis)

Response options: 1 (strongly disagree) to 5 (strongly agree)

Perceived Trust (Larzelere & Huston, 1980)

1. My interaction partner was perfectly honest and trustful
2. My interaction partner was truly sincere
3. I feel that I can trust my interaction partner
4. I feel that my interaction partner can be counted on

Response Options: 1 (strongly disagree) to 5 (strongly agree)

Perceived Emotional Empathy (Reis and Carmichael, 2006)

1. My Interaction partner: expressed liking and encouragement for me.
2. Seemed interested in what I was thinking and feeling.
3. Seemed interested in discussing things with me.
4. Valued my opinions.
5. Respected me.

Response Options: 1 (Not true at all) to 5 (Completely true)

Perceived Phubbing Expectancy Violation

Expectancy Violation of Phubbing Norm (Chotpitayasunondh and Douglas, 2016)
(Manipulation Check questions)

1. My interaction partner's mobile phone use was appropriate during our interaction (R)
2. My interaction partner's mobile phone use made me feel ignored

Response Options: 1 (strongly disagree) to 5 (strongly agree)

Control Variables

Mood/Positive Affect (Przybylski & Weinstein, 2013 observed an $\alpha = 0.95$)

How much do you feel?

1. Happy
2. Joyful
3. Pleased
4. Enjoyment/Fun
5. Depressed
6. Unhappy
7. Frustrated
8. Angry

9. Worried/Anxious

Response options: 1 (not at all) to 5 (extremely)

Extraversion ($\alpha = 0.63$)

1. I see myself as someone who is reserved (this item was reverse coded)

2. I see myself as someone who is outgoing and sociable

Response options: 1 (strongly disagree) to 5 (strongly agree)

Mobile Phone-checking Habit (Bayer, Dal Cin, Campbell & Panek (2016) observed an $\alpha = 0.95$)

Please rate your level of agreement or disagreement with the following statements:

Checking my mobile phone is something...

1. I do automatically

2. I do without thinking

3. I do without having to consciously remember

4. I start doing before I realize I am doing it.

Response options: 1 (Strongly disagree) to 5 (Strongly agree)

How old are you?

What is your Sex?

1. Female

2. Male

What is your race? Please select all that apply.

a. Asian / Pacific Islander

b. Black or African American

c. White or Caucasian

e. Other

Education Level

What is your current education level?

(please circle only one option)

1. Freshman

2. Sophomore

3. Junior

4. Senior

5. Graduate Student

6. Other

REFERENCES

REFERENCES

- Afifi, W. A., & Burgoon, J. K. (2000). The impact of violations on uncertainty and the consequences for attractiveness. *Human Communication Research, 26*(2), 203-233.
- Altman, I., & Taylor, D. (1973). *Social penetration theory*. New York: Holt, Rinehart & Winston.
- Argyle, M., & Dean, J. (1965). Eye-contact, distance and affiliation. *Sociometry, 28*(3), 289-304.
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology, 63*(4), 596–612.
- Aron, A., Melinat, E., Aron, E. N., Vallone, R. D., & Bator, R. J. (1997). The experimental generation of interpersonal closeness: A procedure and some preliminary findings. *Personality and Social Psychology Bulletin, 23*(4), 363-377.
- Balcetis, E. (2016). Approach and avoidance as organizing structures for motivated distance perception. *Emotion Review, 8*(2), 115-128.
- Bargh, J. A. (1994). The four horsemen of automaticity: Awareness, intention, efficiency, and control in social cognition. *Handbook of social cognition, 1*, 1-40.
- Bargh, J. A., & Ferguson, M. J. (2000). Beyond behaviorism: on the automaticity of higher mental processes. *Psychological bulletin, 126*(6), 925.
- Bayer, J. B., Dal Cin, S., Campbell, S. W., & Panek, E. (2016). Consciousness and self-regulation in mobile communication. *Human Communication Research, 42*(1), 71-97.
- Bayer, J. B., Campbell, S. W., & Ling, R. (2016). Connection cues: Activating the norms and habits of social connectedness. *Communication Theory, 26*(2), 128-149.
- Berg, J. H. (1987). Responsiveness and self-disclosure. In *Self-disclosure* (pp. 101-130). Boston, MA: Springer.
- Berger, C. R. (1993). Uncertainty and social interaction. *Annals of the International Communication Association, 16*(1), 491-502.
- Berger, C. R., & Calabrese, R. J. (1974). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human communication research, 1*(2), 99-112.
- Bernieri, F. J. (1988). Coordinated movement and rapport in teacher-student interactions. *Journal of Nonverbal behavior, 12*(2), 120-138.
- Bianchi, A., & Phillips, J. G. (2005). Psychological predictors of problem mobile phone use. *CyberPsychology & Behavior, 8*(1), 39-51.

- Bryan, W.L., & Harter, N. (1899). Studies on the telegraphic language: The acquisition of a hierarchy of habits. *Psychological review*, 6(4), 345-375.
- Burchell, K. (2015). Tasking the everyday: Where mobile and online communication take time. *Mobile Media & Communication*, 3(1), 36-52.
- Burgoon, J. K. (1978). A communication model of personal space violations: Explication and an initial test. *Human Communication Research*, 4(2), 129-142.
- Burgoon, J. K. (1993). Interpersonal expectations, expectancy violations, and emotional communication. *Journal of Language and Social Psychology*, 12(1-2), 30-48.
- Burgoon, J. K. (2015). Expectancy violations theory. *The international encyclopedia of interpersonal communication*, 1-9.
- Burgoon, J. K., Guerrero, L. K., & Floyd, K. (2016). *Nonverbal communication*. New York, NY: Routledge.
- Burgoon, J. K., & Hale, J. L. (1988). Nonverbal expectancy violations: Model elaboration and application to immediacy behaviors. *Communications Monographs*, 55(1), 58-79.
- Campbell, S. W. (2007). Perceptions of mobile phone use in public settings: A cross-cultural comparison. *International Journal of Communication*, 1(1), 738-757.
- Campbell, S. (2008). Perceptions of mobile phone use in public: The roles of individualism, collectivism, and focus of the setting. *Communication Reports*, 21(2), 70-81.
- Campbell, S. W. (2013). Mobile media and communication: A new field, or just a new journal?. *Mobile Media & Communication*, 1(1), 8-13.
- Campbell, S. W., & Ling, R. (2017). Mobile communication: Bringing us together and tearing us apart. In *Mobile Communication* (pp. 11-26). New York, NY: Routledge.
- Carpenter, A., & Greene, K. (2016). Social Penetration Theory. *The International Encyclopedia of Interpersonal Communication*. <https://wp.comminfo.rutgers.edu/kgreene/wp-content/uploads/sites/51/2018/02/ACGreene-SPT.pdf>
- Castells, M., Fernandez-Ardevol, M., Qiu, J. L., & Sey, A. (2009). *Mobile communication and society: A global perspective*. MIT Press.
- Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect: the perception-behavior link and social interaction. *Journal of personality and social psychology*, 76(6), 893.
- Chartrand, T. L., & Lakin, J. L. (2013). The antecedents and consequences of human behavioral mimicry. *Annual review of psychology*, 64, 285-308.
- Chayko, M. (2007). The portable community: envisioning and examining mobile social connectedness. *International Journal of Web Based Communities*, 3(4), 373-385.
- Chayko, M. (2017). *Superconnected: The internet, digital media, and techno-social life*. Thousand Oaks, CA: Sage Publications.

- Cheever, N. A., Rosen, L. D., Carrier, L. M., & Chavez, A. (2014). Out of sight is not out of mind: The impact of restricting wireless mobile device use on anxiety levels among low, moderate and high users. *Computers in Human Behavior, 37*, 290-297.
- Chotpitayasunondh, V., & Douglas, K. M. (2016). How “phubbing” becomes the norm: The antecedents and consequences of snubbing via smartphone. *Computers in Human Behavior, 63*, 9-18.
- Chotpitayasunondh, V., & Douglas, K. M. (2018). The effects of “phubbing” on social interaction. *Journal of Applied Social Psychology, 48*(6), 304-316.
- Collins, N. L., & Miller, L. C. (1994). Self-disclosure and liking: a meta-analytic review. *Psychological bulletin, 116*(3), 457-475.
- Cozby, P. C. (1973). Self-disclosure: a literature review. *Psychological bulletin, 79*(2), 73-91.
- Cui, D. (2016). Beyond “connected presence”: Multimedia mobile instant messaging in close relationship management. *Mobile Media & Communication, 4*(1), 19-36.
- Dance, F. E. (1970). The “concept” of communication. *Journal of communication, 20*(2), 201-210.
- David, M. E., & Roberts, J. A. (2017). Phubbed and alone: Phone snubbing, social exclusion, and attachment to social media. *Journal of the Association for Consumer Research, 2*(2), 155-163.
- Deloitte, U. S. (2016). Global mobile consumer survey: US edition,”. *Deloitte US*. <https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/global-mobile-consumer-survey-us-edition.html>
- Desjarlais, M., & Joseph, J. J. (2017). Socially interactive and passive technologies enhance friendship quality: An investigation of the mediating roles of online and offline self-disclosure. *Cyberpsychology, Behavior, and Social Networking, 20*(5), 286-291.
- Dindia, K., & Allen, M. (1992). Sex differences in self-disclosure: a meta-analysis. *Psychological bulletin, 112*(1), 106-124.
- Duffy, K. A., & Chartrand, T. L. (2015). Mimicry: causes and consequences. *Current Opinion in Behavioral Sciences, 3*, 112-116.
- Eagleman, D. (2015). *The brain: The story of you*. New York, NY: Penguin Books.
- Eisenberger, N. I., & Lieberman, M. D. (2004). Why rejection hurts: a common neural alarm system for physical and social pain. *Trends in cognitive sciences, 8*(7), 294-300.
- Ellis, D. A., Dr, Davidson, B. I., Shaw, H., & Geyer, K. (2018, November 21). Do smartphone usage scales predict behaviour?. <https://doi.org/10.31234/osf.io/6fjr7>
- Feldman, R., Weller, A., Zagoory-Sharon, O., & Levine, A. (2007). Evidence for a neuroendocrinological foundation of human affiliation: plasma oxytocin levels across

- pregnancy and the postpartum period predict mother-infant bonding. *Psychological Science*, 18(11), 965-970.
- Finkel, J. A., & Kruger, D. J. (2012). Is cell phone use socially contagious? *Human Ethology Bulletin*, 27(1-2), 15–17.
- Forgays, D. K., Hyman, I., & Schreiber, J. (2014). Texting everywhere for everything: Gender and age differences in cell phone etiquette and use. *Computers in Human Behavior*, 31, 314-321.
- Gergen, K. J. (2002). The challenge of absent presence. *Perpetual contact: Mobile communication, private talk, public performance*, 227-242.
- Gray, R. (2018). Breaks in Connectedness? The Meaning and Experience of Response Delays in Mobile Communication (Dissertation).
- Greene, K., Derlega, V. J., & Mathews, A. (2006). Self-disclosure in personal relationships. *The Cambridge handbook of personal relationships*, 409-427.
<http://himaforstaunair.url.ph/soal/Self%20Disclsoure%20in%20Personal%20Relationships%20copy.pdf>
- Hales, A. H., Dvir, M., Wesselmann, E. D., Kruger, D. J., & Finkenauer, C. (2018). Cell phone-induced ostracism threatens fundamental needs. *The Journal of social psychology*, 158(4), 460-473.
- Hall, E. T. (1963). A system for the notation of proxemic behavior. *American anthropologist*, 65(5), 1003-1026.
- Hall, E. T. (1966). *The hidden dimension* (Vol. 609). Garden City, NY: Doubleday.
- Hall, J. A. (2006). Women's and Men's Nonverbal Communication: Similarities, Differences, Stereotypes, and Origins. In V. Manusov & M. L. Patterson (Eds.), *The Sage handbook of nonverbal communication* (pp. 201-218).
<http://dx.doi.org/10.4135/9781412976152.n11>
- Hall, J. A., Baym, N. K., & Miltner, K. M. (2014). Put down that phone and talk to me: Understanding the roles of mobile phone norm adherence and similarity in relationships. *Mobile Media & Communication*, 2(2), 134-153.
- Halpern, D., & Katz, J. E. (2017). Texting's consequences for romantic relationships: A cross-lagged analysis highlights its risks. *Computers in Human Behavior*, 71, 386-394.
- Hampton, K. N. (2016). Persistent and pervasive community: New communication technologies and the future of community. *American Behavioral Scientist*, 60(1), 101-124.
- Hjorth, L., & Richardson, I. (2017). Pokémon GO: Mobile media play, place-making, and the digital wayfarer. *Mobile Media & Communication*, 5(1), 3–14.
- Hove, M. J., & Risen, J. L. (2009). It's all in the timing: Interpersonal synchrony increases affiliation. *Social Cognition*, 27(6), 949-960.

- Humphreys; H. Hardeman (2019). Mobiles in Public: Social Interaction in a Smartphone Era L. 69th International Communication Association Annual Meeting.
- Ito, M. E., Okabe, D. E., & Matsuda, M. E. (2005). *Personal, portable, pedestrian: Mobile phones in Japanese life*. MIT press.
- Kadylak, T. (under review). An Investigation of Perceived Phubbing Effects and Well-Being, among U.S. Older Adults.
- Kadylak, T., Makki, T. W., Francis, J., Cotten, S. R., Rikard, R. V., & Sah, Y. J. (2018). Disrupted copresence: Older adults' views on mobile phone use during face-to-face interactions. *Mobile Media & Communication*, 6(3), 331-349.
- Karadağ, E., Tosuntaş, Ş. B., Erzen, E., Duru, P., Bostan, N., Şahin, B. M., ... & Babadağ, B. (2015). Determinants of phubbing, which is the sum of many virtual addictions: A structural equation model. *Journal of behavioral addictions*, 4(2), 60-74.
- Karadağ, E., Tosuntaş, Ş. B., Erzen, E., Duru, P., Bostan, N., Şahin, B. M., ... & Babadağ, B. (2016). The virtual world's current addiction: phubbing. *Addicta: Turkish journal on addictions*, 3(2), 252-269.
- Karremans, J. C., & Verwijmeren, T. (2008). Mimicking attractive opposite-sex others: The role of romantic relationship status. *Personality and Social Psychology Bulletin*, 34(7), 939-950.
- Katz, J. E. (2006). Mobile communication and the transformation of daily life: The next phase of research on mobiles. *Knowledge, Technology & Policy*, 19(1), 62-71.
- Katz, J. E., Katz, J. E., & Aakhus, M. (Eds.). (2002). *Perpetual contact: Mobile communication, private talk, public performance*. Cambridge University Press.
- Katz, J. E. (2011). *Magic in the air: Mobile communication and the transformation of social life* (Vol. 1). New Brunswick, NY: Transaction Publishers.
- Kelly, L., Miller-Ott, A. E., & Duran, R. L. (2017). Sports scores and intimate moments: An expectancy violations theory approach to partner cell phone behaviors in adult romantic relationships. *Western Journal of Communication*, 81(5), 619-640.
- Korb, S., Malsert, J., Rochas, V., Rihs, T. A., Rieger, S. W., Schwab, S., ... & Grandjean, D. (2015). Gender differences in the neural network of facial mimicry of smiles—An rTMS study. *Cortex*, 70, 101-114.
- Krasnova, H., Abramova, O., Notter, I., & Baumann, A. (2016, June). Why Phubbing is Toxic for your Relationship: Understanding the Role of Smartphone Jealousy among " Generation y" Users. In *ECIS* (p. ResearchPaper109).
- Lacohée, H., Wakeford, N., & Pearson, I. (2003). A social history of the mobile telephone with a view of its future. *BT Technology Journal*, 21(3), 203-211.
- LaFrance, M., & Hecht, M. A. (1995). Why smiles generate leniency. *Personality and Social Psychology Bulletin*, 21(3), 207-214.

- Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. *Frontiers in psychology*, 4. <https://www.frontiersin.org/articles/10.3389/fpsyg.2013.00863/full>
- Lakin, J. L., & Chartrand, T. L. (2003). Using nonconscious behavioral mimicry to create affiliation and rapport. *Psychological science*, 14(4), 334-339.
- LaRose, R. (2010). The problem of media habits. *Communication Theory*, 20(2), 194-222.
- LaRose, R. (2015). The psychology of interactive media habits. *The handbook of the psychology of communication technology*, 32, 365-380.
- LaRose, R., Connolly, R., Lee, H., Li, K., & Hales, K. D. (2014). Connection overload? A cross cultural study of the consequences of social media connection. *Information Systems Management*, 31(1), 59-73.
- Laurenceau, J. P., Barrett, L. F., & Pietromonaco, P. R. (1998). Intimacy as an interpersonal process: the importance of self-disclosure, partner disclosure, and perceived partner responsiveness in interpersonal exchanges. *Journal of personality and social psychology*, 74(5), 1238-1251.
- Leary, M. R., & Baumeister, R. F. (2017). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. In *Interpersonal Development* (pp. 57-89). Routledge.
- Leary, M. R., & Cox, C. B. (2008). Belongingness motivation: A mainspring of social action. In J. Y. Shah & W. L. Gardner (Eds.), *Handbook of motivation science* (pp. 27-40). New York, NY, US: Guilford Press.
- Licoppe, C. (2004). 'Connected'presence: The emergence of a new repertoire for managing social relationships in a changing communication technoscape. *Environment and planning D: Society and space*, 22(1), 135-156.
- Licoppe, C., & Smoreda, Z. (2005). Are social networks technologically embedded?: How networks are changing today with changes in communication technology. *Social networks*, 27(4), 317-335.
- Ling, R. (1998). 'One can talk about common manners!': The use of mobile telephones in inappropriate situations. *Teletronikk*, 94, 65-78.
- Ling, R. (2002). The social juxtaposition of mobile telephone conversations and public spaces. In Conference on the Social Consequence of Mobile Telephones.
- Ling, R. (2004). *The mobile connection: The cell phone's impact on society*. San Francisco, CA: Elsevier.
- Ling, R. (2005). The mobile connection. *International Journal of Technology and Human Interaction*, 1(4), 101-104.
- Ling, R. S. (2008). *New tech, new ties*. Cambridge, MA: MIT press.

- Ling, R. (2012). *Taken for grantedness: The embedding of mobile communication into society*. MIT Press.
- Ling, R., & McEwen, R. (2010). Mobile communication and ethics: implications of everyday actions on social order. *Etikk i praksis-Nordic Journal of Applied Ethics*, (2), 11-26.
- Ling, R., & Yttri, B. (2002). Hyper--coordination via mobile phones in Norway. In *Perpetual contact: Mobile communication, private talk, public performance* pp. 139-169.
- Lipscomb, T. J., Totten, J. W., Cook, R. A., & Lesch, W. (2007). Cellular phone etiquette among college students. *International Journal of Consumer Studies*, 31(1), 46-56.
- McDaniel, B. T., & Coyne, S. M. (2016). "Technoferece": The interference of technology in couple relationships and implications for women's personal and relational well-being. *Psychology of Popular Media Culture*, 5(1), 85.
- Mehrabian, A. (2017). *Nonverbal communication*. New York, NY: Routledge.
- Mendelson, M. J., & Aboud, F. (2012). McGill Friendship Questionnaire & Friendship Functions (MFQ-FF). Measurement instrument database for the social science.
- Miller, L. C., Berg, J. H., & Archer, R. L. (1983). Openers: Individuals who elicit intimate self-disclosure. *Journal of personality and social psychology*, 44(6), 1234.
- Miller-Ott, A. E., Kelly, L., & Duran, R. L. (2012). The effects of cell phone usage rules on satisfaction in romantic relationships. *Communication Quarterly*, 60(1), 17-34.
- Miller-Ott, A., & Kelly, L. (2015). The presence of cell phones in romantic partner face-to-face interactions: An expectancy violation theory approach. *Southern Communication Journal*, 80(4), 253-270.
- Miller-Ott, A. E., & Kelly, L. (2017). A Politeness Theory Analysis of Cell-Phone Usage in the Presence of Friends. *Communication Studies*, 68(2), 1-18.
- Misra, S., Cheng, L., Genevie, J., & Yuan, M. (2016). The iPhone effect: the quality of in-person social interactions in the presence of mobile devices. *Environment and Behavior*, 48(2), 275-298.
- Nezlek, J. B., Wesselmann, E. D., Wheeler, L., & Williams, K. D. (2015). Ostracism in everyday life: The effects of ostracism on those who ostracize. *The Journal of social psychology*, 155(5), 432-451.
- Nowak, K. (2001, May). Defining and differentiating copresence, social presence and presence as transportation. In *Presence 2001 Conference, Philadelphia, PA* (pp. 1-23).
- Omarzu, J. (2000). A disclosure decision model: Determining how and when individuals will self-disclose. *Personality and Social Psychology Review*, 4(2), 174-185.
- Pettigrew, J. (2009). Text messaging and connectedness within close interpersonal relationships. *Marriage & Family Review*, 45(6-8), 697-716.

- Poushter, J., Bishop, C., & Chwe, H. (2018). Social Media Use Continues to Rise in Developing Countries but Plateaus Across Developed Ones. *Pew Research Center*, 22. http://assets.pewresearch.org/wp-content/uploads/sites/2/2018/06/15135408/Pew-Research-Center_Global-Tech-Social-Media-Use_2018.06.19.pdf
- Przybylski, A. K., & Weinstein, N. (2013). Can you connect with me now? How the presence of mobile communication technology influences face-to-face conversation quality. *Journal of Social and Personal Relationships*, 30(3), 237-246.
- Rainie, L., & Zickuhr, K. (2015). American's views on mobile etiquette: Always on mobile connectivity poses new challenges for users about when to be present with those nearby or engaged with others on their screens. *Pew Research Center*. Available at: http://www.pewinternet.org/files/2015/08/2015-08-26_mobile-etiquette_FINAL.pdf.
- Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of research in Personality*, 41(1), 203-212.
- Reis, H. T., Maniaci, M. R., Caprariello, P. A., Eastwick, P. W., & Finkel, E. J. (2011). Familiarity does indeed promote attraction in live interaction. *Journal of personality and social psychology*, 101(3), 557.
- Richter, Felix. (June 20, 2018). Digital Detox, America's Smartphone Addiction. <https://www.statista.com/chart/12403/smartphone-addiction/>
- Roberts, J. A., & David, M. E. (2016). My life has become a major distraction from my cell phone: Partner phubbing and relationship satisfaction among romantic partners. *Computers in Human Behavior*, 54, 134-141.
- Roberts, J. A., & David, M. E. (2017). Put down your phone and listen to me: How boss phubbing undermines the psychological conditions necessary for employee engagement. *Computers in Human Behavior*, 75, 206-217.
- Sawchuk, K., & Crow, B. (2012). "I'm G-Mom on the Phone" Remote grandmothering, cell phones and inter-generational dis/connections. *Feminist Media Studies*, 12(4), 496-505.
- Sbarra, D., Briskin, J., & Slatcher, R. B. (in press). Smartphones and Close Relationships: The Case for an Evolutionary Mismatch. *Perspectives on Psychological Science*.
- Scissors, L. E., Gill, A. J., & Gergle, D. (2008, November). Linguistic mimicry and trust in text-based CMC. In *Proceedings of the 2008 ACM conference on Computer supported cooperative work* (pp. 277-280). ACM.
- Schrock, A. R. (2015). Communicative affordances of mobile media: Portability, availability, locatability, and multimediality. *International Journal of Communication*, 9, 1229-1246.
- Spengler, F. B., Scheele, D., Marsh, N., Kofferath, C., Flach, A., Schwarz, S., ... & Hurlmann, R. (2017). Oxytocin facilitates reciprocity in social communication. *Social cognitive and affective neuroscience*, 12(8), 1325-1333.
- Sprecher, S., & Treger, S. (2015). The benefits of turn-taking reciprocal self-disclosure in get-acquainted interactions. *Personal Relationships*, 22(3), 460-475.

- Sprecher, S., Treger, S., Wondra, J. D., Hilaire, N., & Wallpe, K. (2013). Taking turns: Reciprocal self-disclosure promotes liking in initial interactions. *Journal of Experimental Social Psychology, 49*(5), 860-866.
- Srivastava, L. (2005). Mobile phones and the evolution of social behaviour. *Behaviour & information technology, 24*(2), 111-129.
- Tardy, C. H., & Smithson, J. (2018). Self-disclosure: Strategic revelation of information in personal and professional relationships 1. In *The handbook of communication skills* (pp. 217-258). Routledge.
- Turkle, S. (2017). *Alone together: Why we expect more from technology and less from each other*. Hachette UK.
- Utz, S. (2015). The function of self-disclosure on social network sites: Not only intimate, but also positive and entertaining self-disclosures increase the feeling of connection. *Computers in Human Behavior, 45*, 1-10.
- Vanden Abeele, M. M. P. (forthcoming). The social consequences of phubbing: A framework and a research agenda. In R. Ling, G. Goggin, L. Fortunati, S. S. Lim, & Y. Li (Eds.), *Handbook of Mobile Communication, Culture, and Information* (pp. xx-xx). Oxford University Press.
- Vanden Abeele, M. M., Antheunis, M. L., & Schouten, A. P. (2016). The effect of mobile messaging during a conversation on impression formation and interaction quality. *Computers in Human Behavior, 62*, 562-569.
- Vanden Abeele, M. V., De Wolf, R., & Ling, R. (2018). Mobile media and social space: How anytime, anyplace connectivity structures everyday life. *Media and Communication, 6*(2), 5-14.
- Vanden Abeele, M. M. P., Hendrickson, A., Pollmann, M. M. H., & Ling, R. (in press). Phubbing behavior in conversations and its relation to perceived conversation intimacy and distraction: An exploratory observation study. *Computers in Human Behavior*.
- Vanden Abeele, M. M., & Postma-Nilsenova, M. (2018). More Than Just Gaze: An Experimental Vignette Study Examining How Phone-Gazing and Newspaper-Gazing and Phubbing-While-Speaking and Phubbing-While-Listening Compare in Their Effect on Affiliation. *Communication Research Reports, 1-11*.
- Vanden Abeele, M. V., Schouten, A. P., & Antheunis, M. L. (2017). Personal, editable, and always accessible: An affordance approach to the relationship between adolescents' mobile messaging behavior and their friendship quality. *Journal of Social and Personal Relationships, 34*(6), 875-893.
- van't Veer, A. E., & Giner-Sorolla, R. (2016). Pre-registration in social psychology—A discussion and suggested template. *Journal of Experimental Social Psychology, 67*, 2-12.
- Verplanken, B., & Orbell, S. (2003). Reflections on Past Behavior: A Self-Report Index of Habit Strength 1. *Journal of applied social psychology, 33*(6), 1313-1330.

- Vondracek, F. W. (1969). Behavioral measurement of self-disclosure. *Psychological Reports*.
<https://journals-sagepub-com.proxy1.cl.msu.edu/doi/pdf/10.2466/pr0.1969.25.3.914>
- Walters, M. L., Dautenhahn, K., Te Boekhorst, R., Koay, K. L., Kaouri, C., Woods, S., ... & Werry, I. (2005, August). The influence of subjects' personality traits on personal spatial zones in a human-robot interaction experiment. In *Robot and Human Interactive Communication, 2005. ROMAN 2005. IEEE International Workshop on* (pp. 347-352).
- Wang, X., Xie, X., Wang, Y., Wang, P., & Lei, L. (2017). Partner phubbing and depression among married Chinese adults: The roles of relationship satisfaction and relationship length. *Personality and Individual Differences, 110*, 12-17.
- Weisband, S., & Atwater, L. (1999). Evaluating self and others in electronic and face-to-face groups. *Journal of Applied Psychology, 84*(4), 632-639.
- Wenzel, A., Sprecher, S., & Harvey, J. (2018). Self-Disclosure and Starting a Close Relationship. In *Handbook of Relationship Initiation* (pp. 164-185). Psychology Press.
- Wesselmann, E. D., & Williams, K. D. (2017). Social life and social death: Inclusion, ostracism, and rejection in groups. *Group Processes & Intergroup Relations, 20*(5), 693-706.
- White, C. H. (2008). Expectancy violations theory and interaction adaptation theory. *Engaging theories in interpersonal communication*, 189-202.
- Williams, K. D. (2007). Ostracism. *Annual review of psychology, 58*. 425-452.
- Williams, K. D. (2009). Ostracism: A temporal need-threat model. *Advances in experimental social psychology, 41*, 275-314.
- Williams, K. D., & Jarvis, B. (2006). Cyberball: A program for use in research on interpersonal ostracism and acceptance. *Behavior research methods, 38*(1), 174-180.