THE ROLE OF MOBILE ATTACHMENT: THE SECURE BASE FOR EXPLORATORY BEHAVIOR

by

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(Under the Direction of Sun Joo (Grace) Ahn)

ABSTRACT

The purpose of the current dissertation was to investigate 1) how an individual's attachment style influences his or her mobile attachment, and 2) whether the mobile phone provides a secure base to users in the same way an attachment figure in an interpersonal relationship functions as a secure base. In study one, a self-administered online survey (N=231) was conducted to explore the relationship between individuals' attachment orientation, mobile attachment, and general attitude toward mobile advertising. The results indicated that attachment anxiety is associated with mobile attachment, while attachment avoidance is not, confirming earlier findings from the literature. Furthermore, mobile attachment mediates the relationship between attachment anxiety and attitude toward mobile advertising. However, the mediation role of mobile attachment on the effect of attachment avoidance on attitude toward mobile advertising was not supported. Interestingly, attachment avoidance is negatively associated with attitude toward mobile advertising.

Study two (N=154) investigated the secure base function of the mobile phone in a 3 (mobile phone availability: detachment, physical proximity, availability) x 2 (brands: high vs. low curiosity generating) between-subjects, post-test only experiment. The results demonstrated that mobile phone availability has a significant effect on skipping advertising and the percentage

of ad watched. People who were separated from their mobile phones watched an advertising video for less time and skipped the ad more than people who used their mobile phones or people who maintained proximity to their mobile phones while using someone else's phone. Furthermore, people with high attachment to their mobile phones or high attachment anxiety watched the ad for significantly less time when they were separated from their mobile phones compared to people with either low mobile attachment or low attachment anxiety. In summary, the current studies demonstrated that (a) mobile phones serve as substitute attachment targets for their users; (b) the mere presence of one's mobile phone provides a sense of security to the user; and (c) there is a moderating role of mobile attachment and attachment anxiety on the secure base function of mobile phones.

INDEX WORDS: Mobile Attachment, Mobile Advertising, Attachment Theory, Exploratory Behavior, Secure Base

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DEDICATION

I dedicate this dissertation to my loving parents, Hoonbok Park and Woonhee Song, who have supported me with their consistent love and prayers.

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TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

Exploration constitutes a large part of consumer behavior and the motivations that drive such behaviors (Baumgartner &Steenkamp, 1996; Steenkamp &Baumgartner, 1992). Exploratory behavior is comprised of exploratory acquisition of products (EAP), such as seeking variety or trying a new or novel product, and exploratory information seeking (EIS), such as curiosity-related responses to ads, or acquisition of product information (Baumgartner &Steenkamp, 1996; Raju & Venketesan,1980). Thus, encouraging exploratory behavior in consumers is anticipated to provide opportunities for marketers to successfully promote their new brands or products, or to expand their customer base.

According to the evolutionary theory of attachment (Bowlby, 1973) and recent studies on mobile attachment, the mobile phone, an essential part of modern life, has the potential to promote the user's exploratory behaviors. Attachment theory posits that attachment figures, such as parents or romantic partners, provide secure bases for an individual to engage in exploratory behavior (Bowlby, 1973). Emerging research has demonstrated that people build attachment relationships with their mobile phones as well and that an individual's interpersonal attachment style also influences the attachment toward their mobile phones (Konok, Gigler, Bereczky, & Miklósi, 2016). Recent data from the Federal Reserve System (2016) demonstrate that mobile phones play an important role in consumer's exploratory behavior: forty-one percent of smartphone users use their phones to look up product reviews or information while they are shopping at a store (Federal Reserve System, 2016). Better understanding the person-to-mobile

attachment based on attachment theory and its impact on the user's exploratory behavior would yield deeper insights for individually tailored, and thus more effective, marketing communication. Based on a survey and a laboratory experiment, the current dissertation attempts to explore 1) how an individual's attachment style influences their mobile attachment, and 2) whether the mobile phone provides a secure base to the users in the same way the attachment figure of interpersonal relationship functions as a secure base.

The following chapters will 1) provide an overview of attachment theory; 2) discuss mobile attachment and how it is related with attachment theory; 3) discuss the possibility of mobile phone as a secure base; 4) present a survey study that investigates the relationship between attachment orientation and mobile attachment; 5) present an experimental study that examines the secure base function of mobile phone; and 6) discuss theoretical and practical implications of the current dissertation studies.

CHAPTER 2

ATTACHMENT THEORY

Attachment Theory

To understand a) the relationship between human and mobile phone, and b) the role of mobile phone in promoting consumer's exploratory behavior, Bowlby's (1969/1982) attachment theory will provide a theoretical framework for the current dissertation. Bowlby's (1969/1982) attachment theory is one of the most popular psychological theories and has provided theoretical foundations for numerous studies on infant-caregiver relationships, personality development, social psychology, and clinical psychology (Gillath, Karantzas, &Fraley, 2016). Attachment theory provides a useful framework for exploring the emotional bonds people have with their mobile phones. First, it provides explanations for both the emotional and the behavioral aspects of attachment. Second, attachment theory specifies the functions of attachment that help to understand and predict people's behavior derived from mobile attachment. Lastly, the unique assumption of attachment theory that early experiences with caregiver relationships influence other relationships in adulthood suggests the influence of an individual's attachment style on the human-mobile relationship (Cassidy & Shaver, 2002).

Based on the observation of young children who were separated from their mothers (Bowlby, Robertson, & Rosenbluth,1952), Bowlby (1969/1982), who first developed attachment theory, argued that infants are predisposed to seek proximity to a primary caregiver when they are in threat or distress. He defined attachment as 'any form of behavior that results in a person attaining or retaining proximity to some other differentiated and preferred individual, who is

conceived as a stronger and/or wiser' (Bowlby, 1973, p.292/203). His theory of attachment holds an ethological perspective that the behavioral patterns of attachment have become characteristics of human or subhuman as they increase survival advantages to them (Bowlby, 1969/1982). Based on his reviews of animal behavior, he argued that the attachment behaviors of infants are evolutionary and biological functions (Bowlby, 1969/1982). From the evolutionary perspective, proximity to mother, which is maintained by attachment behavior, increases the likelihood of protection and the chance of survival (Bowlby, 1969/1982). Harlow's (1958) groundbreaking experiment provides empirical evidence for Bowlby's theory. In his experiment, infant rhesus monkeys were isolated from their biological mothers and provided with two inanimate mother surrogates: one who is made of wire and the other one made with terry cloth. Harlow (1958) found that those monkeys spent significantly more time cuddling with the terry cloth mother than the wire mother. Even if the wire mother provided food, the monkeys came back to the terry cloth mother after they ate from the wire mother. Harlow's (1958) work provides empirical evidence that the bond between the infant and his or her mother is not only because of the infant's biological needs, but also its emotional needs for as comfort, love and affection.

According to Bowlby's attachment theory, the attachment behaviors are regulated and organized within an attachment behavioral system (Bowlby, 1969/1982). Through interactions with their caregivers, infants construct an attachment system to maintain safety and survival. Infants activate this innate regulatory system to gain proximity, support, and comfort from primary caregivers, in times of need (Bowlby, 1969/1982). Once developed in infancy, the system continues to guide an individual's behavior in constructing and maintaining interpersonal relationships through adulthood and influences future relationships (Hazan & Shaver, 1987; Fraley &Shaver, 2000).

Attachment Orientation

One of the purposes of the current dissertation is to investigate how an individual's attachment style, which is developed from the early interactions with attachment figures, is related to the individual's attachment to his or her mobile phone. Attachment theory assumes that an individual's early experiences with his or her caregiver shape his or her attachment style, which continues to influence other relationships throughout adulthood (Bowlby, 1973). Based on this, the current dissertation attempts to examine the possibility that an individual's attachment orientation influences how the individual develops an attachment relationship with his or her mobile phone. Although the attachment system itself is universal, a history of interactions with attachment figures in infancy shapes an individual's attachment orientation or style. The working model has two primary forms: a) working model of the self that represents how an individual is acceptable to his or her attachment figure, and b) working model of the world that represents the attachment figure's accessibility and responsibility (Bowlby, 1969/1982, 1973). If an infant experiences repeated interactions with a primary caregiver that are warm and responsive, the infant is likely to develop a secure working model. The individually varying attachment styles formed in early childhood are relatively stable in that they continue to manifest in future attachment relationships, such as one's relationship with a romantic partner (Bowlby, 1973).

Scholars have worked on developing a better measurement of an individual's attachment orientation and whether an individual's attachment orientation is categorical or dimensional has received considerable attention from scholars. Based on Bowlby's (1973) original work, Bartholomew (1990) proposed a two-dimensional model of adult attachment that consists of a representation of *self* and a representation of *others* (Bartholomew,1990; Bartholomew & Horowitz,1991). The *self* dimension captures the individual's image of self as worthy of support,

and is conceptualized as attachment anxiety. The *other* dimension is conceptualized as attachment avoidance that indicates belief about the other's availability. The intersections of these two-dimensions generate four quadrants of attachment patterns: dismissing-avoidant, fearful-avoidant, secure, and preoccupied. Bartholomew's four-category model has received empirical support which shows the distinct features of two types of avoidance. While fearful avoidance shows social insecurity and lack of assertiveness, dismissing avoidance is associated with excessive coldness (Bartholomew & Horowitz, 1991; Cassidy &Shaver, 2002; Feeney, Noller & Hanrahan, 1994).

Despite wide usage, a question regarding the appropriateness of the four-category model has been raised because the categorical measurement of attachment has several limitations (Gillath et al., 2016). First, the stability of measuring attachment has turned out to be weak. When examining the stability of Hazan and Shaver's (1987) scale, Baldwin and Fehr (1995) found that the attachment style in 30% of the subjects changed over a period ranging from a week to 12 months. Second, data indicate that the attachment categories of the categorical measurement system are not mutually exclusive (Collins &Read, 1990; Gillath et al., 2016). Last, within-category variance that might be useful for analysis is not considered in the categorical measurement system (Gillath et al., 2016).

Over time, researchers have reached the conclusion that individual differences in adult attachment are best conceptualized with two dimensions (Bartholomew& Horowitz, 1991; Brennan, Clark, & Shaver,1998; Simpson, 1990). Based on factor analysis of a large pool of items, Brennan et al. (1998) suggested a two dimensional model of attachment with *attachment-related anxiety* and *attachment-related avoidance*. The first dimension, attachment-related anxiety, refers to the extent of worries about the availability and supportiveness of an attachment

figure, such as romantic partners or parents (Brennan et al.,1998; Mikulincer, Hirschberger, Nachmias, &Gillath, 2001). The anxiety dimension is believed to reflect the positive or negative working model of self that represents one's sense of self-value to others and acceptance by others.

The second dimension, attachment-related avoidance, refers to the degree of discomfort with intimacy and emotional closeness (Brennan et al.,1998; Mikulincer et al., 2001). The avoidance dimension is believed to reflect the positive or negative working model of others that represents the extent to which the individual believes that the self is worthy of support and protection from the attachment figure (Mikulincer et al., 2001). People who are high on this dimension show a preference for emotional distance, self-reliance, and a distrust of partners (Mikulincer et al., 2001). People who score low on both dimensions are defined as having secure attachment styles and are said to have a sense of security and are comfortable with emotional closeness and dependence (Bartholomew& Horowitz, 1991; Brennan et al.,1998; Mikulincer et al., 2001). As people who have secure attachment styles have expectations about support from the attachment figure and trust regarding their partners' availability in times of need, they seek support and comfort from their partners when they are distressed (Bartholomew& Horowitz, 1991; Brennan et al.,1998; Mikulincer et al., 2001). In an effort to offset the limitation of categorical measurement, the two-dimensional model of attachment will be used in the current dissertation.

Table 1. Two Dimensions of Attachment Orientation

Dimension	Descriptions
Attachment anxiety	• the extent of worries about the availability and supportiveness of an attachment figure, such as romantic partners or parents • the positive or negative working model of self that represents one's sense of self-value to others and acceptance by others.
Attachment avoidance	• the extent of discomfort with intimacy and emotional closeness

	• the positive or negative working model of others that represents the extent to which the individual believes that the self is worthy of support and protection from the attachment figure.

CHAPTER 3

ATTACHMENT TO MOBILE PHONES

Attachment to Non-human Targets

While most animal species only develop attachment relationships with their parents (Bowlby, 1982; Konok et al., 2016), humans tend to form attachment relationships with different kinds of attachment figures, such as romantic partners (Fraley, Brumbaugh & Marks, 2005) or friends (Markiewicz, Lawford, Doyle & Haggart, 2006). Since Bowlby's (1973) pioneering work, attachment theory has provided a fundamental framework for many research areas in social sciences. Research in psychology has focused on the attachment in the context of interpersonal relationships, such as child-parent or romantic partners (Fraley & Shaver, 2000). Research in marketing has extended the theoretical boundaries by demonstrating that people even form attachments to objects (Ball & Tasaki,1992; Mehta & Belk,1991;Schultz, Kleine &Kernan,1989; Slater, 2000), gifts (Mick &DeMoss,1990), places (Hill &Stamey,1990), or sports teams (Babad,1987). Furthermore, consumers have emotional bonds with brands and this self-brand attachment influences consumers' behavior, attitude, and emotion (Park, Macinnis, &Priester, 2006). This growing literature seems to suggest that the basic assumptions and conceptual premises of attachment theory in interpersonal relationships may be extended to and observed in non-interpersonal attachments (Park et al.,2006).

Bowlby(1969/1982) argued that the attachment function of primary caregivers could be substituted by supplemental figures although most of the attachment behavior is exhibited to primary caregivers. Similarly, Winniccott (1953) argued that children are strongly attached to

objects such as blankets, stuffed animals, toys, or pillows, which he called 'transitional object', because they comfort and sooth children. When the anxiety is aroused by the separation from caregivers, the transitional object helps to relieve the anxiety (Winniccott,1953). Regarding this infant's attachment to inanimate object, Bowlby (1969/1982) argued that the object simply substitutes for the attachment figure or the natural object of attachment. Furthemore, Bowlby(1969/1982) argued that infants exhibit attachment behavior to the inanimate object, when the attachment figure is not available. His perspective has been supported by research showing that some objects substitute for attachment figure. Wolf and Lozoff (1989) found that the use of transitional object was more frequently observed in middle-class children who sleep alone at night. Some of cross-cultural studies (Gaddini &Gaddini ,1970, Hong & Townes, 1976) also corroborate Bowlby's 'substitute object' perspective. Although Bowlby(1969/1982,1973) and Winnicott's(1953) perspective regarding the child's attachment to non-human objects are slightly different, both perspectives support the object's function of attachment, providing security to the children.

Mobile Attachment

Although a number of attachment relationships with non-human targets have been studied, relatively few studies have focused on the attachment to technology, or more specifically, the mobile phone, one of the most prevalent communication platforms of the recent digital era. Considering the time spent on mobile phones and current usage patterns, the mobile phone is playing an essential role in individuals' everyday lives. Based on the latest data from Pew Research Center (Smith, 2015), 64% of American now own smartphones and this prevalence of smartphones has changed the pattern of life activities. Almost one in five Americans have no other broadband internet service or have limited options for going online

(Smith, 2015).This data clearly show that smartphones are used not only for calling, texting, or internet browsing, but also for a wide range of routine life events such as online banking, seeking government services, or even taking educational classes(Smith, 2015). In reflection of the significant amount of time spent on mobile phones and people's dependence on them, some research has focused on the excessive or problematic use of mobile phones (Bianchi & Phillips, 2005; Monden, Kubo& Morimoto, 2006).

Clayton, Leshner, & Almond (2015) provided further empirical support of the importance of these human-mobile phone relationships by demonstrating the negative influence of separation from mobile phones. Results indicated that being separated from a ringing mobile phone increased both physiological levels of anxiety and self-reported feelings of unpleasantness and anxiety. Also, the separation from a ringing mobile phone led to poor performance on cognitive tasks. Although Clayton et al' s (2015) study did not directly consider the effect of mobile phone attachment on users' cognition and emotion, it provided empirical evidence that separation from mobile phones may cause anxiety in much the same way as separation anxiety occurs in interpersonal attachment relationships.

Recent research investigated the changes and influences the mobile phone has brought to our lives with an evolutionary perspective, the attachment theory. Using a large internet sample, Chopik and Peterson (2014) measured the changes in attachment orientation at the societal level and found that the attachment anxiety of younger adults has decreased from 2012 to 2012, while attachment avoidance has not changed. The number of mobile phone subscriptions per 100 people, which dramatically rose during this time frame, was negatively associated with attachment anxiety. Based on the results, Chopik and Peterson (2014) argued that the increased

use of technology and social networking could be the cause of decreased attachment anxiety because technology use may provide a perception of availability of close others.

According to Konok et al. (2016), people develop attachment toward their mobile phones as they would in infant-parent relationships: they seek the proximity of mobile phone and feel distressed when they are separated from it. Furthermore, Konok, Pogany, &Miklosi (2017) found that the characteristics of interpersonal attachment system, such as separation insecurity, separation anxiety, secure base, and safe haven, also exist in the human-mobile phone attachment relationship.

The existence of a human-mobile phone attachment in the light of Bowlby's (1969/1982) attachment theory is also supported by empirical evidence (Konok et al.,2017). To test the effect of separation from mobile phone, Konok et al. (2017) used multiple cognitive tasks(e.g. calculations, word search puzzle) along with the emotional Stroop test, where the words with various colors are presented on the computer screen and the participants are asked to identify the color of the word as fast as they can. Separated participants and non-separated participants showed no difference in the level of state anxiety and cognitive performance on the task. However, the separated participants with a higher mobile attachment had an attentional bias to separation-related stimuli in the emotional Stroop test: they reacted slower to the separation-related words (e.g. loneliness, divorce). In the Stroop test, slower reaction time (poorer performance) indicates that the words are related to participant's emotional state because people use more attentional resources when they are processing emotion-related words (MacLeod, Mathews, & Tata, 1986; MacLeod&Rutherford, 1992). Thus, the results of Konok et al.'s (2017) study proved that the separation from mobile phone, along with the high mobile phone attachment, produce separation-related emotion of the participants.

Other Perspectives on Human-Mobile Phone Relationship

Four major perspectives, including attachment theory, have suggested in literature to provide understanding of the human-mobile relationship. The first perspective is understanding the human-mobile phone relationship as a pathological symptom, an *addiction* (Choliz, 2010). A significant amount of literature that focused on the problematic outcomes of the mobile phone, such as using mobile phone while driving or distractions and interruptions in classroom and social environments (David, Kim, Brickman, Ran, & Curtis, 2015), defined this phenomenon as mobile phone addiction. According to the literature on mobile addiction, addictions develop when the user excessively depends on the device to obtain psychological benefits, such as reducing the negative mood or obtaining a sense of reassurance (Griffiths, 1999; Orford, 2011). This makes it more difficult to distinguish between mobile addiction and mobile attachment. To distinguish mobile attachment from mobile addiction, a close look at literature on substance addiction is necessary. Based on attachment theory, self- psychology, and affection regulation theory, Flores (2001) defined addiction as 'an attachment disorder induced by a person's misguided attempt at self-repair because of deficits in psychic structure'(p.63). Ineffective attachment system, which is derived from environmental deprivation, makes an individual vulnerable to environmental influences (Flores, 2001). Thus, mobile addiction should not be understood as an intensified form of attachment, but should be understood as a disorder with problematic needs that may result in negative outcomes (Flores,2001).

The second perspective is regarding the mobile phone as a transitional object. As the name refers, transitional objects are expected to be used only during the transitional period. The transitional object promotes children's connection between the self and external reality as it represents the mother who connects the infant to the external world (Winnicott,1953). Once an

individual accomplishes full autonomy as a result of healthy and appropriate development, the individual will not use the transitional object any longer (Hooley & Wilson-Murphy, 2012). An association between the use of a transitional object and borderline personality disorder(BPD) was investigated in multiple studies (Cardasis, Hochman, &Silk,1997; Labbate & Benedek,1996). However, it should be noted that pathological attachment to an object is distinguished from emotional attachment to an object. Hooley and Wilson-Murphy(2012) found that people who have mild attachment to transitional objects were not significantly different from people who never had attachment to transitional objects in terms of borderline personality disorder. Regarding mobile phone as a transitional object seems inappropriate when considering the fact that mobile attachment is commonly observed in adults (Sato, Harman, Adams, Evans, &Coolsen, 2013; Vincent, 2006). Furthermore, some of the adults who are attached to their mobile phones have no experiences with mobile phones in their early childhoods.

The third perspective considers the mobile phone as an extended self (Clayton et al., 2015). According to the extended self theory, people are attached to some of their possessions that are perceived close to them and these objects are considered as a part of themselves (Belk, 1988). Evidences showing people consider the mobile phone as a part of themselves are found. In an experimental study, Clayton et al. (2015) found that self-reporting of an extended self was decreased when the users of a mobile phone were separated from their phones. Although the theory of extended self provides an explanation for the relationship between people and the mobile phone, the current dissertation will use Bowlby's (1973) attachment theory, not the theory of the extended self for the following reasons. First, attachment theory is more appropriate to predict individual variances in attachment behavior than the concept of extended self. The attachment theory posits that an infant's repeated interactions with primary caregiver develop an

individually different attachment orientation that keeps influencing other relationships in the infant's adulthood. Second, the functions of attachment are specified in attachment theory and this helps to understand how an individual's mobile attachment influences one's behavior. The specified function of attachment, such as *secure base* and *safe haven*, may provide practical implications to the marketing practitioners because the behavioral consequences of attachment can be predicted. Thus, the current dissertation adopts the fourth perspective, attachment theory, to understand the role of mobile attachment in mobile marketing and to investigate the attachment function, specifically *secure base* function, of mobile phone.

Although many research studies in marketing and communication investigated the construct 'mobile attachment', the way researchers define mobile attachment is varied and the definitions are not based on attachment theory. For instance, Sultan, Rohm, and Gao (2009) defined personal attachment toward mobile phone as 'the extent to which consumers seek to personalize their mobile phones with unique content, wallpapers, and ringtones as ways to present their phones as extensions of the self.' In addition to Sultan et al's (2009) definition, Gao, Rohm, Sultan, and Pagani (2013) added the consumers' perception of the mobile phone, 'the extent to which consumers view their mobile phone as an integral part of their life'.

Defining the construct mobile attachment based on attachment theory is important because the other constructs of current study, interpersonal attachment style and secure base, are also derived from the attachment theory. Thus, the current dissertation will define the construct mobile attachment to include the features of interpersonal attachment system. In this study, *mobile attachment* is defined as 'the extent to which consumers regard their mobile phones as a target of attachment and show the characteristics of an attachment system (e.g., safe haven, secure base).'

CHAPTER 4

MOBILE PHONE AS A SECURE BASE FOR EXPLORATION

Building on the earlier findings from social psychology and marketing research, the current dissertation studies will examine whether a mobile phone can serve as a secure base to its owner, encouraging exploratory behavior in a mobile advertising context.

Secure Base and Exploratory Behavior

According to Bowlby's (1979) attachment theory, there are three basic characteristics of attachment in interpersonal relationships (Bowlby, 1979). First, individuals have a desire to stay near their attachment figures physically or psychologically. The attachment figures can provide support and comfort by remaining proximal in the physical space. If the attachment figure is not available in times of need by separation or loss, anxiety and distress may occur. Second, when the environment is threatening or stressful, the attachment figure offers a "*safe haven,*" which provides security, protection, and comfort to a person and helps overcome the distress and anxiety. Third, when the attachment figure is in close proximity, he or she provides a "*secure base*" that encourages a person to explore the world without becoming distressed (Ainsworth, Blehar, Waters,& Wall, 1978). This helps people expand their limits and boundaries through challenges and goal pursuit (Feeney, 2004;Feeney 2007). These behavioral indicators of attachment are directly observable in mother-child attachments (Ainsworth et al., 1978) and also can be experienced in adults through other attachment relationships during various phases of their lives.

Among the characteristics mentioned above of attachment, this study will specifically focus on the secure base function that the mobile phone provides and how it encourages the user's exploratory behavior. The sense of secure base plays a significant role in personal growth and the expansion of cognitive capabilities and capacities since it promotes engagement in risk-taking activities and exploration (Aron&Aron, 1986). According to Bowlby (1982), the attachment system is closely related to the fear regulating system that exploration and risk-taking activities inherently require. For instance, when infants are exposed to danger or an unfamiliar environment, they attempt to locate themselves in close proximity to their attachment figures because the perceived supports from their attachment figures help them control the fear (Bowlby, 1982). There is extensive evidence that demonstrates how infants' sense of a secure base works against the fear system. Infants showed less fear to strangers when they were with their caregivers (Morgan &Ricciuti, 1969; Sorce&Emde, 1981) and the sense of secure base fostered more positive interactions and more favorable attitudes toward novel stimuli (Arend, Gove, & Sroufe, 1979; Mikulincer& Shaver, 2001; Moss, Gosselin, Parent, Rousseau, & Dumont, 1997;).

Adults also use their attachment figures as a secure base to engage in exploratory behavior. Ketterson and Blustein (1997) found that higher quality and levels of attachment to both the mother and the father are related to college students' higher career exploration, including both environmental exploration, such as occupation or organization exploration, and self-exploration such as self-assessment and retrospection. Feeney (2004) examined how secure base works in adult romantic relationships. In the observational study, one person from a couple was assigned to the role of "support-provider," and the other was assigned to the role of "support-receiver." The couples were asked to discuss the support receiver's future personal goals. The results of the study demonstrated that the support-receiver's perceived security was

linked to his or her perception of exploratory opportunity (Feeney, 2004), which was associated with his or her exploratory and support-seeking behavior (Feeney, 2004). Furthermore, the support-receiver who perceived high levels of support during the discussion displayed positive outcomes following the discussion, such as higher self-esteem, increases in a positive mood, or a greater likelihood of achieving their goals (Feeney, 2004).

The concept of the dependency paradox which posits that the dependence on a relationship partner promotes autonomous behavior clearly demonstrates how the secure base promotes exploration (Feeney, 2007). The availability of a responsive attachment figure provides people with a sense of security, and this secure feeling encourages people to engage in exploration more confidently and autonomously. The dependency paradox has been supported by empirical data in all age groups (Feeney&Thrusch, 2010). Whereas children raised by responsive caregivers explored in confident ways, children raised by less responsive caregivers were less confident in exploration (Ainsworth et al., 1978; Belsky et al., 1984; Bowlby, 1988). A study examining the dependency paradox in adult intimate relationships (Feeney, 2007) found that a close relationship partner's responsiveness to and acceptance of the other partner's dependency needs promoted the other partner's independence, self-efficacy, engagement in exploration, and achievement of independent goals (Feeney, 2007).

Attachment Functions of Non-Human Attachment

The attachment system is activated and developed by cues that elicit feelings similar to the infant-parent relationship (Fraley & Shaver, 2000), and consequently, is not limited to interpersonal relationships, but can be extended to non-human entities, such as gods and deities(Kirkpatrick,1994), places (Hill & Stamey, 1990), or objects (Babad, 1987; Hill &Stamey, 1990; Mick &DeMoss, 1990). Not only the human attachment figure, but also the non-human

attachment targets could provide attachment functions, such as *safe haven*, *proximity seeking*, and *secure base*. In an experimental study, Zilcha-Mano, Mikulincer, and Shaver (2012) provided evidence that supports the attachment functions of pet. The participants of the study, who are pet owners, were assigned to one of the three conditions: pet physical presence, pet cognitive presence, and no pet presence. Then, the participants were asked to generate life goals and provide their confidence in goal attainment. The people who were assigned in physical or cognitive pet presence generated a greater number of life goals and showed higher self-confidence in goal attainment. The results show that pet serves as an attachment object that provides the primary attachment functions, *safe-haven* and *secure base*.

CHAPTER 5

DISSERTATION STUDY ONE: INDIVIDUAL DIFFERENCES IN ATTACHMENT ORIENTATION AND MOBILE ATTACHMENT

This study investigated a) how an individual's interpersonal attachment style is related to human-to-mobile attachment and b) how these constructs influence attitudes toward mobile advertising. Attachment to non-human objects has been considered a compensatory attachment strategy, triggered by threats to attachment security (Keefer, Landau, Rothschild, &Sullivan,2012). According to Hazan and Shaver (1994), when a primary attachment figure, usually primary caregivers in infancy or an intimate partner in adults, is not available, people seek a subsidiary attachment figure as a source of security. Also, people with unsatisfied attachment needs in interpersonal relationships may have substitute relationships to compensate for the unsatisfied attachment needs (Granqvist, Mikulincer, and Shaver 2010). Keefer et al. (2012) found out that this assumption even works for attachment to non-human objects and that non-human objects may serve as a compensatory attachment target to restore the individual's sense of security. In an experimental study (Keefer et al., 2012), people's attachment to objects increased when they were primed with a close other's unreliability in a relationship compared to when primed with a stranger's unreliability. Furthermore, priming with a close other's unreliability increased separation anxiety from their mobile phones. The separation anxiety derived from the priming was still significant after controlling for the participants' perceptions of the extent that their mobile phones facilitated their social relationships. The results of the study show that the mobile phone not only provides social connections to people but may also serve as

a compensatory security source that substitutes for a close other.

Based on this, an individual's perception of an attachment target's availability or reliability is expected to play a significant role in the individual's attachment to his or her mobile phone because previous research shows that the perceived unavailability or unreliability of the primary attachment target increases attachment to objects (Keefer et al., 2012). Attachment theory posits that an individual's perceptions of the attachment figure's availability are reflected in the individual's attachment style. Thus, an individual's attachment orientation in interpersonal relationships will influence the individual's attachment toward the mobile phone. Unlike the interpersonal relationships, in which both partners' attachment orientations interact, the human-object relationship will be determined solely by the individual's attachment style. That is, the support provided by the object solely depends on the user's perception for the availability of the object as an attachment target. Anxious individuals have concerns regarding the availability and supportiveness of an attachment figure. Multiple studies found that attachment anxiety is related to attachment to objects including the mobile phone (Hooley & Wilson-Murphy, 2012; Keefer et al., 2012; Konok et al. 2016). On the other hand, avoidant people prefer independence and distance from the attachment figure. In prior research that investigates the effect of attachment avoidance on attachment to an object, attachment avoidance had no effect on attachment to object in general (Keefer et al., 2012) and attachment to the mobile phone (Konok et al. 2016).

A recent study by Konok et al. (2016) investigated whether attachment anxiety and avoidance predict the mobile attachment scale (MAS) that has three components: *phone proximity seeking, need for contact, and preference for mobile communication.* The first component, *phone proximity seeking*, is characterized by the need for proximity to the mobile phone and the stress caused by the separation from the mobile phone. The second component,

need for contact, includes items about the need for constant contact with others. Thus, this component focuses on the connections the mobile phone provides, not the mobile phone itself. The third component *preference for mobile communication* includes items regarding the preference of mobile communication over face to face communication. Interestingly, attachment anxiety did not predict higher *proximity seeking,* whereas attachment anxiety predicted a higher total score on the MAS and the *need for contact* component. Regarding this, Konok et al. (2016) argued that the proximity of mobile phones is important to people regardless of their attachment styles, and this caused a ceiling effect that makes the effect of attachment anxiety on proximity seeking not significant.

Although Konok et al.'s (2016) mobile attachment scale (MAS) reflects an element of attachment theory, *proximity seeking*, the scale is not enough to fully reveal attachment relationship between people and the mobile phone in the light of Bowlby(1969/1982) 's attachment theory. While *proximity seeking* is considered, *secure base* and *safe haven*, two other functions of the attachment system are not reflected in Konok et al.'s (2016) mobile attachment scale (MAS). Thus, the current dissertation attempts to investigate the effect of attachment anxiety and avoidance on mobile attachment in the perspective of attachment theory. Understanding the role of attachment anxiety and attachment avoidance in the human-mobile relationship is essential because attachment anxiety and avoidance are the factors that influence the functions of the attachment system. For instance, in interpersonal relationships, an individual's attachment orientation predicts how he or she perceives the secure base support from his or her attachment figure (Feeney & Thrush, 2010). For instance, insecure individuals, who are high in attachment anxiety or avoidance, perceived that their partners were less available as a secure base during exploration activity. Feeney and Thrush (2010) suggested that anxious

individuals and avoidant individuals may have different reasons for perceiving lower availability of their partners. An individual who has a high level of attachment anxiety desires extreme closeness with his or her partner, and this expectation may burden the partner and result in less availability. On the other hand, an individual who has a high level of attachment avoidance prefers independence and emotional distance.

Unlike the interpersonal relationships where the attachment figure may contribute to the secure base function, the secure base function of the user-mobile relationship is solely dependent on how the user perceives the mobile phone as a secure base. Based on previous research (Hooley & Wilson-Murphy, 2012; Keefer et al., 2012; Konok et al., 2016), anxious people are expected to be more likely form attachment toward their mobile phones and perceive the mobile phone as a secure base. This is because anxious people may want to compensate for their unsatisfied attachment needs with their mobile phones, and they may perceive that their mobile phones provide enough secure base support as they can get the support from their mobile phones whenever they want it, unlike the interpersonal relationship where the support is dependent on the availability of attachment figure. On the other hand, avoidant people are expected not to form a strong attachment to their mobile phones as they still prefer independence and distance from others. Based on this, the following hypotheses are proposed.

H1a: Replicating previous findings, attachment anxiety is associated with mobile attachment.

H1b: Replicating previous findings, attachment avoidance is not associated with mobile attachment.

Previous literature suggests that the consumer's positive attitude toward mobile marketing can be considered as an indicator of exploratory behavior in the context of mobile

marketing. The numbers of curiosity-based thoughts produced in response to an ad (generated curiosity) are positively correlated to consumer's exploratory information seeking (EIS) (Baumgarter & Steenkamp,1996). On the other hand, curiosity generated through ads enhanced recall and comprehension of new product information and resulted in better product evaluation (Menon & Soman, 2002). Based on this, curiosity-based thoughts, which are closely associated with exploratory behavior, are also expected to contribute to forming a positive attitude toward advertising. Thus, the consumer's positive attitude toward mobile marketing can be considered as the result of consumer's exploratory behavior in the context of mobile marketing.

Although some previous research has attempted to investigate the influence of mobile attachment in attitude toward mobile advertising (Gao et al., 2013; Sultan et al., 2009), the construct of mobile attachment has been conflated with personal attachment, defined as 'the extent to which a consumer views the mobile phone as an integral part of his or her life and seeks to personalize it with unique content (such as mobile applications and ringtones) as a way to present the device as an extension of the self'(Gao et al., 2013, p.2539). Yet others have defined mobile attachment as 'the extent to which consumers seek to personalize their mobile phones with unique content, wallpapers, and ringtones as ways to present their phones as extensions of the self' (Sultan et al,, 2009, p.312), also conflating the concept with personal attachment with the mobile devices. Mobile attachment has also been conflated with emotional attachment, comprising multiple components such as being in touch with family and friends, and using the mobile phone to manage personal, work and social life (Kolsaker & Drakatos, 2009). Consequently, little research has examined mobile attachment in the light of Bowlby's (1969/1982) original attachment theory.

Despite various definitions of attachment, the findings from research on mobile advertising still show the possibility that mobile attachment may serve as a secure base that promotes consumer's positive attitude toward mobile advertising. While the effect of attachment anxiety and avoidance on mobile attachment has been examined in previous research (Konok et al.,2016), the role of attachment orientation and mobile attachment in shaping consumer's attitudes toward mobile advertising has not been sufficiently investigated in previous literature. Understanding how attachment orientation and mobile attachment influence consumer's attitudes toward mobile advertising will contribute to both theory and practice. First, the original theory of attachment will be extended to advertising research by providing explanations about individual differences in shaping attitudes towards mobile advertising. Second, the advertising practitioners will be able to make better advertising strategies based on their target consumers' attachment orientation and mobile attachment. Earlier literature has found that an individual's attachment orientation will predict the individual's mobile attachment; attachment anxiety will predict mobile attachment while attachment avoidance will not. Previous literature also demonstrates that mobile attachment positively influences consumer's attitudes toward mobile advertising (Gao et al., 2013; Kolsaker & Drakatos, 2009; Sultan et al., 2009). Thus, mobile attachment is anticipated to mediate the relationship between an individual's attachment anxiety and his or her attitude toward mobile advertising. However, in the relationship between an individual's attachment avoidance and his or her attitude toward mobile advertising, mobile attachment will not be a mediator as attachment avoidance will not predict mobile attachment.

H2a: Mobile attachment will mediate the relationship between *attachment anxiety* and attitude toward mobile advertising.

H2b: Mobile attachment will *not* mediate the relationship between *attachment avoidance* and attitude toward mobile advertising.

Methods

Sample

The current study will employ a self-administered online survey. A total of 231 college students participated in the survey for extra course credit (male=53, female=178). College students are deemed appropriate for the study since 94% of young adults 18 to 29 own a smartphone, and this is higher than 77% of all adults (Pew Research Center, 2018).

Measures

Attachment style. This is an assessment of individual differences in trait attachment styles. The respondents will complete Brennan, Clark, and Shaver's (1998) Experiences in Close Relationships-Revised(ECR-R) scale (see Appendix A for more information) to assess his or her adult attachment style. A 36 items version of the ECR-R scale ranging from 1(*strongly disagree*) to 7 (*strongly agree*) regarding general attachment orientation toward close relationship will be used.

Mobile attachment. Konok et al.'s (2017) Mobile Attachment Questionnaire (MAQ) was used to measure an individual's mobile attachment based on attachment theory. The 15 items of Mobile Attachment Questionnaire (MAQ) include: 5 items for separation insecurity, 4 items for separation anxiety, 3 items for safe haven, 3 items for secure base. The respondents will be asked to indicate the extent to which the statement is their characteristics from 1(not at all characteristic of me) to 7(very characteristic of me).

Attitude toward mobile marketing. Attitude toward mobile advertising was measured with a 6 items seven points Likert scale. Three items were adapted from Liu, Sinkovics,

Pezderka &Haghirian (2012): Mobile advertising helps me raise our standard of living. Mobile advertising helps me to find products that match my personality and interests. Mobile advertising helps me buy the best brand for a given price. Another three items were adapted from Feng, Fu, & Qin (2016): Using mobile advertising is a good idea. I like the idea of using mobile advertising. My attitude toward mobile advertising is positive.

Results

A regression analysis was used to investigate the hypothesis that mobile attachment mediates the effect of anxiety on attitude toward mobile advertising. The results of the mediation analysis are reported in Table 2. The results indicated that anxiety was a significant predictor of mobile attachment, B=.14, SE= .06, p=.03, supporting H1a. The results support the mediational hypothesis. Anxiety was no longer a significant predictor of attitude toward mobile advertising after controlling for the mediator, mobile attachment, B=-.11, SE=.07 ,p=.12, consistent with full mediation. Approximately 9% of the variance in attitude toward mobile advertising was accounted by the predictors(R^2=.092). The indirect effect was tested using a percentile bootstrap estimation approach with 10,000 samples, implemented with the PROCESS macro Version 3.3 (Model 4; Hayes, 2019). The indirect coefficient was significant, B=.05, SE=.03, 95%CI=.00, .10. Thus, H2a was supported.

Table 2. Regression Results for the Mediation of the Effect of Attachment Anxiety on Attitude toward Mobile Advertising by Mobile Attachment

Testing Steps in mediation Model	*B*	*SE B*	*p*	CI(lower)	CI(upper)
Testing Step 1(Path c)					
Outcome: attitude toward mobile advertising					
Predictor: anxiety	-.06	.07	.39	-.20	.08
	R^2=.00, *p*=.39				
Testing Step 2 (Path a)					
Outcome: mobile attachment					
Predictor: anxiety	.14	.06	.03	.02	.27

	R^2=.02, *p*=.03				
Testing Step 3 (Paths b and c')					
Outcome: attitude toward mobile advertising					
Mediator: mobile attachment (path b)	.33	.07	.00	.19	.46
Predictor: anxiety (path c')	-.11	.07	.12	-.24	.03
	R^2=.09, *p*=.00				
Indirect effect (a x b)	.05	.03		.00	.10

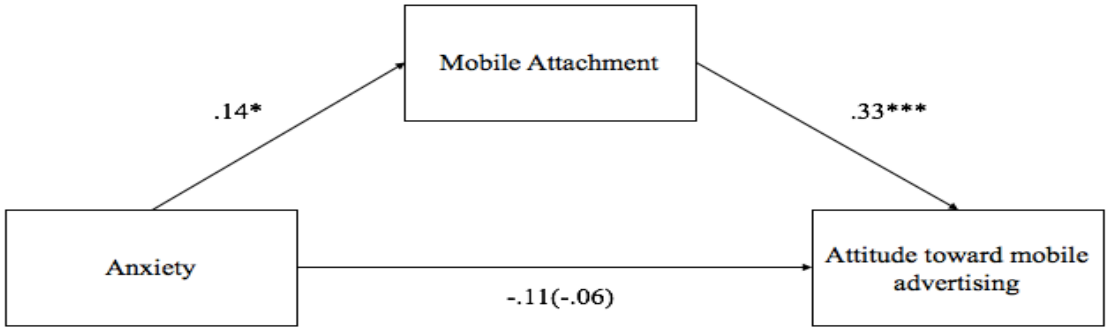

Figure 1. Standardized regression coefficients for the relationship between anxiety and attitude toward mobile advertising as mediated by mobile attachment.

Note: The standardized regression coefficient between anxiety and attitude toward mobile advertising, controlling for mobile attachment, is in parentheses. *p<.05 **p <.01***p<.001

The second regression analysis was conducted to investigate the hypothesis that mobile attachment does not mediate the effect of avoidance on attitude toward mobile advertising. The results of the mediation analysis are reported in Table 3. The results indicated that avoidance was not a significant predictor of mobile attachment, B=.11, SE=.07, p=.13, supporting H1b. However, mobile attachment was a significant predictor of attitude toward mobile marketing, B=.34, SE=.07, p<.001. Interestingly, avoidance was still a significant predictor of attitude toward mobile advertising after controlling for the mediator, mobile attachment, B=-.28, SE=.07 ,p<.001. Approximately 14% of the variance in attitude toward mobile advertising was

accounted by the predictors(R^2=.14). The indirect effect was tested using a percentile bootstrap estimation approach with 10,000 samples, implemented with the PROCESS macro Version 3.3 (Hayes, 2019). The indirect coefficient was not significant, B=.04 SE=.03, 95 %CI=-.01, .09. Thus, H2a was supported.

Table 3. Regression Results for the Mediation of the Effect of Attachment Avoidance on Attitude toward Mobile Advertising by Mobile Attachment

Testing Steps in mediation Model	*B*	*SE B*	*p*	CI(lower)	CI(upper)
Testing Step 1(Path c)					
Outcome: attitude toward mobile advertising					
Predictor: avoidance	-.24	.08	.00	-.40	-.09
	R^2=.04, *p*=.00				
Testing Step 2 (Path a)					
Outcome: mobile attachment					
Predictor: avoidance	.11	.07	.13	-.03	.25
	R^2=.01, *p*=.13				
Testing Step 3 (Paths b and c')					
Outcome: attitude toward mobile advertising					
Mediator: mobile attachment (path b)	.34	.07	.00	.20	.46
Predictor: avoidance (path c')	-.28	.07	.00	-.43	-.13
	R^2=.14, *p*=.00				
Indirect effect (a x b)	.04	.03		-.01	.09

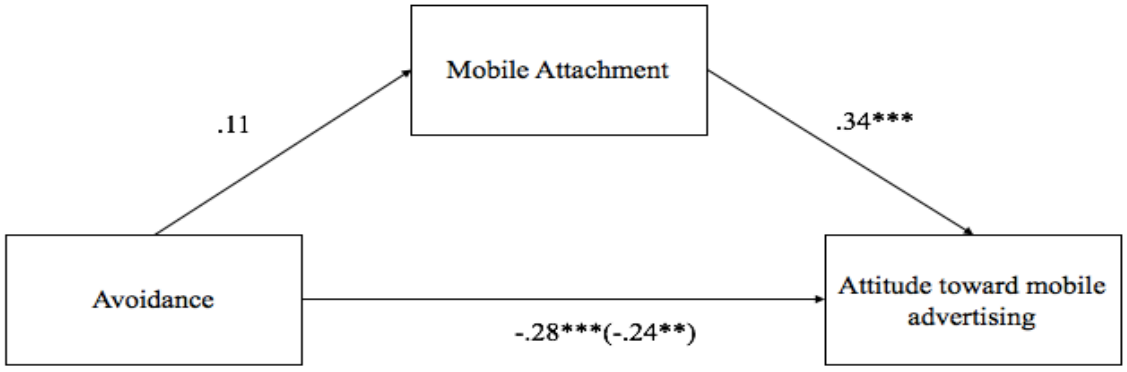

Figure 2. Standardized regression coefficients for the relationship between avoidance and attitude toward mobile advertising as mediated by mobile attachment.

Note: The standardized regression coefficient between avoidance and attitude toward mobile advertising, controlling for mobile attachment, is in parentheses. *p<.05 **p <.01***p<.001

Discussion

This study evidences an association between an individual's attachment orientation and mobile attachment, confirming earlier literature. As the literature suggests, attachment anxiety is associated with mobile attachment, while attachment avoidance is not associated with mobile attachment. Thus, people who have attachment anxiety are more likely to have higher mobile attachment, compared to people who have attachment avoidance. Based on Bowlby's (1969/1982) argument in which an object may substitute for an attachment figure, the association between attachment anxiety and mobile attachment shows the possibility that mobile phone works as an attachment object that provides attachment functions.

The hypotheses on the mediating role of mobile attachment on the relationship between attachment orientation and attitude toward mobile advertising were also supported. This implies that attachment orientation of an individual, along with mobile attachment, have both direct and indirect effect on consumer's attitude toward mobile advertising in general. This is the first empirical evidence that shows the connection between an individual's attachment orientation and the attitude toward mobile advertising. Previous research found that attachment avoidance has no effect on attachment to object (Keefer et al.,2012) and attachment to the mobile phone (Konok et al., 2016). Thus, attachment avoidance was anticipated not to influence attitude toward mobile advertising. However, contrary to the expectation, attachment avoidance was negatively associated with attitude toward mobile advertising, even after controlling the effect of mobile attachment.

This negative association is reasonable when considering the avoidant people's preference for independence and distance from the others. They may feel uncomfortable with mobile advertising because mobile advertising, compared to the other types of advertising, tend to be personalized and this will not be compatible with avoidant people's preference. Overall, Study1 provides a theoretical foundation for the next step of this dissertation that attempts to investigate the secure base function of the mobile phone.

CHAPTER 6

DISSERTATION STUDY TWO: MOBILE PHONE AS A SECURE BASE FOR EXPLORATION

Building on the findings of Study 1, this study investigated the secure base function of the mobile phone in an experimental setting. Specifically, the effect of mobile phone's availability on exploratory behavior in the context of mobile advertising was examined. Feeney and Thrush (2011) identified three characteristics of a secure base for encouraging optimal exploratory behaviors. First, a secure base is available when needed. Second, a secure base does not unnecessarily interfere with exploration. For instance, unsolicited support or attempts to control exploratory behavior may undermine the explorer's ability or confidence (Feeney &Thrush, 2010). Third, a secure base encourages and accepts exploration. Based on these characteristics, the mobile phone seems appropriate as a potential secure base for the following reasons: mobile phones are ubiquitous so that users may access their phones almost anywhere and at any time. Also, smartphones provide numerous features that support a variety of exploratory behaviors such as traveling, solving a puzzle, or web surfing, only when the user requests these services. Notifications can be turned off and the phone's features can be personalized and customized to the owner's preferences.

Among the three characteristics of a secure base, this study specifically focuses on the first criterion of the secure base, *availability*, because the availability of the secure base was found to be a significant predictor of exploration in interpersonal relationships (Feeney & Thrusch, 2010). Feeney and Thrusch (2010), who examined the function of a secure base on

exploration in the context of romantic relationships, found that exploration behavior persisted longer and the anxiety of the explorer decreased when an attachment figure (e.g., romantic partner) was available, compared to when an attachment figure was not available. Furthermore, Sorce and Emde (1981) found that not only the physical proximity of the attachment figure but also the figure's availability manifested through emotional support is essential to establish the attachment figure as a secure base. In Sorce and Emde's (1981) study which examined infants' exploratory behavior, the infants with mothers who are physically present, but unresponsive to the infant's requests for attention, showed less exploration compared to the infants who are with responsive mothers.

Based on earlier findings, both the mere physical presence of mobile phone (i.e., physical proximity) and the mobile phone's availability, in which the users believe that they can access and use their mobile phones whenever they need it, are expected to play important roles in encouraging the user's exploratory behaviors. Thus, Study 2 will explore the effect of varying levels of mobile phone availability on consumer's exploratory behavior. Mobile phone availability is operationalized in three levels: a) *detachment* (physically detached from the mobile phone), b) *physical proximity* (presence of the mobile phone is maintained while availability is not allowed), and c) *physical proximity with availability* (participants use their mobile phones for the experimental task).

As discussed earlier, exploratory consumer buying behavior is comprised of two factors: exploratory acquisition of products (EAP) and exploratory information seeking (EIS) (Baumgarter & Steenkamp, 1996). Although both EAP and EIS constitute a consumer's exploratory behavior, the current study will focus on consumer's EIS because the mobile phone is more relevant in an information-seeking context, rather than an actual acquisition of products.

In the current study, an individual's curiosity-based responses to an ad, such as the length of advertising watching and further information seeking after watching the advertising, are considered as exploratory behavior. Earlier findings have confirmed that the number of curiosity-based thoughts produced in response to an ad (generated curiosity), and the amount of product information people looked at (information seeking) are positively correlated to a consumer's exploratory information seeking (EIS) behavior.

Prior literature has identified strong associations between curiosity and information seeking, and curiosity has been conceptualized as a desire for information (Loewenstein, 1994). For instance, Maw and Maw (1977) argued that curiosity is the desire to engage in information seeking. Also, Beatty and Smith (1987) argued that information seeking might be considered as the behavioral manifestation of curiosity, whereas curiosity is a cognitive manifestation. Furthermore, consumers' exploratory information seeking (EIS) plays a vital role in satisfying consumers' cognitive stimulation needs by obtaining knowledge, which is derived from curiosity (Baumgartner & Steenkamp ,1996). Although curiosity-motivated thinking is not an overt behavior, studies have found that it may be associated with exploratory behavior because the thoughts derived from curiosity satisfy consumers' needs for cognitive stimulation (Berlyne, 1978; Olson & Camp, 1984; Pearson, 1970). In the context of Internet advertising, curiosity generated from ads led to extensive elaboration and learning of product information, assessed by time spent and attention devoted to specific product information (Menon & Soman, 2002).

Furthermore, curiosity generated through ads increased the effectiveness of the advertisement by enhancing recall and comprehension of new product information and resulting in favorable product evaluation (Menon & Soman, 2002). The generated curiosity from advertising not only influences the effectiveness of advertisements but also increases the

behavioral intention to consume the product. Park, Mohony, Kim and Kim (2015) found that the curiosity generated from watching sports advertisements was a significant predictor of intention to watch the sports event.

Based on the earlier findings, varying levels of mobile phone availability are anticipated to differently influence a consumer's exploratory behaviors as the presence and availability of the mobile phone serve as a secure base that promotes exploratory behavior. The physical presence and availability of one's mobile phone, compared to the lack of mobile phone availability, are anticipated to be associated with more curiosity-based behavior, such as watching an advertisement without skipping, spending more time viewing advertisements, and engaging in further information seeking.

H3a: The availability of mobile phone will be associated with people's advertising skipping behavior.

H3b: The availability of mobile phone will be associated with people's further information seeking after watching the ad.

H4a: Participants who are detached from their mobile phones will watch the advertising for the shortest time compared to all other conditions.

H4b: Participants who maintain physical proximity to their mobile phones and participants who use their mobile phones will not differ in time spent on watching advertising.

Based on the literature, if mobile phones provide a secure base function for their users, their availability may increase the users' curiosity-motivated thinking as curiosity is closely associated with exploration. Furthermore, considering the positive influence of curiosity on the

effect of advertising, the availability of mobile phones might also lead to increased positive attitudes toward an ad, a positive attitude toward the brand, and higher purchase intention. Therefore, the following research question was proposed.

RQ1: Do the various levels of mobile phone availability exert an influence on people's generated curiosity, attitude toward the ad, attitude toward the brand and purchase intention?

Based on the prior findings suggesting that attachment security leads to more exploratory behavior, an individual's different attachment orientation is anticipated to influence the individual's exploratory behaviors. As Study 1 confirmed that an individual's *attachment anxiety* is associated with mobile attachment, the current study investigated a) the moderating role of individual *attachment anxiety* and b) the moderating role of *mobile attachment* in the relationship between the mobile phone availability and exploratory behavior.

H5: *Attachment anxiety* will moderate the relationship between mobile phone availability and exploratory behavior. When people are detached from their mobile phones, people with high *attachment anxiety* will engage less in exploratory behavior than people with low *attachment anxiety*. When the proximity or availability of the mobile phone is maintained, the role of *attachment anxiety* will be decreased.

H6: *Mobile attachment* will moderate the relationship between mobile phone availability and exploratory behavior. When people are detached from their mobile phones, people with high *mobile attachment* will engage less in exploratory behavior than people with low *mobile attachment*. When the proximity or availability of the mobile phone is maintained, the moderating role of *mobile attachment* will be decreased.

Table 4. Summary of Hypotheses and RQ (Study 2)

Hypotheses	Independent variables	Dependent variables
H3a	Availability of mobile phone (Detached vs. Proximity vs. Availability)	Advertising skipping
H3b	Availability of mobile phone (Detached vs. Proximity vs. Availability)	Further information seeking
H4a, H4b	Availability of mobile phone (Detached vs. Proximity vs. Availability)	Advertising watching time (Percentage of ad watched)
H5	Availability of mobile phone × *Attachment anxiety*	Advertising watching time, generated curiosity, attitude toward the ad, attitude toward the brand, purchase intention
H6	Availability of mobile phone × *Mobile attachment*	Advertising watching time, generated curiosity, attitude toward the ad, attitude toward the brand, purchase intention
RQ1	Availability of mobile phone	Generated curiosity, attitude toward the ad, attitude toward the brand, purchase intention

Stimuli

Two different advertising videos and their brand websites were selected and randomly presented for the experiment to prevent a) the results of the current study being limited to specific advertising and b) the results being attributed to the unique feature of each advertising. To prevent the potential influence of previous brand attitude, two ads a) that are not significantly different in terms of brand attitude, and b) that are relatively not familiar were selected. As curiosity is closely associated with information seeking, the advertising videos that have two different levels of curiosity were selected to make sure the results are not limited to a specific curiosity level of the advertising. The advertising videos of two different brands, Wi-Charge and Upright Go, were selected for a pretest based on the low familiarity of the brand. Wi-Charge is a wireless charging system that provides long-distance wireless charging technology. Upright is a device that helps users to train and improve posture. The advertising videos were edited to

trigger different levels of curiosity. According to the information gap theory (Loewenstein, 1994), curiosity arises when people discover an information gap or the disparity between what an individual knows and what he or she wants to know. Menon and Soman (2002) also found that the amount of curiosity generated from ads is contingent on the level of *the knowledge gap*, which analogous to the "information gap" in Loewenstein (1994)'s information gap theory. Literature demonstrated that the strongest degree of curiosity was engendered when an ad triggered a moderate level of the knowledge gap, compared to when low or high knowledge gap was triggered (Menon & Soman, 2002). In Menon and Soman (2002)'s study, an advertising's moderate level of knowledge gap was manipulated by providing not details of the product, but only a cue, such as product category, about the product. Based on this, the advertising video of Wi-Charge (high curiosity) was edited to show the primary function of the product to provide cues about the product, but the detailed information was omitted intentionally. On the other hand, the advertising video of Upright (low curiosity) was edited to provide minimal information about the product to trigger a high knowledge gap. The ad depicted the situation where the product is needed humorously and focused on the storytelling, not the descriptions of the product. After the editing process, each of the advertising videos was 61 seconds (Wi-Charge) and 115 seconds(Upright) long. Although the Wi-Charge ad (high curiosity) was shorter than the Upright ad (low curiosity), the Wi-Charge ad provided more information about the product to generate a higher level of curiosity. The websites of two brands were used for further information-seeking behavior. The perceived interactivity of the websites was also checked to be similar.

Pretest

A pretest was conducted to ensure a) the two brands do not differ in terms of brand attitude, b) the both of brands have the low brand familiarity of the brands, c) the ads generate meaningfully different levels of curiosity, and d) a similar level of perceived interactivity for the both brand websites. A total of 58 college students participated in the pretest for extra course credit. The participants were randomly assigned to one of two advertising videos (Wi-charge=28, Upright=30).

After the participants were asked to watch one of two advertising videos, the generated curiosity was measured using a four items, seven-point Likert scale adapted from Menon and Soman (2010), with the following items: 'How curious do you feel about this product?', 'How interested would you be in reading more about this product?', 'How involved did you feel in reading the advertisement about the product?' and 'How interested would you be in checking out this product at a store?' (see Table 5). The independent sample *t*-test indicates that the advertisement for Wi-charge (*M*=3.85, *SD*=.86) generated significantly higher curiosity than the advertisement for Upright (*M*=2.80, *SD*=1.03), t(56)= 4.20 , p=0.00,d=1.11. Brand familiarity was measured using a three items, five points semantic differential scale adapted from Machleit, Allen, and Madden (1993). There was no significant difference in brand familiarity (Wi-Charge: M=2.29, SD=.75, Upright: M=2.13, SD=.94), t(56)=.68, p=.50 ,d=.19.

Last, the perceived interactivity of the websites was measured using a eleven items, seven points Likert scale adapted from Guohua Wu (2006) and McMillan& Hwang (2002) (See Table 5). The results indicated that there was no significant difference in perceived interactivity between the websites for Wi-charge (M=5.16, SD=.89) and Upright (M=4.93, SD=.84), t(56)=1.03, p=.31, d=.27. Attitude toward the ad was measured using a three items, five points

semantic differential scale adapted from Spears & Singh (2004). The participants who watched Wi-charge advertising reported higher attitudes toward the ad (M=4.10, SD=.60) compared to Upright (M=3.50, SD=1.04), t(47.03)=2.69, p=.01. d=.71. Attitude toward the brand was measured using a five items, five points semantic differential scale adapted from Mackenzie & Lutz (1989). The results indicated that there was no significant difference between Wi-charge (M=4.08, SD=.75) and Upright (M=4.26, SD=1.90) on attitude toward brand, t(38.33)=-.48, p=.64, d=.12.

The results of pretest were satisfactory: a) the brand familiarity of two brands was not significantly different, b) the both brands had relatively low brand familiarity (Wi-Charge: M=2.29, Upright: M=2.13), c) the two brands had different levels of generated curiosity (Wi-Charge=3.85, Upright=2.80), and d) the perceived interactivity of both websites was not different. Supporting previous findings on the positive effect of curiosity on the effectiveness of advertising (Menon & Soman,2010; Park et al., 2014), a higher level of curiosity was positively associated with attitude toward the ad (r=.71, p=.00). However, all other measurements including attitude toward the brand, brand familiarity, purchase intention, and perceived interactivity of websites were not significantly different.

Table 5. Measurement Items of Pretest

Construct	Measurement Items	Sources
Self-reported generated curiosity	• How curious do you feel about this product? • How interested would you be in reading more about this product? • How involved did you feel in reading the advertisement about the product? • How interested would you be in checking out this product at a store?	Menon & Soman (2010)

Attitude toward Ad	• Bad: Good • Unfavorable: Favorable • Unpleasant: Pleasant	Mackenzie & Lutz (1989)
Attitude toward Brand	• Unappealing: Appealing • Bad: Good • Unpleasant: Pleasant • Unfavorable: Favorable • Unlikeable: Likeable	Machleit, Allen, &Madden (1993)
Brand familiarity	• Unfamiliar: Familiar • Inexperienced: Experienced • Not knowledgeable: Knowledgeable	Spears & Singh (2004)
Perceived interactivity	Adapted from Guohua Wu (2006) • I was in control of my navigation through this Web site. • I had some control over the content of this Web site that I wanted to see. • I was in total control over the pace of my visit to this Web site. • I could communicate with the company directly for further questions about the company or its products if I wanted to. • The site had the ability to respond to my specific questions quickly and efficiently. • I felt I just had a personal conversation with a sociable, knowledgeable and warm representative from the company • The Web site was like talking back to me while I clicked through the website. • I perceived the website to be sensitive to my needs for product information. Adapted from McMillan& Hwang (2002) • The web site keeps my attention • It was easy to find my way through the site. • The website offers a variety of content.	Guohua Wu (2006), McMillan& Hwang(2002)

Methods

Sample

A total of 163 students enrolled in undergraduate courses at a large southeastern public university in the United States participated in the experiment in exchange for course credit. Nine participants were dropped from the sample for technical issues and the final sample for analysis was $N = 154$ (male= 33, female=121). Considering the scope of the research question, participants were pre-screened at the time of recruitment and only individuals who own a smartphone with a screen recording function (i.e., iPhone with iOS11, or any smartphone with the downloaded app) were eligible to participate.

Design

This study employed a 3(mobile phone availability: detachment, physical proximity, availability) x 2(brands: high vs. low curiosity generating) between-subjects, post-test only experiment design. The mobile phone availability was varied in three levels and the participants were randomly assigned to one of three conditions:1) *detachment* (n=53), 2) *physical proximity* (n=52), and 3) *availability*(n=49). Participants in the detached condition were not be allowed to carry their mobile phones into the experimental space. The participants in the physical proximity condition were allowed to carry their mobile phones into the lab but will not be able to use it. Participants in the availability condition were allowed to carry their mobile phones into the lab and use it during the experimental task. Two advertising videos that have high curiosity (Wi-charge: n=77) and low curiosity (Upright: n=77), were randomly presented.

Experiment Procedure

Each student signed up for an individual 15- minutes lab session. For the exploration activity, two labs, lab A and lab B, were used to manipulate the perception of detachment from

the mobile phone. Once the participants arrived at lab A, they were asked whether they brought their mobile phones to the lab. All of the participants brought their mobile phones to the lab. After that, they were given an explanation about the general information of the study and the details about the screen recording of their activities on the mobile phone. After the explanation, they were asked to sign a consent form, and then guided to lab B. Before they move to lab B, the participants in the detached condition were asked to turn off their mobile phones and put them in a box in lab A. After putting their mobile phones in the box, they were asked to leave lab A and guided to lab B. While they were participating in the exploration activity, their phones were securely stored in lab A. The participants in the other conditions were allowed to carry their mobile phones to lab B. To make sure they brought their mobile phones to lab B, the lab assistant asked them to bring all of their belongings, including their mobile phones, to lab B. Once the participants arrived at the lab, they were asked to watch an advertisement with their own mobile phones (*availability* condition) or someone else's mobile phone (*detachment, physical proximity* conditions) depending on their respective conditions. The participants in the *detachment* condition and *physical proximity* conditions were asked to watch the ad with a mobile phone provided by the lab assistant.

Before they were asked to engage in the exploration task, the screen recording function of the mobile phone was turned on. By keeping their mobile phones with them but using another person's mobile phone (in place of their mobile phones), the participants in *physical proximity* condition still had physical proximity to the mobile phone, but the perceived availability of their mobile phones was expected to be low. The third group, *availability* condition, was asked to use their mobile phones to watch the advertisement. As advertisement skipping is one of the dependent variables, the participants were asked to watch the advertisement for as long as they

wanted to. If they wanted to stop watching the ads, they could click the skip button. Immediately after watching the ad, the participants responded to survey questions inquiring whether they wanted to see more information about the product. If the participants agreed to see more information, the mobile webpage of the brand that provided more detailed product information was presented. The participants were asked to browse the webpage freely. If they did not want to see more information, the exploration task was terminated. When the participant indicated that she or he was done with the exploration activity, the participant was instructed to send the recorded screen data to the lab assistant. Finally, participants responded to a set of questionnaires at a survey station of the lab and were debriefed.

Measures

Exploration behavior. Participants' responses to advertisements were measured as follows: (a) advertisement skipping: the recorded screen data was analyzed and coded 0 or 1 to determine whether the participant skipped the advertisement (coded as 1) or not (coded as 0), (b) further information seeking: the recorded screen data was analyzed and coded to determine whether the participant clicked the link for the website and browsed the sites to seek further information about the brand, (c) percentage of ad watched*:* the recorded screen data was analyzed and the percentage of ad watched was calculated based on the length of each ad. For instance, if a participant watched the full advertising without skipping, the participant watched 100 % of the ad. If a participant skipped the 61 seconds-long-ad after 30 seconds of watching it, the participant watched 49% of the ad.

Self-reported generated curiosity. To measure the amount of curiosity generated in response to the ads, a seven-point, five-item Likert scale adapted from Menon and Soman (2010) was used: 'How curious do you feel about this product?', 'How interested would you be in

reading more about this product?', 'How involved did you feel in reading the advertisement about the product?' and 'How interested would you be in checking out this product at a store?'

Attitude toward the ad. Attitude toward the ad was measured using a seven-point semantic differential scale adapted from Mackenzie & Lutz (1989). The items of the scale were 'Bad: Good,' 'Unfavorable: Favorable,' and 'Unpleasant: Pleasant.'

Attitude toward the brand. A three-item, seven-point semantic differential scale ('Unfamiliar: Familiar,' 'Inexperienced: Experienced,' and 'Not knowledgeable: Knowledgeable') was used to measure attitude toward the brand (Spears & Singh, 2004).

Purchase intention. Purchase intention was measured using a four-item, seven-point semantic differential scale adapted from Bearden, Lichtenstein, & Teel (1984). The items of the scale were 'Unlikely: Likely, Improbable: Probable, Uncertain: Certain, and Definitely: Not definitely.

Attachment style. This is an assessment of individual differences in trait attachment styles. The respondents completed Brennan, Clark, and Shaver's (1998) Experiences in Close Relationships-Revised(ECR-R) scale (see Appendix C for more information) to assess his or her adult attachment style. A 36 items version of ECR-R scale ranging from 1(strongly disagree) to 7 (strongly agree) regarding general attachment orientation toward close relationship was used.

Mobile attachment. Konok et al.'s (2017) Mobile Attachment Questionnaire(MAQ) was used to measure an individual's mobile attachment based on attachment theory. The 15 items of Mobile Attachment Questionnaire(MAQ) include: 5 items for separation insecurity, 4 items for separation anxiety, 3 items for safe haven, 3 items for secure base. The respondents were asked

to indicate the extent to which the statement is their characteristics from 1(not at all characteristic of me) to 7 (very characteristic of me).

Table 6. Measurement Items of Main Experiment

Construct	Measurement Items	Sources
Self-reported generated curiosity	• How curious do you feel about this product? • How interested would you be in reading more about this product? • How involved did you feel in reading the advertisement about the product? • How interested would you be in checking out this product at a store?	Menon & Soman (2010)
Attachment style	See Appendix C	Brennan, Clark, and Shaver's (1998)
Mobile attachment	See Appendix C	Konok, Pogany, & Miklosi (2017)
Attitude toward Ad	I think the advertisement is... • Bad: Good • Unfavorable: Favorable • Unpleasant: Pleasant	Mackenzie & Lutz (1989)
Attitude toward Brand	I think the brand is • Unfamiliar: Familiar • Inexperienced: Experienced • Not knowledgeable: Knowledgeable	Spears & Singh (2004)
Purchase Intention	How likely/unlikely would you be to purchase the advertised product? • Unlikely: Likely • Improbable: Probable • Uncertain: Certain • Definitely not: Definitely	Li,Daugherty&Biocca (2002)

Results

Means and standard deviations for all dependent variables can be viewed in Appendix E.

Advertisement Skipping

To test the effects of mobile availability on consumer's advertising skipping behavior, a Chi-square test was conducted. The result of the Chi-square test indicates that there is a significant association between the availability of mobile phone and the participant's advertising skipping behavior, χ^2 (2, N=154) =6.657, w=.21 p=.04. The results suggest that the proportion of participants who skipped advertising(p=.32) in Detachment condition was much greater than the hypothesized proportion of .21. This shows that the lack of mobile phone presence is associated with advertising skipping. Thus, H3a was supported.

Table 7. Results of Chi-Square Tests (H3a)

		Availability of Mobile Phone			
		Detachment	Physical proximity	Availability	$\chi 2$
Advertising Skipping	Yes	17 (2.5)	9 (-.8)	6 (-1.8)	6.657*
	No	36(-2.5)	43 (.8)	43(1.8)	

Note: * = p<.05 Adjusted standardized residuals appear in parentheses below group frequencies.

Further Information Seeking

A Chi-square test was conducted to see whether the availability of mobile phone is associated with the participant's further exploratory behavior. The result of Chi-square test indicates that there is no association between the availability of mobile phone and the participant's further exploratory behavior, χ^2 (2, N=154) =1.697, w=.10, p=.43 Thus, H3b was not supported.

Percentage of Ad Watched

An ANOVA was run with the percentage of ad watched as the dependent variable, the different levels of mobile availability as the independent variable. The analysis of variance

showed that the effect of mobile phone availability on length of ad watched was significant, F (2, 151) =4.461, p=.013, partial η^2 = .06. Follow up tests were conducted to evaluate all pairwise comparisons among the three different levels of mobile availability. The Tukey HSD procedure was used because of the test's good power and control over the family-wise Type I error rate (Field, 2009; Quinn & Keough,2002; Salkind, 2010). The results of Tukey HSD indicate that participants who were separated from their mobile phones watched the ad significantly shorter (M=.86, SD=.23) than either the participants who maintained the physical proximity to their mobile phones (M=.95, SD=.12) or the participants who used their mobile phones (M=.95, SD=.13). However, there was no significant difference between the participants who maintained the physical proximity to their mobile phones (M=.95, SD=.12) and the participants who used their mobile phones (M=.95, SD=.13). Thus, H4a and H4b were supported. Overall, the ANOVA indicates the detachment from the mobile phone discourages the participant's advertising watching.

Self-reported Curiosity, Attitude Toward Ad, Attitude Toward Brand, and Purchase Intention

A set of ANOVA tests were conducted to test the effect of mobile phone availability on self-reported curiosity, attitude toward ad, attitude toward brand, and purchase intention (RQ1). The effect of mobile phone availability was not significant on self-reported curiosity, F (2,151)=1.345, p=.26, partial η^2 =. 02, attitude toward ad, F(2,151)= .195, p=.82, partial η^2 = .00. and attitude toward brand, F(2,151)=1.701, p=.19, partial η^2 = .02. However, the effect of mobile phone availability on purchase intention was significant, F(2,151)=3.325, p=.04, partial η^2 = .04. Follow up tests were conducted to evaluate all pairwise comparisons among the three different levels of mobile availability. The results of Tukey HSD indicate that participants who were detached from their mobile phones showed significant higher purchase intention (M=3.76,

SD=1.39) than the participants who have only the proximity to their mobile phones (M=2.98, SD=1.63). However, there was no significant difference between the participants who were detached from their mobile phones (M=3.76, SD=1.39) and the participants who used their mobile phones (M=3.32, SD=1.63). Also, there was no significant difference between the participants who only maintained the physical proximity to their mobile phones (M=2.98, SD=1.63) and the participants who used their mobile phones (M=3.32, SD=1.63).

The Moderating Role of Attachment Anxiety and Attachment Avoidance

To test whether *attachment anxiety* moderates the relationship between the mobile phone availability and exploratory behavior (H5), a series of moderated multiple regression analyses using Process Macro (Model 1; Hayes, 2019) were conducted. The moderation model of the effect of X on Y by M is expressed as,

$$\hat{Y} = b_0 + b_1X + b_2M + b_3XM$$

In the current analysis, the regression model will be presented as,

$$\hat{Y} = b_0 + b_1(mobile\ availability) + b_2(attachment\ anxiety) + b_3(mobile\ avaialbility)(attachment\ anxiety)$$

A multi categorical variable with K categories in regression analysis should be coded and represented with k-1 variables for the analysis. As the independent variable, mobile availability, is a multi categorical variable with three categories, an indicator coding system was used to generate two variables, D1 and D2.

Table 8. Indicator Coding of Independent Variable (Mobile Phone Availability)

Condition	D1	D2
1: Detachment	0	0
2: Physical Proximity	1	0
3: Availability	0	1

As the multicategorical variable X is coded as two variables, D1 and D2, the moderation model will be presented as,

$$\hat{Y} = b_0 + b_1 D_1 + b_2 D_2 + b_3 M + b_4 D_1 M + b_5 D_2 M$$

In the current analysis, the regression model is,

$$\hat{Y} = b_0 + b_1 D_1 + b_2 D_2 + b_3(attachment\ anxiety) + b_4 D_1(attachment\ anxiety) + b_5 D_2(attachment\ anxiety)$$

The results of regression analyses are presented for each of the dependent variables.

a) Percentage of ad watched

A moderated multiple regression analysis was run with mobile availability as the independent variable, the percentage of ad watched as the dependent variable, and *attachment anxiety* as the moderating variable. The results of the regression analysis are presented in the below. The interaction between mobile phone availability and *attachment anxiety* was significant, ΔR^2=.05, $\Delta F(2,148)$=4.44, p=.01(Table 9). The simple effect of mobile phone availability is only significant for the participants who have average, F(2,148)=3.71, p=.03 or above-average level of *attachment anxiety*, F(2,148)=8.58, p=.00 (Table 10). For those who have low *attachment anxiety*, the effect of mobile phone availability was not significant, F(2,148)=.02, p=.98 (Table 10). Examination of simple slope (Figure 3) demonstrates that people with high anxiety watched the ad the shortest when they were physically detached from their mobile phones. However, people with high anxiety watched the ad the longest when they watched the ad with their mobile phones. On the other hand, for people with low anxiety, the length of the ad watched was similar regardless of the level of mobile phone availability.

Table 9. The Moderating Effect of Attachment Anxiety on the Relationship between Mobile Availability and the Percentage of Ad Watched

	b	SE	t	p
Constant	1.10	.07	14.64	.00
D1	-.18	.11	-1.63	.11
D2	-.19	.11	-1.75	.08
Attachment anxiety	-.00	.00	-3.19	.00
D1 x Attachment anxiety	.00	.00	2.47	.01
D2 x Attachment anxiety	.00	.00	2.59	.01
F	$F(5,148) = 4.04$, p=.00			
F change	$\Delta F(2,148) = 4.44$, p=.01			
R^2	.12			
R^2 change	.05			

Table 10. Simple Effect of Mobile Phone Availability at Values of Moderating Variables (Attachment Anxiety)

Moderator levels				
Attachment anxiety	F	dF1	dF2	p
Mean -SD	.02	2	148	.98
Mean	3.71	2	148	.03
Mean +SD	8.58	2	148	.00

Table 11. Conditional Effects of the Independent Variable (Mobile Phone Availability) at Values of Moderating Variable (Attachment Anxiety)

Moderator levels					
Attachment anxiety		Estimate	SE	t	p
Mean -SD	D1	-.01	.05	-.18	.85
	D2	-.00	.05	-.08	.94
Mean	D1	.07	.03	2.18	.03
	D2	.08	.03	2.48	.01
Mean +SD	D1	.15	.04	3.49	.00
	D2	.17	.05	3.46	.00

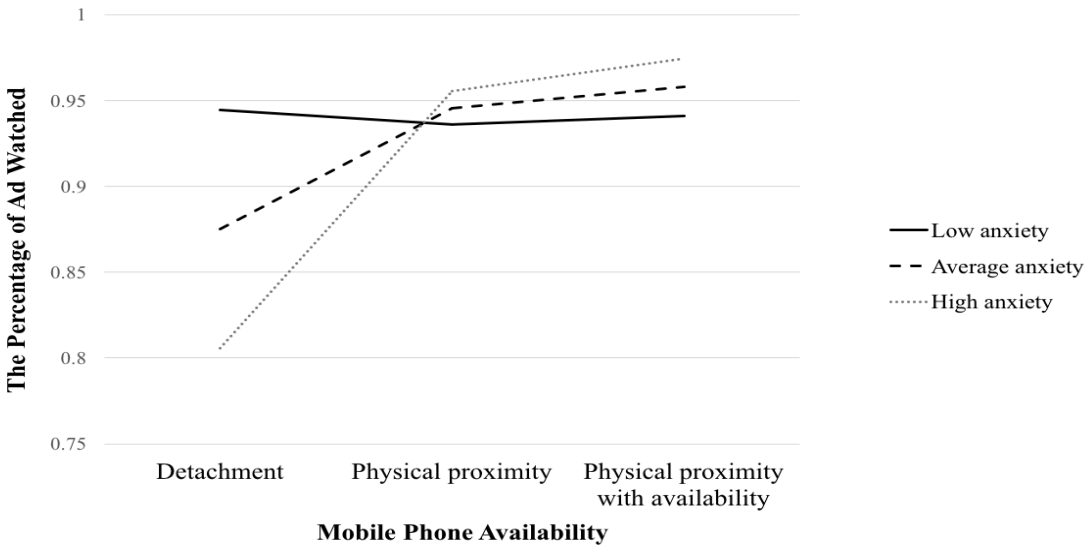

Figure 3. Interaction between Mobile Phone Availability and Attachment Anxiety on the Percentage of Ad Watched

Table 12. Interaction between Mobile Phone Availability and Attachment Anxiety on the Percentage of Ad Watched

Condition	Attachment anxiety	Percentage of Ad watched
Detachment	Mean-SD	.94
	Mean	.88
	Mean+SD	.81
Physical proximity	Mean-SD	.94
	Mean	.95
	Mean+SD	.96
Availability	Mean-SD	.94
	Mean	.96
	Mean+SD	.97

b) Self-reported generated curiosity

A moderated multiple regression analysis was run with mobile availability as the independent variable, self-reported curiosity as the dependent variable, and *attachment anxiety* as the moderating variable. The interaction between mobile availability and *attachment anxiety* was not significant, ΔR^2=.03, $\Delta F(2,148)$=2.69, p=.07. The full report of the regression results is available in Appendix D.

c) Attitude toward ad

A moderated multiple regression analysis was run with mobile availability as the independent variable, attitude toward the ad as the dependent variable, and *attachment anxiety* as the moderating variable. The interaction between mobile availability and *attachment anxiety* was not significant, ΔR^2=.02, $\Delta F(2,148)$=1.49, p=.23. The full report of the regression results is available in Appendix D.

d) Attitude toward brand

A moderated multiple regression analysis was run with mobile availability as the independent variable, attitude toward the brand as the dependent variable, and *attachment anxiety* as the moderating variable. The interaction between mobile availability and *attachment anxiety* was not significant, ΔR^2=.01, $\Delta F(2,148)$=.70, p=.50. The full report of the regression results is available in Appendix D.

e) Purchase intention

A moderated multiple regression analysis was run with mobile availability as the independent variable, purchase intention as the dependent variable, and *attachment anxiety* as the moderating variable. The interaction between mobile availability and *attachment anxiety* was not significant, ΔR^2=.03, $\Delta F(2,148)$=2.67, p=.07. The full report of the regression results is available in Appendix D.

Summary of Moderated Regression Analysis (H5)

Attachment anxiety moderated the relationship between mobile phone availability and the percentage of ad watched. However, *attachment anxiety* did not moderate the effect of mobile phone availability on the other dependent variables, including generated curiosity, attitude toward the ad, attitude toward the brand, and purchase intention. Thus, H5 was partially supported.

The Moderating Role of Mobile Attachment

To test whether *mobile attachment* moderates the relationship between the mobile phone availability and the length of ad watched (H6), a series of moderated multiple regression analysis was conducted. The results of the regression are reported for each of the dependent variables.

a) Percentage of ad watched

A moderated multiple regression analysis was run with mobile availability as the independent variable, the percentage of ad watched as the dependent variable, and *mobile attachment* as the moderating variable. The results of the regression analysis are presented in the below. The interaction between mobile availability and *mobile attachment* was significant, ΔR^2=.04, $\Delta F(2,148)$=3.11, p=.05 (Table 13). The effect of mobile phone availability was only significant for the participants who have average F(2,148)=4.15, p=.02 or above-average level of attachment anxiety F(2,148)=7.45, p=.00 (Table 14). For those who have low attachment anxiety, the effect of mobile phone availability was not significant, F(2,148)=.03, p=.97(Table 14). Examination of the interaction plot (Figure 4) showed that people with high mobile attachment watched the ad the shortest when they were physically detached from their mobile phones. However, people with high *mobile attachment* watched the ad the longest when they

watched the ad with their mobile phones. On the other hand, for the people with low *mobile attachment*, the length of the ad watched was similar regardless of the level of mobile phone availability.

Table 13. The Moderating Effect of Mobile Attachment on the Relationship between Mobile Phone Availability and the Percentage of Ad Watched

	b	SE	t	p
Constant	1.21	.12	9.79	.00
D1	-.27	.17	-1.60	.11
D2	-.29	.17	-1.69	.09
Mobile attachment	-.01	.00	-2.82	.01
D1 x Mobile attachment	.01	.00	2.12	.04
D2 x Mobile attachment	.01	.00	2.22	.03
F	$F(5,148) = 3.46$, $p = .01$			
F change	$\Delta F(2,148) = 3.11$, $p = .05$			
R^2	.10			
R^2 change	.04			

Table 14. Simple Effect of Mobile Phone Availability at Values of Moderating Variables (Mobile Attachment)

Moderator levels Mobile Attachment	F	dF1	dF2	p
Mean –SD	.03	2	148	.97
Mean	4.15	2	148	.02
Mean +SD	7.45	2	148	.00

Table 15. Conditional Effects of the Independent Variable (Mobile Phone Availability) at Values of Moderating Variable (Mobile Attachment)

Moderator levels Mobile Attachment		Estimate	SE	t	p
Mean –SD	D1	.01	.05	.18	.86
	D2	.01	.05	.22	.82
Mean	D1	.08	.03	2.38	.02
	D2	.08	.03	2.58	.01
Mean +SD	D1	.15	.04	3.25	.00
	D2	.16	.05	3.37	.00

Table 16. Interaction between Mobile Phone Availability and Mobile Attachment on the Percentage of Ad Watched

Condition	MAQ	Percentage of Ad watched
Detachment	Mean-SD	.94
	Mean	.87
	Mean+SD	.80
Physical proximity	Mean-SD	.94
	Mean	.95
	Mean+SD	.95
Availability	Mean-SD	.95
	Mean	.95
	Mean+SD	.96

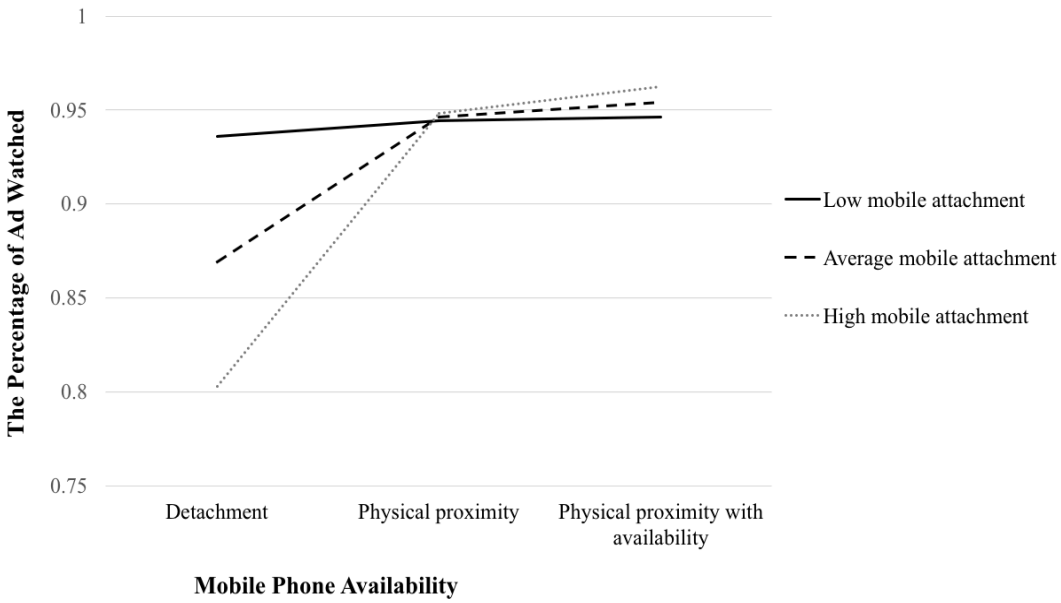

Figure 4. Interaction between Mobile Phone Availability and Mobile Attachment on the Percentage of Ad Watched

b) Self-reported generated curiosity

A moderated multiple regression analysis was run with mobile availability as the independent variable, self-reported curiosity as the dependent variable, and *mobile attachment* as the moderating variable. The interaction between mobile availability and *mobile attachment* was not significant, ΔR^2=.03, $\Delta F(2,148)$=1.90, p=.15. The full report of the regression results is available in Appendix D.

c) Attitude toward the ad

A moderated multiple regression analysis was run with mobile availability as the independent variable, attitude toward the ad as the dependent variable, and *mobile attachment* as the moderating variable. The interaction between mobile availability and *mobile attachment* was not significant, ΔR^2=.02, $\Delta F(2,148)$=.25, p=.78. The full report of the regression results is available in Appendix D.

d) Attitude toward the brand

A moderated multiple regression analysis was run with mobile availability as the independent variable, attitude toward the brand as the dependent variable, and *mobile attachment* as the moderating variable. The interaction between mobile availability and mobile attachment was not significant, ΔR^2=.02, $\Delta F(2,148)$=1.19, p=.31. The full report of the regression results is available in Appendix D.

e) Purchase intention

A moderated regression analysis was run with mobile availability as the independent variable, purchase intention as the dependent variable, and *mobile attachment* as the moderating variable. The interaction between mobile availability and *mobile attachment* was not significant, ΔR^2=.01, $\Delta F(2,148)$=.66, p=.52. The full report of the regression results is available in Appendix D.

Summary of Moderated Regression Analysis (H6)

While *mobile attachment* moderated the relationship between mobile phone availability and the percentage of ad watched, *mobile attachment* did not moderate the effect of mobile phone availability on the other dependent variables, including generated curiosity, attitude

toward the ad, attitude toward the brand, and purchase intention. Thus, H6 was partially supported.

Discussion

The results of Study 2 yield important insights into the role of mobile phones on consumer's exploratory behavior. The level of mobile phone availability influenced skipping behavior. People who were separated from their mobile phones skipped advertising more than people who maintained the physical proximity to their mobile phones and people who used their mobile phones. This clearly shows that even the mere physical presence of mobile phones can encourage consumers not to skip advertising. Furthermore, the level of mobile phone availability directly influenced how long people watched the advertising. The participants who were separated from their mobile phones watched the advertising for a significantly shorter time compared to the participants who maintained the physical proximity to their mobile phones or the participants who used their mobile phones. Again, the results provide evidence which shows the positive effect of the mere presence of mobile phones on consumer's engagement in advertising. Contrary to the expectation, further information seeking was not associated with mobile phone availability. The curiosity generated from the advertising may not be enough to make the participants engage in information seeking. Or the information given during the advertising might have satisfied the participants' curiosity generated during the task, that the participants' desire for information seeking may have been discouraged .

Although the effect of one's mobile phone availability on further information seeking was not found in the experiment, the findings still support the secure base function of the mobile phone. However, the availability of the mobile phone did not influence attitude toward the ad and attitude toward the brand. Also, the self-reported curiosity showed no significant difference

over the different levels of the mobile phone availability. Interestingly, the effect of mobile phone availability on purchase intention was significant although the post-hoc test showed the outcome that contradicts the hypothesis. People who were separated from their mobile phones reported the highest purchase intention among the three groups of people.

Two possible explanations are suggested regarding the unexpected results. First, the unexpected results could be attributed to the limitations of self-report measures. The measures of generated curiosity, attitude toward the brand, attitude toward the ad, and purchase intention, were all based on the participant's self-report. Second, the secure base function of the mobile phone might not be strong enough to influence the participants' attitude and thoughts. Thus, although they were unconsciously engaged in advertising that they watched the ad longer when their mobile phones were present, the effect of this engagement was not extended to shaping positive attitudes toward the brand and the ad.

Finally, the moderating role of *attachment anxiety* and *mobile attachment* on how long people watched advertising was confirmed. People who have high *attachment anxiety* were more influenced by the lack of mobile phone presence and watched the advertising shorter than people who have an average or low level of *attachment anxiety*. Similarly, people with high *mobile attachment* watched the ad shorter than people who have a low or average level of *mobile attachment*. However, the moderating role of *attachment anxiety* and *mobile attachment* was not found in the relationships between the mobile phone availability and other dependent variables, including attitude toward the ad, attitude toward the brand, curiosity, and purchase intention.

CHAPTER 7

CONCLUSION

Summary of Findings

Study 1 found that attachment anxiety is associated with mobile attachment while attachment avoidance is not, confirming the earlier findings from the literature. Furthermore, the effect of mobile attachment and attachment orientation on attitude toward mobile advertising in general was investigated. Mobile attachment mediates the relationship between attachment anxiety and attitude toward mobile advertising. However, the mediation role of mobile attachment on the effect of attachment avoidance on attitude toward mobile advertising was not supported. Interestingly, attachment avoidance is negatively associated with attitude toward mobile advertising. In summary, the results of Study 1 found that a) attachment orientation predicts mobile attachment and b) both attachment orientation and mobile attachment influence attitude toward mobile advertising in general. The findings evidence the existence of mobile attachment and suggest the possibility of the mobile phone as a secure base.

Study 2 directly investigated the secure base function of the mobile phone in an experimental setting. Mobile phone availability was manipulated in three different levels: detachment, physical proximity, availability. The effect of mobile phone availability was significant on advertising skipping and the percentage of ad watched. People who were detached from their mobile phones tended to skip advertising more than people who used their mobile phones or people who maintained proximity to their mobile phones while using someone else's

phone. Also, people who were detached from their mobile phones watched the advertising significantly shorter than people who used their mobile phones or people who maintained proximity to their mobile phones while using someone else's phone. However, the significant effect of mobile phone availability was not found in attitude toward the ad, attitude toward the brand, and generated curiosity. An unexpected result was found in the effect of mobile phone availability on purchase intention. Contrary to the hypothesis, people who were separated from their mobile phones reported the highest purchase intention among the conditions.

Based on the findings of Study 1, Study 2 also investigated the moderating role of *attachment anxiety* and *mobile attachment* on the secure base function of the mobile phone. Both *attachment anxiety* and *mobile attachment* moderated the effect of mobile phone availability on how long the participants watched the ad. People with high *attachment anxiety* watched the ad significantly shorter when they were separated from their mobile phones, but the availability of mobile phone did not much influence people with low *attachment anxiety*. In the same way, the effect of mobile phone availability on people with high *mobile attachment* was greater than the effect on people with low *mobile attachment.*

Theoretical Implications – Mobile Phone as a Substitute Attachment Target

The current dissertation contributes to the expansion of attachment theory to the research on the human-object relationship by providing further evidence supporting the existence of the attachment relationship between users and mobile phones. Bowlby(1969/1982) argued that supplemental figures, sometimes objects, can substitute for the attachment function of primary caregivers even though most of the attachment behavior of infants is exhibited to primary caregivers. The current dissertation expands the attachment theory by demonstrating that mobile

phones play the role of substitute attachment targets for their users. The results of Study 1 demonstrated that attachment anxiety is positively associated with mobile attachment. This suggests that anxious people who are continuously concerned about the availability and supportiveness of their attachment figures may compensate for their unsatisfied attachment needs with their mobile phones. Furthermore, Study 2 demonstrated that people obtain a sense of security from their mobile phones, which encourages them to engage in watching advertising.

The original theory of attachment posits that infants show attachment behavior to substitute objects when the attachment figure is not available (Bowlby, 1969). However, adults' use of mobile phones as substitute attachment targets does not mean their primary attachment targets are not available. According to Bowlby (1979), an individual builds up internal working models of attachment relationships through the history of interactions with primary caregivers or other attachment figures. Collins and Read (1994) argued that the individual's internal working model of attachments is comprised of hierarchically organized networks of related attachment models. On top of the networks, a general model of attachment that is derived from the relationship experiences throughout an individual's life exists. Under this general model of attachment, multiple working models of specific relationships, such as family, peers, or romantic partners, exist. Due to the multiple working models of the attachment relationship, adults are still able to use the mobile phone as a substitute attachment target even if their primary attachment figures are available.

Compared to the infant-object relationship where the availability of a primary caregiver determines the infants' attachment behavior, adults' attachment behavior toward mobile phones depends on how an individual perceives self and others, which is represented by the individual's attachment orientation. According to Collins and Read (1994), when an individual encounters a

new relationship without any prior knowledge regarding the relationship, the general attachment model is activated as a default. In Study 2, people who are high in attachment anxiety were more influenced by the availability of mobile phones compared to the others who have either low or average anxiety levels. Thus, the findings of the current dissertation suggest that people's general attachment orientation was transferred to their attachment relationships with their mobile phones, and this determined their attachment behavior.

Considering that the mobile phone is a vital communication device that helps one connect to attachment figures, anxious people might have used mobile phones to reduce their anxiety by keeping in contact with their attachment targets. The findings of Konok et al.'s (2017) study support this. They found that attachment anxiety predicts high need for contact. Based on this, anxious people's high attachment towards mobile phones may have resulted from the communication function of the mobile phones. Thus, it is logical to assume that the communication function of mobile phones determines attachment behavior. However, the current dissertation demonstrated that it is not the communication capability that mobile phones provide, but the sense of security people obtained from their mobile phones that determined their attachment behavior. First of all, the experimental task had nothing to do with communication with people. Furthermore, even mere proximity provided the same secure base function as the actual use of the mobile phone provides to anxious people. The participants in the proximity condition did not even use their mobile phones. Thus, the participants' exploratory behavior was derived not from the functions of their mobile phones but from their proximity to their phones.

Theoretical Implications – Mobile Phone as a Secure Base

Previous research on mobile attachment has focused on the emotional bonds between people and mobile phones (Kolsaker& Drakatos, 2009; Vincent, 2006) and some of them

examined the phenomena with the evolutionary perspective, attachment theory (Konok et al., 2016; Konok et al., 2017). Despite previous evidence on the existence of attachment relationships between people and mobile phones, whether mobile attachment provides attachment functions in the same way as attachment figure provides attachment functions to people was in question. Konok et al. (2017) examined whether the user- mobile phone relationship has one of the attachment functions, *proximity seeking*, by investigating the effect of separation from mobile phone on the user's cognitive and emotional responses. In the experiment that adopts a Strange Situation Test in mobile phone context, Konok et al., (2017) found that the users separated from their mobile phones showed proximity seeking behaviors. Building on these previous findings, the current studies explored the other characteristics of the attachment system, *secure base*. The results of the experiment (Study 2) demonstrated the secure base function of the mobile phone in the context of mobile advertising. Although the effect of mobile phone availability was not strong enough to make the participants engage in further information seeking, the mobile phone availability has a significant impact on the participant's behavior, such as advertising skipping and how long they watched the ad. These results demonstrated that a) mobile phone serves as a secure base to their users and b) the feeling of security the mobile phone provides to their users makes the users involved in exploratory behavior.

While the original theory of attachment mainly focused on the secure base function in infant-parent relationship (Arend et al., 1979; Mikulincer& Shaver, 2001; Moss et al.,1997), researchers have extended the theory to other attachment relationships beside infant-parent relationship and found that various attachment targets such as romantic partner (Davila & Kashy, 2009;Feeney,2004; Feeney & Collins,2004), god (Beck, 2006), therapist (Farber&Metzger, 2009), and pet (Mikulincer, & Shaver, 2012; Zilcha-Mano et al.,2012) can serve as a secure base.

Although earlier research demonstrated the secure function of nonhuman attachment target, such as god or pet (Beck, 2006; Zilcha-Mano et al., 2012), the discussions regarding the secure base function of a nonhuman and inanimate object are scarce in the literature.

To the best of my knowledge, the current dissertation is the first attempt to investigate the secure base function of the inanimate object, mobile phone, in an experimental setting. The current dissertation contributes to the body of research on object attachment by demonstrating mobile phone's secure base functioning that distinguishes it from the secure base functioning of other attachment targets. As Keefer, Landau, & Sullivan (2014) mentioned, the secure base functioning of an object may seem counterintuitive. Keefer et al., (2014) stated that 'objects lack the capacities for care and concern that typify a caregiver from the perspective of traditional attachment theory' (p.528). However, the mobile phone's unique attributes make mobile phone functions as a secure base even though it is an inanimate object. According to Feeney and Thrush (2010), a secure base has three characteristics: a) availability, b) noninterference, and c) encouragement of exploration. As discussed in the earlier section, the mobile phone seems adequate to be a secure base for their users due to its ubiquity and numerous features that support the users' exploratory behavior. Nonetheless, mobile phone still does not 'care and concern' as Keefer et al. (2014) mentioned, nor encourage exploration like a caregiver of traditional attachment relationship does. Ironically, scholars (Bell & Spikins, 2018; Winnicott, 1953) argued that this inertness of an object could be the source for the feeling of security as people can maintain a sense of control over the object. In an interpersonal relationship, the responsibility of attachment targets (i.e., romantic partner) is essential to the secure base functioning of the relationship (Feeney,2004; Feeney & Collins,2004). Compared to the interpersonal attachment relationship where an individual lacks control over the supportive behavior of his or her

attachment targets, the human- mobile phone relationship seems easier for rendering the secure base function optimal as the user has total control over his or her mobile phone. Unlike traditional media devices (i.e., TV, radio) that were often shared by family members, mobile phones are exclusively owned by an individual. Furthermore, in the Smartphone era, mobile phones are customized to meet an individual's unique needs. Thus, control over mobile phones helps the user have a sense of security that encourages exploratory behavior.

The results of the current dissertation suggest that the perceived control over the mobile phone, not the actual control, is the source for the sense of security. Even though the actual control over the mobile phone during the experimental task was controlled to be the same between the conditions, the exploratory behavior of the participants was influenced by the availability of the mobile phone. Considering that the participants who only maintained the proximity to mobile phone and the participants who used their mobile phones were not significantly different in terms of exploratory behavior, perceived control over the mobile phone could be obtained not only from the direct control over their mobile phones but also from the mere presence of their mobile phones.

Practical Implications

The findings of the current dissertation would yield insights to practitioners and marketers who want to increase the effectiveness of mobile advertising. First of all, the findings of the current dissertation imply that individual differences in mobile attachment and attachment style should be considered for a better mobile advertising strategy. Unlike attachment anxiety, which was found as a significant indicator of consumer behavior in the market (David, 2016; David & Bearden, 2017), evidences supporting the effect of attachment avoidance on consumer's behavior were scarce. However, the current studies found that attachment avoidance was

negatively associated with the general attitude toward mobile advertising. Although the exact number is inconsistent from study to study, the literature indicates that about 20% to 25% of the adult population has an avoidant attachment style (Hazan & Shaver, 1987; Mickelson, Kessler, & Shaver, 1997). Thus, a large part of the consumer population is believed to have a negative attitude toward mobile advertising in general.

The underlying mechanisms behind the negative correlation between an individual's attachment avoidance and attitude toward mobile advertising were not investigated in the current dissertation. If future studies could determine why attachment avoidance is negatively associated with attitudes toward mobile advertising, marketers and advertisers will be able to develop better strategies that aim to diminish avoidant individuals' negative attitudes toward mobile advertising. Based on Bowlby's (1969/1982) attachment theory, I assume that the negative association was derived from the avoidant people's preference for independence and emotional distance. Mobile advertising, which is usually directed toward an individual using personalized messages, might be too personal for those who are avoidant, and this approach may threaten their feelings of autonomy and independence. Thus, when the marketing practitioners target the avoidant population, it is recommended to adjust the frequency or the message of mobile advertising so that the avoidant people's feeling of independence is not threatened.

In addition, the results also suggest that individual differences exist in mobile attachment. Attachment anxiety can be an important factor that influences a consumer's advertising engagement. People with high attachment anxiety were more influenced by the availability of the mobile phone. Attachment theory posits that the attachment security obtained from an attachment figure encourages people to engage in exploration. Also, Chopik & Peterson (2014) argued that technology increased the perceived availability of close others that may have

decreased the level of attachment anxiety in younger adults. Thus, advertising practitioners and marketers should consider delivering an advertising message that enhances their consumers' attachment security or the perceived availability of others. The literature on attachment theory demonstrated that contextually increasing an individual's sense of attachment security through a priming technique resulted in promoting the secure behavioral patterns (Mikulincer et al., 2001; Mikulincer et al., 2003; Mikulincer, &Shaver, 2001). Thus, an advertising message that includes a figure who is associated with a sense of security (e.g., mother) should increase an anxious individual's engagement with advertising.

Second, the secure base function of the mobile phone that promotes engagement with advertising was confirmed in the current dissertation. Although the current dissertation failed to find the effect of mobile phone availability on attitudes towards the ads and the brands, it is still meaningful that the availability of one's mobile phone could encourage people to watch the ad longer. Even though all of the participants watched the same advertising videos, how long they watched the ad and whether they skipped the ad were varied depending on the availability of one's mobile phone and their attachment orientation. This suggests that the same advertising would yield different reactions from the consumers depending on the availability of their mobile phones and their attachment styles. As mentioned in the previous section, it should be noted that the variation of advertisement-watching behavior is not attributed to the actual use of devices. The participants who used their mobile phones and the participants who used someone else's phone while maintaining the physical proximity to their mobile phones were not significantly different on the length of the ad watched. That is, not the actual use of their mobile phones, but the proximity to their mobile phones was the factor that influenced their behavior.

Limitation and Future Research

Although the current dissertation studies provide meaningful implications to both theory and marketing practices, the limitations of current studies should be considered in interpreting the findings. First of all, the experimental settings of the current dissertation have a limitation that could have influenced the results. The participants of the experiment (Study2) were aware that their activities on the mobile phone were being recorded, and this recognition of being monitored by the researcher may have produced unnatural or modified behaviors. According to a report from IPG Media brands' Media Lab, sixty-five percent of people skip online advertising videos when they get the chance to skip (CNBC, 2017). Moreover, the same statistics show that seventy-six percent of those who skip advertising videos said skipping ad is habitual (CNBC, 2017). It is possible that the current dissertation failed to fully reflect the reality because only 20.8 % of the participants (Study 2) skipped the advertising, even though they were allowed to skip the ad at any time they want freely. Furthermore, the experimental setting that separated the participants from their mobile phones without any reasonable explanations might have confused the participants.

Most people in the real world setting watch advertising only when it is embedded in the media contents they consume. However, the task of the experiment, watching advertising and having an opportunity to check out the brand's website, may not be natural enough to reflect the reality when we consider authentic media environments. In Study 2the availability of one's mobile phone did not influence the participants' further information seeking behavior. If the advertising videos were embedded in a media context designed to be more interactive with the audiences, the availability of a mobile phone might have also encouraged information seeking behavior. Although these limitations were preconceived, the current experimental settings were

purposely adopted to increase experimental control as the current dissertation is the first study that investigates the secure base function of the mobile phone. Thus, future studies with improved ecological validity are needed to provide further support to the current findings.

Second limitation of the current dissertation is the sample. All of the study participants were college students. College students are deemed appropriate for investigating the secure base function of mobile attachment due to their high level of smartphone usage. However, the findings of the current dissertation should be cautiously interpreted as the secure base function of the mobile phone might be only limited to the younger generation. Chopik & Peterson (2014) suggested the possibility that technology increased the perceived availability of close others because the level of the attachment anxiety of younger adults significantly decreased from 2002 to 2012. They also found the negative association between the level of attachment anxiety and the mobile phone subscription rate. Thus, college students, compared to older generations, are considered to be more familiar with using technology for proximity enhancement.

Third, the current dissertation manipulated only the levels of mobile phone availability and the brands of advertising. Based on the findings of the current dissertation, future research that considers other elements of advertising, such as advertising message or placement, is recommended. For instance, an advertising message that encourages more-direct forms of exploratory behavior, such as promoting product trials or checking out product information, might be more effective when it is delivered to mobile phones compared to being delivered through other media devices. Furthermore, the advertising message promoting more-direct forms of exploratory behavior might contribute to extending the secure base function of mobile phones to shaping positive attitudes toward advertising and brands.

Fourth, future research investigating the influence of secure attachment on mobile attachment and the secure base function of mobile attachment is recommended. The current dissertation found that anxious people tend to have stronger attachments to their mobile phones, and thus, their exploratory behaviors in the context of mobile advertising were influenced more by the availability of their mobile phones. However, how secure people develop attachment relationships with their mobile phones and the role of attachment security in the secure base function of mobile phones were not investigated in the current dissertation.

Finally, it would be meaningful for future studies to address how people's advertising watching induced by the presence of their mobile phones can be transferred to positive attitudes toward advertising and brands. Although the current dissertation confirmed the secure base function of the mobile phone that promotes longer advertising-watching time and less skipping behavior, the exploratory behavior was not extended to forming positive attitudes toward the ad and the brand.

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APPENDIX A

SURVEY ITEMS FOR STUDY ONE

Attachment Style

The statements below concern how you feel in emotionally intimate relationships**.** We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by clicking a circle to indicate how much you agree or disagree with the statement. (1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree, 7= Strongly agree)

1. I'm afraid that I will lose my partner's love.
2. I often worry that my partner will not want to stay with me.
3. I often worry that my partner doesn't really love me.
4. I worry that romantic partners won't care about me as much as I care about them.
5. I often wish that my partner's feelings for me were as strong as my feelings for him or her.
6. I worry a lot about my relationships.
7. When my partner is out of sight, I worry that he or she might become interested in someone else.
8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.
9. I rarely worry about my partner leaving me.
10. My romantic partner makes me doubt myself.

11. I do not often worry about being abandoned.

12. I find that my partner(s) don't want to get as close as I would like.

13. Sometimes romantic partners change their feelings about me for no apparent reason.

14. My desire to be very close sometimes scares people away.

15. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am. 16. It makes me mad that I don't get the affection and support I need from my partner.

17. I worry that I won't measure up to other people.

18. My partner only seems to notice me when I'm angry.

19. I prefer not to show a partner how I feel deep down.

20. I feel comfortable sharing my private thoughts and feelings with my partner.

21. I find it difficult to allow myself to depend on romantic partners.

22. I am very comfortable being close to romantic partners.

23. I don't feel comfortable opening up to romantic partners.

24. I prefer not to be too close to romantic partners.

25. I get uncomfortable when a romantic partner wants to be very close.

26. I find it relatively easy to get close to my partner.

27. It's not difficult for me to get close to my partner.

28. I usually discuss my problems and concerns with my partner.

29. It helps to turn to my romantic partner in times of need.

30. I tell my partner just about everything.

31. I talk things over with my partner.

32. I am nervous when partners get too close to me.

33. I feel comfortable depending on romantic partners.

34. I find it easy to depend on romantic partners.

35. It's easy for me to be affectionate with my partner.

36. My partner really understands me and my needs.

Mobile Attachment

Please indicate your level of agreement on each of the following statements about characteristics of you. (1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree, 7= Strongly agree)

1. If my phone runs out of battery, I do not feel safe.
2. If I do not have my phone on me, I do not feel safe.
3. If I leave my phone at home, I do not feel safe.
4. If I lost my phone, I would not feel really safe for long.
5. If I am stressed I take out my phone to calm down.
6. If I left my phone at home, I would be willing to go home for it even from a distance (more than 5 min away from home).
7. I am nervous/tense when I leave my phone at home.
8. It does not bother me when I leave my phone at home/it runs out of battery. (reverse scored)
9. I am nervous/tense when my phone runs out of battery.
10. If I feel uneasy/tense in company, I take out my phone.
11. In a tense situation, I take out my phone.
12. If I am nervous, dealing with my phone does not calm me down. (reverse scored)

13. If my phone is in my hand, I feel more confident.

14. I am not more confident/easy-going if I have my phone with me. (reverse scored)

15. If my phone is in my hand, I can behave more easily/unreserved.

Attitude toward Mobile Advertising

Please indicate your level of agreement on each of the following statements about characteristics of you. (1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree, 7= Strongly agree)

1. Using mobile advertising is a good idea.
2. I like the idea of using mobile advertising.
3. Mobile advertising helps raise our standard of living.
4. Mobile advertising helps me to find products that match my personality and interests.
5. Mobile advertising helps me buy the best brand for a given price.
6. My attitude toward mobile advertising is positive.

APPENDIX B

SURVEY ITEMS FOR PRETEST OF STUDY TWO

Generated Curiosity

1. How curious do you feel about this product? (1=Not at all, 2= A little, 3=Somewhat, 4=Very much, 5=Extremely)
2. How interested would you be in reading more about this product? (1=Not at all, 2= A little, 3=Somewhat, 4=Very much, 5=Extremely)
3. How involved did you feel when watching the advertisement about the product? (1=Not at all, 2= A little, 3=Somewhat, 4=Very much, 5=Extremely)
4. How interested would you be in checking out this product at a store? (1=Not at all, 2= A little, 3=Somewhat, 4=Very much, 5=Extremely)

Attitude toward the Ad

I think the advertisement is …

Bad	❍	❍	❍	❍	❍	Good
Unfavorable	❍	❍	❍	❍	❍	Favorable
Unpleasant	❍	❍	❍	❍	❍	Pleasant

Attitude toward the Brand

I think the brand is…

Unappealing	❍	❍	❍	❍	❍	Appealing
Bad	❍	❍	❍	❍	❍	Good

Unpleasant	❍	❍	❍	❍	❍	Pleasant
Unfavorable	❍	❍	❍	❍	❍	Favorable
Unlikeable	❍	❍	❍	❍	❍	Likeable

Brand Familiarity

Unfamiliar	❍	❍	❍	❍	❍	Familiar
Inexperienced	❍	❍	❍	❍	❍	Experienced
Not knowledgeable	❍	❍	❍	❍	❍	Knowledgeable

Perceived Interactivity

Please indicate your agreement or disagreement with the following statements. (1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree, 7= Strongly agree)

1. I was in control of my navigation through this website.
2. I had some control over the content of this website that I wanted to see.
3. I was in total control over the pace of my visit to this website.
4. I could communicate with the company directly for further questions about the company or its products if I wanted to.
5. The site had the ability to respond to my specific questions quickly and efficiently.
6. I felt I just had a personal conversation with a sociable, knowledgeable and warm representative from the company.
7. The website was like talking back to me while I clicked through the website

8. I perceived the website to be sensitive to my needs for product information.
9. The web site keeps my attention.
10. It was easy to find my way through the site.
11. The website offers a variety of content.

APPENDIX C

SURVEY ITEMS FOR STUDY TWO

Generated Curiosity

1. How curious do you feel about this product? (1=Not at all, 2= A little, 3=Somewhat, 4=Very much, 5=Extremely)
2. How interested would you be in reading more about this product? (1=Not at all, 2= A little, 3=Somewhat, 4=Very much, 5=Extremely)
3. How involved did you feel when watching the advertisement about the product? (1=Not at all, 2= A little, 3=Somewhat, 4=Very much, 5=Extremely)
4. How interested would you be in checking out this product at a store? (1=Not at all, 2= A little, 3=Somewhat, 4=Very much, 5=Extremely)

Attachment Style

The statements below concern how you feel in emotionally intimate relationships**.** We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by clicking a circle to indicate how much you agree or disagree with the statement. (1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree, 7= Strongly agree)

1. I'm afraid that I will lose my partner's love.
2. I often worry that my partner will not want to stay with me.
3. I often worry that my partner doesn't really love me.
4. I worry that romantic partners won't care about me as much as I care about them.

5. I often wish that my partner's feelings for me were as strong as my feelings for him or her.

6. I worry a lot about my relationships.

7. When my partner is out of sight, I worry that he or she might become interested in someone else.

8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.

9. I rarely worry about my partner leaving me.

10. My romantic partner makes me doubt myself.

11. I do not often worry about being abandoned.

12. I find that my partner(s) don't want to get as close as I would like.

13. Sometimes romantic partners change their feelings about me for no apparent reason.

14. My desire to be very close sometimes scares people away.

15. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am. 16. It makes me mad that I don't get the affection and support I need from my partner.

17. I worry that I won't measure up to other people.

18. My partner only seems to notice me when I'm angry.

19. I prefer not to show a partner how I feel deep down.

20. I feel comfortable sharing my private thoughts and feelings with my partner.

21. I find it difficult to allow myself to depend on romantic partners.

22. I am very comfortable being close to romantic partners.

23. I don't feel comfortable opening up to romantic partners.

24. I prefer not to be too close to romantic partners.

25. I get uncomfortable when a romantic partner wants to be very close.

26. I find it relatively easy to get close to my partner.

27. It's not difficult for me to get close to my partner.

28. I usually discuss my problems and concerns with my partner.

29. It helps to turn to my romantic partner in times of need.

30. I tell my partner just about everything.

31. I talk things over with my partner.

32. I am nervous when partners get too close to me.

33. I feel comfortable depending on romantic partners.

34. I find it easy to depend on romantic partners.

35. It's easy for me to be affectionate with my partner.

36. My partner really understands me and my needs.

Mobile Attachment

Please indicate your level of agreement on each of the following statements about characteristics of you. (1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree, 7= Strongly agree)

1. If my phone runs out of battery, I do not feel safe.
2. If I do not have my phone on me, I do not feel safe.
3. If I leave my phone at home, I do not feel safe.
4. If I lost my phone, I would not feel really safe for long.
5. If I am stressed I take out my phone to calm down.
6. If I left my phone at home, I would be willing to go home for it even from a distance (more than 5 min away from home).

7. I am nervous/tense when I leave my phone at home.
8. It does not bother me when I leave my phone at home/it runs out of battery. (reverse scored)
9. I am nervous/tense when my phone runs out of battery.
10. If I feel uneasy/tense in company, I take out my phone.
11. In a tense situation I take out my phone.
12. If I am nervous, dealing with my phone does not calm me down. (reverse scored)
13. If my phone is in my hand, I feel more confident.
14. I am not more confident/easy-going if I have my phone with me. (reverse scored)
15. If my phone is in my hand, I can behave more easily/unreserved.

Attitude toward the Ad

I think the advertisement is …

Bad	❍	❍	❍	❍	❍	Good
Unfavorable	❍	❍	❍	❍	❍	Favorable
Unpleasant	❍	❍	❍	❍	❍	Pleasant

Attitude toward the Brand

I think the brand is…

Unappealing	❍	❍	❍	❍	❍	Appealing
Bad	❍	❍	❍	❍	❍	Good
Unpleasant	❍	❍	❍	❍	❍	Pleasant
Unfavorable	❍	❍	❍	❍	❍	Favorable
Unlikeable	❍	❍	❍	❍	❍	Likeable

Brand Familiarity

I think the brand is…

Unfamiliar	❍	❍	❍	❍	❍	Familiar
Inexperienced	❍	❍	❍	❍	❍	Experienced
Not knowledgeable	❍	❍	❍	❍	❍	Knowledgeable

APPENDIX D

RESULTS OF REGRESSION ANALYSES (H5 and H6)

The moderating effect of attachment *anxiety* on the relationship between mobile availability and self-reported generated curiosity.

	b	SE	t	p
Constant	18.80	2.64	7.11	.00
D1	-2.97	3.85	-.77	.44
D2	-8.94	3.76	-2.37	.02
Attachment anxiety	-.03	.04	-.86	.39
D1 x Attachment anxiety	.02	.06	.30	.76
D2 x Attachment anxiety	.14	.06	2.19	.03
F	$F(5,148) = 1.66$, p=.15			
F change	$\Delta F(2,148) = 2.69$, p=.07			
R^2	.05			
R^2 change	.03			

The moderating effect of attachment *anxiety* on the relationship between mobile availability and attitude toward ad

	b	SE	t	p
Constant	16.39	2.16	7.60	.00
D1	-.42	3.14	-.13	.89
D2	-4.55	3.07	-1.48	.14
Attachment anxiety	-.03	.03	-1.01	.32
D1 x Attachment anxiety	-.00	.05	-.06	.95
D2 x Attachment anxiety	.08	.05	1.52	.13
F	$F(5,148) = .74$, p=.59			
F change	$\Delta F(2,148) = 1.49$, p=.23			
R^2	.02			
R^2 change	.02			

The moderating effect of attachment *anxiety* on the relationship between mobile availability and attitude toward the brand

	b	SE	t	p
Constant	29.59	2.93	10.09	.00
D1	-6.94	4.27	-1.62	.11
D2	-4.23	4.17	-1.01	.31
Attachment anxiety	-.06	.05	-1.27	.21
D1 x Attachment anxiety	.08	.07	1.13	.26

D2 x Attachment anxiety	.05	.07	.80	.43
F	F(5,148) = 1.03, p=.40			
F change	ΔF(2,148) = .70, p=.50			
R^2	.03			
R^2 change	.01			

The moderating effect of attachment *anxiety* on the relationship between mobile availability and purchase intention

	b	SE	t	p
Constant	16.07	2.80	5.74	.00
D1	-.93	4.07	-.23	.82
D2	-8.14	3.98	-2.05	.04
Attachment anxiety	-.02	.04	-.39	.70
D1 x Attachment anxiety	-.04	.06	-.57	.57
D2 x Attachment anxiety	.11	.07	1.75	.08
F	F(5,148) = .08, p=.04			
F change	ΔF(2,148) = 2.67, p=.07			
R2	.08			
R2 change	.03			

The moderating effect of *mobile attachment* on the relationship between mobile availability and the self-reported curiosity

	b	SE	t	p
Constant	19.20	4.35	4.41	.00
D1	-4.66	5.97	-.78	.44
D2	-12.44	6.13	-2.03	.04
Mobile attachment	-.04	.06	-.60	.55
D1 x Attachment avoidance	.04	.09	.48	.63
D2 x Attachment avoidance	.17	.09	1.87	.06
F	F(5,148) = 1.44, p=.21			
F change	ΔF(2,148) = 1.90, p=.15			
R^2	.05			
R^2 change	.02			

The moderating effect of *mobile attachment* on the relationship between mobile availability and the attitude toward the ad

	b	SE	t	p
Constant	17.05	3.57	4.78	.00
D1	-1.65	4.89	-.34	.74
D2	-3.57	5.02	-.71	.48
Mobile attachment	-.04	.05	-.78	.44
D1 x Attachment avoidance	.02	.07	.22	.82
D2 x Attachment avoidance	.05	.08	.69	.49

F	F(5,148) = .26, p=.94
F change	ΔF(2,148) = .25, p=.78
R^2	.01
R^2 change	.02

The moderating effect of *mobile attachment* on the relationship between mobile availability and the attitude toward the brand

	b	SE	t	p
Constant	30.41	4.80	6.33	.00
D1	-12.25	6.58	-1.86	.06
D2	-5.72	6.76	-.85	.40
Mobile attachment	-.07	.07	-.93	.36
D1 x Attachment avoidance	.15	.10	1.54	.12
D2 x Attachment avoidance	.07	.10	.73	.47
F	F(5,148) = 1.17, p=.33			
F change	ΔF(2,148) = 1.19, p=.31			
R^2	.05			
R^2 change	.02			

The moderating effect of *mobile attachment* on the relationship between mobile availability and purchase intention

	b	SE	t	p
Constant	13.90	4.59	3.03	.00
D1	-8.37	6.29	-1.33	.19
D2	-8.60	6.46	-1.33	.19
Mobile attachment	.02	.07	.25	.80
D1 x Attachment avoidance	.08	.09	.86	.39
D2 x Attachment avoidance	.11	.10	1.10	.27
F	F(5,148) = 2.46, p=.04			
F change	ΔF(2,148) = .66, p=.52			
R^2	.08			
R^2 change	.01			

APPENDIX E
MEANS AND STANDARD DEVIATIONS FOR DEPENDENT VARIABLES AND MODERATING VARIABLES IN STUDY 2

Percentage ad watched

Condition	N	Mean	Std. Deviation
Detachment	53	.86	.23
Physical proximity	52	.95	.12
Availability	49	.95	.13
Total	154	.92	.17

Self-reported curiosity

Condition	N	Mean	Std. Deviation
Detachment	53	4.16	1.29
Physical proximity	52	3.70	1.64
Availability	49	3.84	1.46
Total	154	3.90	1.47

Attitude toward ad

Condition	N	Mean	Std. Deviation
Detachment	53	4.77	1.50
Physical proximity	52	4.59	1.71
Availability	49	4.73	1.53
Total	154	4.70	1.58

Attitude toward brand

Condition	N	Mean	Std. Deviation
Detachment	53	5.21	1.26
Physical proximity	52	4.75	1.34
Availability	49	5.04	1.26
Total	154	5.00	1.29

Purchase intention

Condition	N	Mean	Std. Deviation
Detachment	53	3.76	1.39
Physical proximity	52	2.98	1.63
Availability	49	3.32	1.63

Total	154	3.36	1.58

Attachment anxiety

Mean: 3.29
Std.Deviation:1.06
Range:4.78

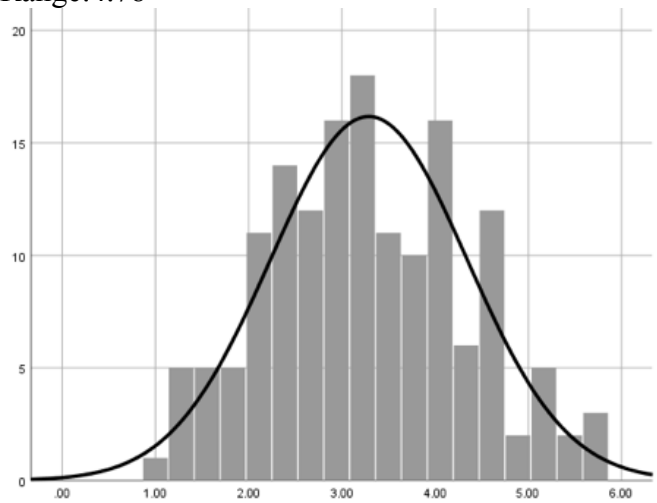

Figure E1. Distribution of Attachment Anxiety

Attachment avoidance

Mean: 3.01
Std.Deviation:.97
Range:4.22

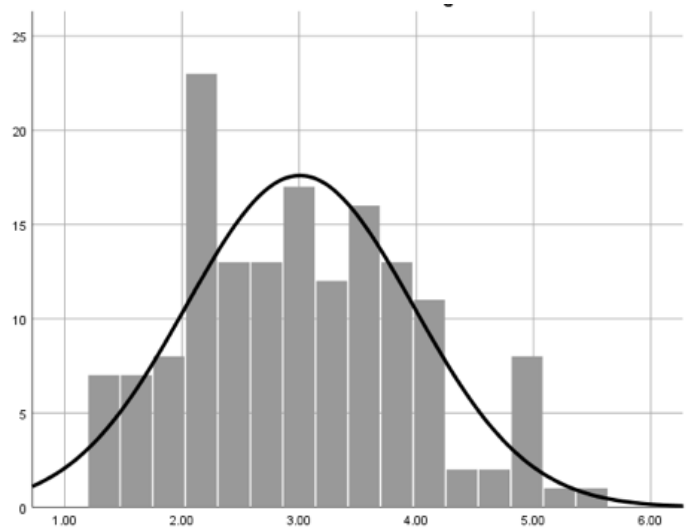

Figure E2. Distribution of Attachment Avoidance

Mobile Attachment

Mean: 4.39

Std.Deviation:.86
Range:4.47

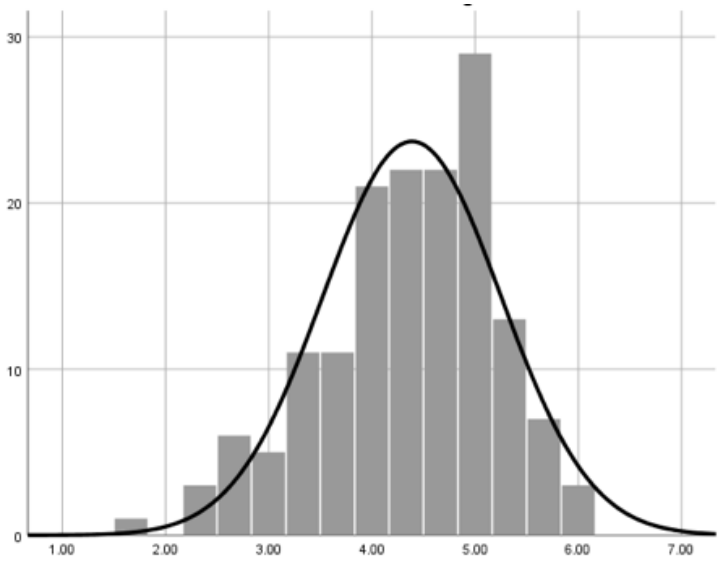

Figure E3. Distribution of Mobile Attachment