7 Social Media Use and Emerging Adulthood

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Cell phone and social media use have become so pervasive throughout the world that the hand-held minicomputers we call cell phones or mobile phones have been referred to as a digital appendage (Bjornsen & Archer, 2015) or extended self (Belk, 2013), one that commands a larger amount of attention with each passing year. The current cohort of emerging adults (ages 18-29; aka Millennials or Generation Y) is essentially the first to have been exposed to or used cell phones, social messaging services (SMSs) and social networking sites (SNSs) for the first 18 years of their lives (Coyne, Padilla-Walker, & Howard, 2013). Not surprisingly, in the U.S., today's emerging adults are most likely to use the internet, own a smartphone, and use social media sites (Pew Research Center, 2017a, 2017b, 2017c). For this reason, current emerging adults have been referred to as digital natives (Prensky, 2001). Throughout the world, youth ages 15 - 24 are much more likely to be internet users than older adults, and this proportion is *inversely* related to affluence; youth represent 13% of total internet users in developed countries, 28% in developing countries, and 35% in least developed countries (International Telecommunications Union, 2017). Emerging adults use their cell phones at higher rates (Zickuhr, 2011), are more accepting of cell phone use in social situations (Forgays, Hyman, & Schreiber, 2014), and are more likely to use social media for both social and information-gathering reasons (Hughes, Rowe, Batey, & Lee, 2012) than are older adults. Emerging adults spend approximately four hours each day engaged in cell phone / social media use (Bjornsen et al., 2017a; Hughes et al., 2012; Kuss, Griffiths, Karila, & Billieux, 2014; Padilla-Walker, Nelson, Carroll, & Jensen, 2010; David, Roberts, & Christenson, 2017).

Given that emerging adulthood in western cultures is commonly characterized by an extended period of higher education, this period affords more freedom of choice regarding how one's time is spent compared to full adulthood. The use of mobile social media (MSM) in this age period serves as an important socialization context in which emerging adults assert their developing autonomy, explore their identity, and initiate or maintain social relationships (Arnett, 2000; Coyne et al., 2013). This process has been referred to as cyber-socialization (Aiken, 2017) and is particularly useful, if not necessary, in an era of increased mobility in modern cultures (Adams, 1998). The identity exploration process, which Erikson (1968) argued was essential to identity formation, may be well suited to social media use.

In the digital world, emerging adults communicate online with others and portray themselves in ways that can be temporary, facilitating moment-to-moment alterations in one's persona or shared self. These online self-expressions and encounters provide the user with feedback from a larger interpersonal universe than can be accessed within the same time frame in real-life. Further, trying on possible selves on social media in some ways occurs in a context that is easier, often safer, and is accompanied by less severe consequences than face-to-face contexts (Back et al., 2010; Tosun, 2012).

According to the Pew Research Center (2017c), the top five social media sites used by emerging adults are Facebook (88%), Instagram (59%), Pinterest (36%), LinkedIn (34%), and Twitter (36%). Other research suggests that emerging adults are more likely to use social media apps designed specifically for sharing photos and short text messages, such as Instagram and Snapchat (Alhabash & Ma, 2017; Modo Labs, 2016; Stanley, 2015). Facebook is typically used for impression management, to archive meaningful facts and events of one's life, to learn about others by browsing through their Facebook page, and to learn and share information about topics, news, and stories (Zhao et al., 2013). Instagram and Snapchat primarily allow users to share photos and short messages for entertainment and to maintain social connections in a more casual manner. The recent shift toward heavier use of Instagram and Snapchat, versus Facebook, among emerging adults corresponds to concurrent evidence that higher use of social media is related to lower levels of impulse control or delayed gratification (Wilmer & Chein, 2016). It is also motivated by the recognition on the part of millennials that parents and future employers now commonly use Facebook, which means the peer group privacy that social media users often desire no longer exists on Facebook (boyd, 2015; Madden et al., 2013).

Today's smartphones have placed an unprecedented level of information and social communication in the hands of millions of emerging adults worldwide, which in many ways is quite beneficial. Yet, there is a price to pay for severing one's connection to immediate or real-life experiences, people, and contexts, and replacing those experiences with online social contact. Digital interaction in some ways engenders detachment and superficiality, as well as what Aiken (2017) describes as the online disinhibition effect, the amplification of both positive and negative behaviors expressed in the anonymity of cyberspace. She argues that this anonymity lowers the accountability people feel for their actions. People can be more altruistic, more trusting, and self-disclose easier, yet can also be more unfriendly, critical, and abusive than they would be in real life. Emerging adulthood is characterized by two

crucial challenges: successful completion of an extended education that prepares one for a career in the modern world, and managing the transformations that occur in one's relationships and in one's own personality and well-being, before the transition to full adulthood is completed. The use of social media is fully enmeshed with both of these challenges among today's digital natives.

7.1 Social Media Use and Educational Achievement

Much of the research examining the relationship between emerging adults' educational achievement employs self-reports of overall cell phone and social media use, and consistently documents a negative relationship between amount of time spent using cell phones and social media (Jacobsen & Forste, 2011; Junco, 2011; Junco, 2012; Junco & Cotton, 2012; Lepp, Barkley, & Karpinsky, 2014; Lepp, Barkley, & Karpinsky, 2015; Rosen, Carrier, & Cheever, 2013). Given that recent studies (Bjornsen et al., 2017a; David et al., 2017) show that students spend an average of four hours each day engaged in social media use on their cell phones, it follows that at least some of this use occurs in the University classroom. The evidence is that students use cell phones and social media in class on a regular basis, the majority of students send text messages during class, and commonly believe that instructors are usually unaware of such use (Baker, Lusk, & Neuhauser, 2012; Berry & Westfall, 2015; Elder, 2013; Hanson, Drumheller, Mallard, McKee, & Schlegel, 2011; Jacobsen & Forste, 2011; Tindell & Bohlander, 2012). Of particular concern is the degree to which in-class use of call phones and social media compromises learning and academic achievement. Ravizza, Hambrick, and Fenn (2014) compared student self-reports of texting, Facebook use, email use, and non-academic Internet use during class to final exam grades, and found they were negatively correlated. The distraction of social media use during class is recognized, yet interpreted differently, by students and faculty (Berry & Westfall, 2015; Elder, 2013; Thornton, Faires, Robbins, & Rollins, 2014). Students generally recognize that engaging in cell phone / social media use during class negatively impacts their attention and learning, is often impulsive and habitual, and is distracting to other classmates, yet students tend to believe they should be allowed to engage in such behavior during class (Junco & Cotton, 2011; Oulasvirta, Rattenbury, Ma, & Raita, 2012; Rosenfeld & O'Connor-Petruso, 2014; Tindell & Bohlander, 2012).

Although the research relying on self-reports of average cell phone and social media use consistently demonstrates a negative association with academic performance, there is evidence that there is only a moderate correlation between self-reports and actual use (Boase & Ling, 2013). One study sought to rectify

this weakness in the existing literature. University students in six different classes for an entire academic year were allowed to use their cell phones during class at their own discretion. At the end of each class period, all students completed a six-item questionnaire indicating the number of times they used their cell phone during that class for social networking (e.g., email, texting, using Facebook), to access the internet, for organizational purposes (e.g., update one's calendar), or to play a game. Cell phone use was significantly and negatively associated with test scores across the semester, regardless of student sex and overall college GPA. More specifically, lower test scores were associated with in-class *social media use*, indicating that attending to and communicating with people within one's social network was the specific type of cell phone use that predicted lower test grades (Bjornsen & Archer, 2015).

In addition to correlational studies on cell phone/social media use and academic achievement, short-duration experiments demonstrate that cell phone and social media use impedes students' ability to learn and recall lecture material. In numerous studies, experimentally interrupting students periodically with text messages or prompts from a social media app during a lecture significantly impairs learning and achievement (Ellis, Daniels, & Jauregui, 2010; Froese et al., 2012; Gingerich & Lineweaver, 2014; Rosen, Lim, Carrier, & Cheever, 2011; Wood, Brooks, Hacker, & Yanowitz; 2011). Recent research demonstrates that assigning students to a high and low cell phone use group, for just one week, results in higher scores on a measure of critical thinking among students in the low use group (Frost, Donahue, Goeben & Connor, 2017). In sum, the evidence consistently suggests that engaging in cell phone and social media use, both inside and outside of the classroom, are inversely related to academic achievement in emerging adulthood. It seems that many emerging adults may be making a conscious decision to sacrifice their learning and achievement in service of the social contact, entertainment, and stimulation they gain through the use of social media. Many are also likely counting on their ability to multitask, while still others may be simply engaging in cell phone use without giving all that much consideration to the consequences. Even more concerning, the behavior of some students may reflect an addiction to cell phone and social media use.

Given the challenge of maintaining students' attention during class, researchers have recently focused more attention on the positive effects of pedagogically-oriented social media use in the University classroom. Faculty members have begun to incorporate social media use into classroom activities (Hanson et al., 2011; Librero, Ramos, Ranga, Triñona & Lambert, 2007; Smith-Stoner, 2012; Tessier,

2013). One study demonstrated that engaging students in the use of social network sites such as Twitter can facilitate student participation in class activities (Junco, Heiberger, & Loken, 2011). Kinghorn and Wilson (2017), reporting on the experience of teaching one of the first Psychology of Social Media classes in a University setting, regularly engaged students in social media use during class time, including interacting via Facebook, reading and discussing assigned online articles about social media effects in class, and searching for information that was related to class discussions. Students indicated that the course positively influenced their knowledge and perceptions of social media in ways that were relevant to a variety of areas of their lives. According to Fleck and Hussey (2017), the majority of students report positive attitudes about using social media in college classes to aid in group projects, and that social media use facilitates communication between their professors and classmates and enhances peer collaboration on writing assignments. Essentially, students recognize that social media can be used effectively as a collaborative and communication tool to enhance their academic experience. Students also recognize when social media is being used by professors in ways that is on-task and authentic, thus enhancing their learning, rather than being used to take up time or simply to entertain students. Fleck and Hussey (2017) recommend that the use of social media should be purposeful and clearly connected to the course material.

7.2 Social media Use and Relationships with Family, Friends, and Partners

The peril of losing touch with family and friends as one passes through emerging adulthood, often moving away from home, is all too real. Emerging adults in long-distance romantic relationships expend a higher level of energy maintaining relationships through social media than those who live close to each other, and the long-distance relationships tend to involve more partner surveillance and relationship jealousy (Billedo, Kerkhof, & Finkenauer, 2015). Maintaining connections with past friends during the transition to college is associated with lower levels of social loneliness (Oswald & Clark, 2003), and sustaining old relationships, or maintaining social capital, is enhanced through the use of social media (Cummings, Lee, & Kraut, 2006; Ellison, Steinfield, & Lampe, 2007; Hampton, Goulet, Rainie, & Purcell, 2011). Old relationships may be replaced by new relationships, although relationships that develop primarily online are often more superficial than real-life relationships (Coyne et al., 2013). While it is evident that emerging adults engage in social media use to fulfill social needs (Krishnan & Hunt, 2015; Wang, Tchernev, & Solloway, 2012), some argue that social media

use detracts from the development and maintenance of real-life relationships and intimacy (Yang & Brown, 2009). Merely priming emerging adults to think about social media leads them to prefer offline solitary activities, and express a decreased desire for offline social interaction (Li, Chang, & Chiou, 2017). In a longitudinal study examining well-being among a large nationally representative sample of U.S. adults (average age 48 years) comparing Facebook social interactions with real-world social interactions, higher Facebook use was related to lower physical health, poorer mental health, and lower life satisfaction. The associations between Facebook use and compromised health and life satisfaction remained even after controlling for prior levels of well-being, suggesting a causal influence of Facebook use on health and satisfaction with life (Shakya & Christakis, 2017).

Other studies demonstrate the benefits of social media use, including the enhancement of bridging social capital, or gaining new information, and bonding social capital, or emotional support from others (Ellison et al., 2007). College students' need to belong is positively related to their use of mobile social media, which in turn facilitates their involvement in social activities (Kim, Wang, & Oh, 2016). Social media use can complement real-life communication and relationships, is associated with higher perceptions of social support (Ellison et al., 2007; Jacobsen & Forste, 2011; Kujath, 2011), and is commonly used to initiate relationships that later flourish into real-life friendships (Coyne et al., 2013). Sharing intimate information on social media enhances the quality of online relationships, which stimulates offline self-disclosure (Desjarlais & Joseph, 2017). It may be that social media use has more positive effects among those who are more extraverted and already have positive peer relationships overall, aka 'the rich get richer' hypothesis (Kraut, et al., 2002; Mehdizadeh, 2010; Sheldon, Abad, & Hinsch, 2011). Other research shows that social media use is associated with higher levels of perceived social support. Manago, Taylor, and Greenfield (2012) examined the relation between social network size and perceived social support and found that Facebook use facilitated large (440 friends on average) but impersonal social networks, characterized by relatively superficial relationships (acquaintances and activity-based friends). Users with more close contacts engaged in more private messaging, indicating an expression of intimacy that resembled real-life communication. Indeed, a good deal of social media communication with close friends was posted publicly, reflecting a transformation from an exchange of intimacy and emotional support into a broadcasting of social skills. Participants with more close contacts made more public posts, "transforming both close connections and unknown others into audiences for individualistic self-displays" (Manago et al., 2012, p. 10). Status updates posted to Facebook, seen by one's entire social network, were dominated by expressions

of one's current emotional state. Having larger social networks, and not proportion of close contacts, predicted greater levels of self-esteem, life satisfaction, and perceived social support. In other words, many emerging adults use social media to construct their social identities through public performances and public commitment to relationships. The results suggest that social media has transformed the nature of relationships and the identity formation process in emerging adulthood.

Social networking sites are also commonly used by emerging adults at various stages of romantic relationships, and such use is viewed to be a normal part of each stage of the relationship (Fox & Anderegg, 2014). Women, younger adults, and those not in a committed relationship spend more time on Facebook, and females spend more time on impression management (McAndrew & Jeong, 2012). Making one's relationship status public on Facebook among couples is positively related to relationship commitment and longevity. Paradoxically, however, receiving partner wall posts is negatively related to longevity, perhaps indicating that users perceive an undue level of possessiveness from partners who do so, or that such activity is an indicator of relationship problems (Toma & Choi, 2015). Social media use can be a source of other types of conflict in relationships, such as the pressure to make the relationship public, a public airing of disagreements, jealousy caused by incompatible social media use, attention shown to friends outside the dyad, and monitoring a partner's posts on social media (Fox, 2016). Satisfaction with spouses or partners is negatively related to amount of Facebook use, length of time of use, and number of Facebook friends, while time spent offline with friends is positively related to relationship satisfaction (Hammond & Hui-Tzu, 2016). Researchers studying social networking and relationship violence report that compulsive use of Facebook, self-disclosure on Facebook, complaints about a partner's use of Facebook, and cyber infidelity are related to perpetrating and experiencing relationship violence (Lussier, Ferron, Giroux-Benoit, & Sabourin, 2017).

More common, however, is the type of social conflict that arises from the manner in which cell phone and social media use interferes with real life social interaction. Such interference has been labeled technoference (McDaniel & Coyne, 2014) or, more recently, phubbing (phone snubbing), which means using one's cell phone during real-life interactions in a way that interrupts and interferes with the interaction (David & Roberts, 2017; Roberts & David, 2016). In one study, 100% of participants reported some degree of phubbing in relationships, and it was significantly more common among younger adults and positively related to neuroticism and narcissism (Bjornsen et al., 2017a). Other studies show that addiction to social media and cell phone use strongly predicts phubbing behaviors (Karadağ et al.,

2015), and that people tend to feel worse, and less close to others when they are engaged in a combination of digital social interactions and face-to-face interactions, compared to face-to-face interactions alone (Kushlev & Heintzelman, 2017).

7.3 Social Media Use and Personality Traits

Attachment style (secure vs insecure) is generally considered not only a reflection of one's life history of relationships, but an aspect of personality that strongly influences relationships and interactions throughout life. Facebook use among those with a secure attachment style is associated (even after controlling for levels of extraversion) with a strengthening of existing and new relationships (Lin, 2015). In one study, attachment styles were compared to online versus offline friendships. Attachment style was not related to the extent to which participants *sought* online friendships, and participants in general also tended to self-disclose more to offline friends than to online friends. Emerging adults with anxious or avoidant attachment styles, however, reported greater satisfaction with *offline* compared to online friendships. Yet, those with an anxious attachment style self-disclosed more with online friends than those who were securely attached, perhaps attempting to use the convenience of social media to moderate their anxiety about relationships (Buote, Wood, & Pratt, 2009). Other research indicates that obsessive internet use is more common among those with an anxious attachment style (Bodford, Kwan, & Sobota, 2017).

Largely congruent results have been reported regarding the relations between social media use and the Big Five personality traits. High degrees of social media use, and having more Facebook friends, are related to higher levels of extraversion (Correa, Hinsley, & de Zúñiga, 2010; Karakitsou, 2017; La Sala, Skues, & Grant, 2014) and higher levels of neuroticism (Bjornsen et al., 2017a; Bjornsen, Poredoš, Puklek Levpušček, Zupančič, & Kavčič, 2017; La Sala et al., 2014). Among those who are socially anxious, emerging adults with a high need for social assurance tend to engage in Facebook use that interferes with academic and social obligations (Lee-Won, Herzog, & Park, 2015). High agreeableness and neuroticism, and low conscientiousness, are related to a high need for belongingness, while high neuroticism and low conscientiousness are related to a high need for posting about oneself on social media (Seidman, 2013). Kuss et al. (2014) suggests that impulsivity and neuroticism may put individuals at risk for internet addiction, which is supported by recent evidence.

On the 'dark side' of personality traits, researchers have investigated the relations between social media use and traits such as narcissism and Machiavellianism. In

his popular book on the negative consequences of social media use, Rosen (2012) argues that cell phone and social media use often reflects a pathological condition he labeled iDisorder, a pattern of obsessive, self-focused behavior intertwined with higher levels of MSM use that is maladaptive and dysfunctional, as the person becomes increasingly disconnected from face-to-face human interaction. This notion concurs with the arguments put forth by Twenge and Campbell (2010) regarding the increase in narcissism in the age of social media. Not only is narcissism positively correlated with a higher level of social media use, number of Facebook friends, and intensity of Facebook use (stronger enmeshment and identification with one's Facebook use), narcissists tend to spend more time editing their Facebook profiles and uploading photos (Gnambs & Appel, 2017; La Sala et al., 2014; Mehdizadeh, 2010; Meshi, Morawetz, & Heekeren, 2013).

A recent cross-cultural examination of social media use and personality traits revealed that narcissism is positively related both positive and negative social media use (Bjornsen et al., 2017b). This may in part be explained by other research showing that different types of narcissism relate to different types of social media use. 'Vulnerable' narcissists tend to be overtly self-inhibited and modest, while

Figure 7.1. *The lure of social media and internet addiction among emerging adults seems to grow stronger each year.*

'grandiose' narcissists tend to be arrogant, entitled, exploitative, and envious. Vulnerable narcissists engage in higher levels of problematic internet use (e.g., using online time to alleviate distress, an inability to moderate one's online behavior, and experiencing problems in other areas of life due to obsessive internet use) and express a stronger preference for online social *interactions* than grandiose narcissists (Casale, Fioravanti, & Rugai, 2016). Grandiose narcissists may engage in more online self-enhancement, which may also be related to evidence that high social media use is related to high level of Machiavellianism, the tendency to manipulate and exploit others for personal gain (Bjornsen et al., 2017b).

In sum, social media use appears to be negatively related to levels of conscientiousness, and positively related to extraversion and a secure attachment style. On the dark side, social media use is positively associated with neuroticism, narcissism, Machiavellianism, and insecure attachment styles. Further research could explore the possibility that these patterns reflect separate groups, one comprised of social media users that focus on relationship enhancement and support, another whose use is anxiety based, and a third whose use is focused on self-aggrandizement.

7.4 Social Media Addiction

Emerging adulthood is a time of increased problematic cell phone and social media use among some users (Andreassen, 2015; Andreassen et al., 2013; Smetaniuk, 2014; Wan, 2009). In part, this may be due to the high degree of free time and lower parental supervision experienced during this period of life. Developing an overly strong identification with social media in emerging adulthood may compromise the development of a more natural, real-life set of interpersonal and psychological skills (Coyne et al., 2013; Han, Kim, & Kim, 2017). Emerging adults express the motivation to use social media to satisfy social, emotional, cognitive, and habitual needs. However, even though a need for social gratification is the strongest *motivation* for using social media, use of social media does not predict short-term *satisfaction* of social needs (Wang et al., 2012). This suggests that the addictive nature of social media may reflect, among some emerging adults, that gratification of social needs occurs only if social media are used persistently. Further, addictive internet and social media use may be merely symptomatic of more serious underlying problems, such as relationship or individual problems, that lead to an addictive use of social media as a coping mechanism. In their review of the literature on problematic internet use, Billieux and Van der Linden (2012) found that this body of research also focused on high impulsivity and sensation seeking, low inhibitory control, and poor decision-making abilities as explanations for this type of behavioral addiction.

In a general sense, addictive social media use has been characterized by obsessive, uncontrollable thoughts about social networking sites, persistent uncontrollable use of social media, and engaging in the use of social media in a manner that leads to negative consequences affecting important life areas such as relationships, schoolwork or employment, and psychological and/or physical well-being (Andreassen, 2015; Andreassen & Pallesen, 2014). Addictive social networking is more common among younger adults, and those who are not in a romantic relationship (Andreassen et al., 2016). University students spend more time each week texting than either attending class or studying, and students text continually throughout the day, including during class (Hanson et al., 2011; Roberts, Yaya, & Manolis, 2014). Moreover, pathological (obsessive) social media use is negatively associated with the ability to self-regulate cognitively, behaviorally, and emotionally (Holmgren & Coyne, 2017).

Females tend to score higher on measures of cell phone and social media addiction than males (Andreassen, 2015; Andreassen et al., 2016; Bjornsen et al., 2017a; Bjornsen et al., 2017b; Hakoyama, Chaffin, & Covey, 2017; Roberts et al., 2014), a pattern that is commonly attributed to a stronger preference among females for activities that involve social interaction, cooperation, and gathering social information about others. Yet other motivations are clearly involved. Females' intensity of social media use is significantly related to both social and exhibitionist motives, while the same is not true for males (Lampropoulou & Karakitsou, 2017). Females express a stronger fear of social isolation as a motivator for texting compared to males (Hakoyama et al., 2017). The more time emerging adults spend using Facebook and the stronger the addiction to using it, the more they tend to seek online popularity, which is also associated with lower self-esteem and agreeableness, negative body image, sexualized behaviors, higher abandonment anxiety, higher neuroticism, lower likeability, and higher conscientiousness (Giroux-Benoit, Lussier, & Ferron, 2017).

A host of other studies highlight the complex nature of cell phone and social media addiction during emerging adulthood. Internet addiction is related to poorer parent–child relationships and lower levels of psychosocial competence (Chi, Lin, & Zhang, 2016). Emerging adults with higher levels of mobile phone addiction have higher levels of social extraversion and anxiety and lower levels of self-esteem (Hong, Chiu, Huang, 2012; Hong, Huang, Lin, & Chiu, 2014; Wilson, Fornasier, & White, 2010). Social media addiction is positively related to relational aggression, loneliness, and depression (Chi et al., 2016; Koc & Gulyagci, 2013; Holmgren & Coyne, 2017; Hong et al., 2014; Wan, 2009). Social networking addiction is positively related to

narcissism and extraversion, and negatively related to openness and conscientiousness (Andreassen et al., 2012; Andreassen et al., 2013; Wilson et al., 2010).

7.5 Social Media Use and Creeping

In recent years, researchers have devoted increased attention to an aspect of social media use that emerging adults call *creeping* (Bjornsen et al., 2017a; Muise, Christofides, & Desmarais, 2014). The term seems to have originated in the lexicon of the millennial generation, and refers to browsing someone else's social media profile (e.g., on Facebook) without that person knowing and without posting anything on the site. In other words, it means secretly looking at someone's profile or photos or posts; hence the use of the word creeping, which carries a negative, invasive connotation. This type of behavior has previously been referred to as lurking, snooping, passive social media use, and latent social interaction (Frison & Eggermont, 2015; Metzger, Wilson, Pure, & Zhao, 2012). Creeping is distinct from cyberstalking (Alexy, Burgess, Baker, & Smoyak, 2005), which refers to unwanted harassing and/or threatening online behavior that is targeted at another person. It is also distinct from lurking, which is being a passive member of, for example, an online discussion group (Edelmann, 2016; Preece, Nonnecke, & Andrews, 2004). Further, creeping is also distinct from internet trolling, which refers to starting arguments or posting malicious messages in order to deliberately anger others (Craker & March, 2016).

To a non-digital native, holding the view that creeping is invasive may seem paradoxical. Why would it be invasive for a person to browse someone else's Facebook page when the owner has made it public, or accessible to others? The present author has posed this very question to his own students who consistently say, 'It just is.' Further discussions revealed, however, that creeping is not always viewed as invasive. The *intentions* of the person doing the creeping are crucial to the reaction of the person who is being 'creeped on.' If the creeping results in a negative consequence (e.g., harmful gossip) to the person whose page was viewed secretively, then creeping is seen as intrusive, inappropriate, and harmful. If the consequences are neutral or positive, creeping is not viewed as invasive. Therefore, it appears that the public nature of social media affords users positive benefits (e.g., gaining new friends, reputation enhancement), as well as negative consequences they might have to endure (e.g., social criticism, amusement at the user's expense, aka 'lulz'). Given that today's emerging adults grew up at the same time social media was emerging in modern culture, it should not be surprising that they have invented their own standards of behavior, and labels for behaviors that are unique to social media.

As stated, previous studies have examined creeping under different names, showing a mixture of positive and negative relations to other traits. Desjarlais and Joseph (2017) report that passive social media use is associated with greater online *and* offline self-disclosure. Qiu, Lin, Leung, and Tov (2012) found that, after engaging in Facebook browsing, individuals with low levels of narcissism perceive their friends' lives to be better than their own, which in turn negatively predicts their social well-being. The consequences of passive social media use may include taking time away from healthier face-to-face interaction and schoolwork, sleep deprivation, and declines in self-esteem due to the effects of obsessive social comparison (Underwood & Ehrenreich, 2017). Metzger et al. (2012) performed a large-scale crawl of data from 61,405 Peking University student users of Renren, the most popular social networking site in China, referring to secretive profile browsing as *latent social interactions*. Unlike Facebook users, Renren users have full access to a constantly updated list of recent visitors to their profile. The majority of users (93%) engaged in latent social interactions, while only 28% engaged in visible social interactions (writing or recording something on a person's Renren page), and reciprocal latent social interaction occurred less than 10% of the time. The majority of users received most of their latent profile views from strangers. Given the overt nature of this latent social interaction in China, it is apparent that this kind of one-way social contact is predominantly acceptable on social media.

Pempek, Yermolayeva, & Calvert (2009) found that emerging adults are much more likely to be passive observers on Facebook than to actively interact or post messages or photos. Almost 70% of participants said they often looked at or read others' profiles, 59% said they often looked at others' photos, 33% said they often read posts on others' walls, while only 25% said they often posted on walls, and only 8% said they often sent private messages. In a telling quote, one participant stated, "Facebook is extremely voyeuristic – there's something great, and at the same time, creepy, about knowing when someone you haven't talked to in 5 years broke up with their boyfriend who you never even met" (Pempek et al., 2009, p. 235).

Apparently, creeping is extremely common online activity. The present author collaborated with his University students to create a 7-item *creeping scale* and found that, out of 261 emerging adults in the U.S., 93% reported at least some level of creeping, and emerging adults were significantly more likely than older adults to creep on others. (Burgess et al., 2016; Bjornsen et al., 2017a). Researchers from two Universities in Slovenia also administered the same questionnaire to investigate social media use and personality traits. In both the U.S. and Slovenian samples, females scored significantly higher on creeping than males, and creeping was

significantly higher among U.S. participants (Bjornsen et al., 2017b). McAndrew and Jeong (2012) also found that women spent more time browsing the Facebook pages of others compared to men. In the U.S-Slovenian study (Bjornsen et al., 2017b), creeping was also negatively related to openness, and positively related to neuroticism, Machiavellianism, and narcissism. The negative relation to openness may reflect a tendency for those with high levels of openness to prefer to gather information from a wide variety of sources, rather than focusing on social media. The positive association with neuroticism indicates that individuals with higher levels of anxiety and emotional instability may resort to a more secretive and less anxiety-provoking way to learn about others. The positive associations with narcissism and Machiavellianism may suggest that individuals who are more self-centered and/or manipulative may have a desire to find out about others secretively in order to bolster their self-image, or gather information about others that can be used to gain flattery or advantages over others. These initial findings, along with the apparent ubiquity of creeping on social media, suggests that further empirical attention to this behavior and its correlates and consequences is warranted.

7.6 Social Media Use and Partner Surveillance or Cyberstalking

While creeping is typically viewed as normal or only sometimes invasive, cyberstalking or facestalking consists of monitoring someone else's social media profile or online activity for suspicious or potentially harmful reasons. Research shows that online stalking is perceived by potential victims to be more threatening than real-life stalking (Wood et al., 2017). Yet, in one study, two-thirds of University students used Facebook to monitor a former partner, and a portion of these students used Facebook to cyberstalk or harass ex-partners (Lyndon, Bonds-Raacke, & Cratty, 2011). The most recent assessment of online harassment shows that 67% of 18- to 29-year-olds have experienced some type of online harassment, and 41% have experienced severe harassment, such as physical threats, chronic harassment, sexual harassment, or stalking (Duggan, 2017). Females are more likely to display Facebook jealousy than males (Hudson et al., 2015) and are more likely to engage in snooping behaviors (Guerrero, Eloy, Jogensen, & Anderson, 1993). Women are more likely to report that others expect them to monitor Facebook in order to keep abreast of relationships and events (Steeves, Bailey, & Regan, 2012, as cited in Muise, Christofides, & Desmarais, 2014). This may partly explain why women are more likely to monitor a partner's Facebook page, especially when confronted with a scenario that invokes partner jealousy (Muise et al., 2014). Feeling jealous and monitoring one's partner is associated with relationship dissatisfaction (Elphinston & Noller, 2011).

Muise et al. (2014) studied the relations between jealousy and partner monitoring on Facebook, specifically whether men and women differ in the amount of partner monitoring they engaged in following a relationship threat. Using a simulated Facebook environment, they tested the associations between daily feelings of jealousy and daily time spent on a partner's Facebook page. They also examined the moderating effects of anxious attachment on the relation between jealousy and partner monitoring. The researchers triggered feelings of jealousy by presenting participants with photos on Facebook that were meant to simulate their own partner interacting with an attractive member of the opposite sex, either an unknown person, a mutual friend, or a cousin (as a control). Participants were then free to choose whether or not they continued to search the Facebook pages of the partner and the rival. The researchers predicted that women would spend more time searching through the rival's social media profile. Women reported more jealousy, and greater jealousy was reported when the rival was unknown or a mutual friend. More site searching occurred in relation to an unknown rival. While partner monitoring among women was positively associated with jealousy, monitoring among males was negatively associated with jealousy. Men also reported greater jealousy in response to seeing a partner with a mutual friend, while women reported greater jealousy in response to both the unknown person and mutual friend. In a second study, Muise et al. (2014) measured daily levels of jealousy and partner monitoring, as well as the relation between attachment anxiety and partner monitoring. Participants provided responses across 14 days regarding Facebook use, monitoring their partner on Facebook, and feelings of jealousy. While women spent more time on Facebook on average, men and women did not differ on time spent monitoring their partner. Women reported higher levels of Facebook jealousy and attachment anxiety. On days when jealousy was higher, female participants spent more time monitoring their partner. However, attachment anxiety mediated the relation between jealousy and gender on partner monitoring. Attachment anxiety, rather than jealousy per se, predicted Facebook monitoring, and stronger attachment anxiety predicted more monitoring only among women (Muise et al., 2014). Other research has also shown that partner monitoring on Facebook is more common among individuals who are anxiously attached to their partner (Marshall, Bejanyan, Di Castro, & Lee, 2012). Fox and Tokunaga (2015) found that an anxious attachment style predicted greater investment, commitment, and post-breakup partner surveillance. The relation between distress and surveillance was stronger among those who attributed the breakup to their partner. Those with the greatest distress were more likely to monitor their ex-partner after a breakup. The results suggest that persons experiencing a high level of distress after a breakup should disconnect from the ex-partner on social media.

Other factors unique to social media use may affect relationship quality. Social networking sites provide users with information about a partner's past and current relationships, which may be perceived as a threat to the relationship. This can contribute to partner monitoring, and exposure to ambiguous information about one's partner may further increase jealousy. Overall, research suggests that those who have the tendency to be more focused on relationships, those who are more prone to relational anxiety or insecurity, and those with lower self-image may be particularly likely to experience SNS jealousy (Muscanell & Guadagno, 2016).

7.7 Social Media Use and Catfishing

One's social media persona, identity, or Facebook-self (Gil-Or, Levi-Belz, & Turel, 2015, p. 2) is always an intentional construal of the self, one that may or may not be similar to one's offline self. Everyone posts what they want others to know about them. Using social media to portray oneself in ways that are not entirely accurate may simply reflect a degree of identity exploration, as discussed earlier. In this sense, a low degree of false identity creation may not indicate an area of concern for the individual's well-being or development. Gil-Or et al. (2015) argue that the Facebook-self is usually a more socially acceptable and popular self, belying the user's desire to compensate for real-life deficiencies. Emerging adults may alter the online presentation of the self in order to conform to social norms and prevent social criticism. However, at higher levels, the use of Facebook and other social media sites to promote a false self can potentially lead to "precarious functioning and psychological vulnerability which ultimately can lead to psychological pathologies" (Gil-Or et al., 2015, p. 1). In a study of 258 participants ages 20- 65 years old (M_{age} = 27.04 years, SD = 6.12, thus comprising a slightly older sample than the other studies reviewed here), Gil-Or et al. (2015) examined participant reports of the degree of congruity between their true self and Facebook-self. High scores on false Facebook-self were more common among participants with anxious and avoidant attachment styles, and low levels of self-esteem and authenticity (a measure of adhering to one's 'true self' in real life interactions). Other research shows that, in general, social media users do not tend to portray themselves in ways that are substantially different from their offline personalities (Back et al., 2010). Grieve and Watkinson (2016) found during emerging adulthood and beyond, Facebook users who portray themselves online in ways that are more similar to their true selves feel stronger social connectedness and less stress.

Presenting a false identity on social media has become known among emerging adults as *catfishing*, following the portrayal of this activity in a documentary film

and a television program of the same name (Joost & Schulman, 2010). The film and program portrays a person who creates and maintains a deceptive online identity in order to lure someone else into a romantic relationship. Similar to creeping, based on the present author's conversations with his students, most emerging adults (in the U.S.) recognize the word as part of their generation's lexicon. While creeping tends to differ in amount of activity, catfishing differs not only in amount but severity. Catfishing originally referred to creating a *completely* false identity in order to deceive a potential romantic partner, and that degree of severity remains a common use of the term. This can easily be accomplished on Facebook, which allows users to create as many different profiles as they wish, as well as Twitter, which allows users to create different accounts using different names. However, emerging adults today also use the term to refer to a minor or moderate alteration of one's social media self or physical appearance online (sometimes using software such as Adobe Photoshop) in order to enhance one's reputation or status among friends and strangers. To date, almost no research exists on this activity. Kaskazi (2014) reported that catfishing and its negative consequences leads to distrust and suspicion among social media users. More recently, researchers created a 6-item catfishing scale to measure its incidence and relations to personality traits (Burgess et al., 2016; Bjornsen et al., 2017a). Results of these studies showed that 68% of participants admitted to engaging in some form of catfishing online, and it was significantly more common among emerging adults than older adults. Further, a cross-cultural comparison of U.S. and Slovenian emerging adults (Bjornsen et al., 2017b) demonstrated that, in both cultures, catfishing was positively associated with Machiavellianism and narcissism, supporting the concern expressed by participants in previous research of the potentially harmful nature of this activity (Kaskazi, 2014). Given the incidence and potentially serious nature of this online activity, this online activity also warrants further research.

7.8 Social Media Use and Fictitious Cyberbullying

An interesting and perhaps more disturbing online phenomenon that crosses the boundary between catfishing and cyberbullying, called self-cyberbullying or factitious cyberbullying, has very recently garnered the attention of researchers. Described by blogger and author danah boyd (2014), youth who engage in this behavior typically post content online that is meant to attract attention, support, and concern from others. They create a completely false identity online (such as a new Facebook profile with a false name) that they use to cyberbully their own true Facebook self or identity in order to solicit sympathy from others, or enhance their own reputation by showing they are not bothered by the bullying or by fighting

back against the fake bully. The person might also use the fake identity to bully someone else so they can 'rescue' that person from the bully. Social media sites such as Facebook allow users to create different identities, with different names, giving anyone the capability to engage in factitious cyberbullying if they wish. Englander (2012) conducted the first known empirical study of this phenomenon, using the label Digital Munchausen. She found that 8% of female and 13% of male freshman university students had engaged in self-cyberbullying when they were in high school. Participants reported they did so in order to gain attention, prove to others they could withstand the bullying, get others to worry about them, or just because they were mad and wanted to start a fight. Youth who engaged in factitious cyberbullying were likely to have had numerous psychiatric contacts during high school and were more frequent users of drugs and alcohol. One-third of them said they believed their self-cyberbullying successfully served its purpose and they felt better because of it. More recently, Fischer and Hamilton (2017) examined University students' tendency to use alternative identities on social media, and found that 21.2% maintained an alternate, fake social identity. Further, 10% out of 538 emerging adults stated they had at least one *secret* identity. A small portion of the 538 students, 2.2%, reported using the secret identity to post harmful statements to or about their real identity (i.e., they cyberbullied themselves), and the majority of those who engaged in this factitious cyberbullying also used the false identity for self-flattery or self-promotion. Similarly, 2.3% said they used their secret identity to cyberbully someone else so that their real online self could come to the victim's defense. Exploratory analyses of the traits of the fictitious cyberbullies indicated they had lower self-esteem and were more likely to endorse items describing traits of borderline personality disorder.

Using social media to create a false identity thus appears to take different forms and serve different purposes during emerging adulthood. It can range from a rather innocuous enhancement of one's physical features to appear more physically attractive, to pretending to be a completely different person that manipulates others online for personal gain. Early research suggests that the degree to which the false persona misrepresents the actual person is related to a potentially less healthy psychological makeup.

7.9 Social Media Use and Psychological Disorders

While creeping, catfishing and factitious cyberbullying are highly variable in frequency, studies show that social media use is more commonly associated with problems such as depression, anxiety, and compromised subjective well-being.

Blease (2015) suggested that, since mild depression reflects an evolutionarily adaptive response to negative social comparisons, Facebook depression is more likely to occur among those with a larger social media network, those who spend more time reading friends' updates, and those who read more updates in which friends are bragging about themselves or their lives. In support of this argument, research shows that level of Facebook use predicts greater social comparison and self-objectification, which, in turn, are related to lower self-esteem, poorer mental health, and greater body shame (Hanna et al., 2017). Social media use is also positively related to depression and negatively related to happiness and well-being (Lin et al., 2016; Pittman & Reich, 2016). The negative relation between social media use and psychological well-being was also revealed in a meta-analysis of 67 independent samples (Huang, 2017). Social media use and low well-being may be self-reinforcing; emerging adults with higher levels of psychological distress tend to communicate using language that is symptomatic of depressive states, and express less satisfaction with others' responses to their posts and less satisfaction with the outcome of the dialogue (Bazarova, Choi, Whitlock, Cosley, & Sosik, 2017). Scherr and Brunet (2017) found that posting negative updates on Facebook was associated with depressive tendencies, especially when users were motivated to use Facebook for relationship formation and entertainment (rather than relationship maintenance), and most strongly when the person had higher levels of neuroticism. The authors suggest that depressed persons may use Facebook as a type of diary, expressing themselves in a context in which direct, immediate response to one's communication is often absent or delayed.

A recent review of the research on the relation between social media use and depression concluded: (a) the frequency and amount of social media use is not nearly as predictive as the type of use (e.g., user perception of the positive vs negative nature of use); (b) the degree to which users engage in social comparison and ruminate about concerns related to social media content is predictive of depression, and; (c) social media use is related to positive and negative outcomes that are not easily separated (Baker & Algorta, 2016). The multifaceted nature of overall negative outcomes of high levels of social media use was clearly demonstrated by Andreassen et al. (2016), who reported that addictive social networking is more common among young adults, and such use is positively correlated with a variety of disorders. Depression was most strongly related to symptoms of ADHD, followed by obsessive-compulsive disorder, then anxiety, and finally depression. The authors suggest that persons who are easily distracted or impulsive (ADHD) may be more vulnerable to the mere presence of cell phones as well as the notifications of contact that emanate from the devices. Persons with an obsessive need to check

aspects of one's environment may also be drawn to the omnipresent mobile device. Regarding anxiety and depression, the authors suggest that anxious individuals may find face-to-face interaction more difficult than online communication, while the tendency of depressed individuals to isolate themselves and withdraw from real life social contact may increase the use of social media.

7.10 Social Media Use and Neurological Functioning

Brain maturation continues throughout emerging adulthood in various regions and functions, most notably involving the fronto-limbic system and the regulation of rewards, self-control, and social cognition. The fronto-limbic system is comprised of the frontal lobes (central to reasoning and impulse control), the limbic system (central to emotional activation), and a structure located directly between the frontal lobes and limbic system, the nucleus accumbens (central to reward processing). Maturation during emerging adulthood also occurs in a region of the parietal lobes called the precuneus, which plays an important role in self-consciousness, social cognition, and reflective self-awareness, such as comparing one's own personality traits to those of others. Neuroimaging studies typically demonstrate substantial changes in the above brain regions in emerging adulthood, suggesting the emergence of mental abilities that set emerging adults apart from adolescents (Bennett & Baird, 2006; Kjaer, Nowak, & Lou, 2002; Rubia et al., 2006; Taber-Thomas & Perez-Edgar, 2016; Tamm, Menon, & Reiss, 2002; Veroude, Jolles, Croiset, & Krabbendam, 2013).

Recent laboratory research has shown that those who report high levels of Facebook use intensity experience stronger activation of the nucleus accumbens when they are presented with positive social feedback about their reputation. Hence, those who engage in higher social media use in real life experience greater neurological reward when they perceive they are receiving praise in a laboratory setting, analogous to collecting Likes, friends, or followers on social media (Meshi et al., 2013). Using simulated Instagram images of participants, Sherman, Greenfield, Hernandez, & Dapretto (2017) found greater activity in the nucleus accumbens of university students when they viewed photographs of themselves that had received many Likes, and photographs of popular others engaged in risky behavior (partying, making rude gestures, or wearing provocative clothing) that received many Likes. There was also greater activation in the precuneus when viewing photographs that received many Likes. However, unlike adolescents in the same study, emerging adults did not demonstrate a *decrease* in activity in brain regions considered hubs of the central executive network, areas within the frontal cortex involved in cognitive control that serve to inhibit responses to emotional, often risky stimuli.

This finding suggests that emerging adults' brains find reputation-enhancing and risky stimuli rewarding, yet are more capable of inhibiting a behavioral response to such stimuli compared to adolescents. This maturational change corresponds to evidence that emerging adults have a greater capacity to resist peer influence (Steinberg & Monahan, 2007).

Meshi et al. (2016) found that the degree to which young adults shared self-related information, both written and visual, on Facebook was positively related to neural connectivity of the prefrontal cortex and the precuneus with other brain regions, further supporting the essential role these brain regions play in thoughts and activities involved in social media use. These studies highlight important associations between social media use and brain regions recognized as essential to the regulation of social and emotional aspects of the lives of emerging adults, as well as the decision-making processes and ability to inhibit reactions to social stimuli, all of which are intimately involved in the use of social media. It is likely that further research will emerge in the near future examining the neurological processes involved in healthy and problematic social media use.

7.11 Conclusions

As mentioned in the opening section of this chapter, the ever-changing landscape of digital technology and social networking sites shows that emerging adults have recently gravitated to social media apps that rely on fewer words and more pictures and videos. The use of image-based social media (Instagram, Snapchat) versus text-based social media (Twitter, Yik-Yak) is associated with lower levels of loneliness and higher levels of happiness and satisfaction with life. Image-based communication more accurately replicates the intimacy of real-life interaction, which is inherently more psychologically satisfying (Pittman & Reich, 2016). The effect of Instagram use on emerging adults' self-worth is negative primarily among youth who have higher number of contacts, are more dependent on social comparison, and whose self-worth is contingent upon approval from others (Stapleton, Luiz, & Chatwin, 2017; Lup, Trub, & Rosenthal, 2015; Yang, 2016). These results demonstrate that, in line with much of the research summarized in this chapter, social media use is not inherently harmful or disruptive to development during emerging adulthood. The impact depends upon a myriad of characteristics, including the needs and personality traits of the user, the creation of and transformations in the social norms of the peer group, the degree to which social media are integrated into various contexts such as education, and the types of experiences emerging adults have in the context of using social media. Some emerging adults seem to

be more susceptible to becoming immersed in a digital social existence, and are more likely to experience harmful effects to their real-life health, responsibilities, and relationships. There is no denying that social comparison and popularity are inherent functions of social media. Yet these qualities are also inherent in real-life social relations. They simply happen faster, and on a larger scale, in social media. Since emerging adulthood is a time when the relatively stable characteristics of full adulthood are still unfolding, the influences of this critical context of development are considerable and will undoubtedly attract increased attention from researchers, clinicians, educators, and parents as perhaps the seminal change in social development of the early 21st century.

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