

Social Network Activity and Social Well-Being in Emerging Adults

by

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## **Abstract**

Digital communication and social networking sites (e.g., Facebook) have become an integral part of adolescent and young adults' daily life. The increasing presence of an online context raises concerns as to how digital communication influences our interpersonal relationships. The social well-being of adolescents is central to this issue particularly because they are the defining users of online communication platforms. Research has increasingly focused on how youth may engage social networking sites in the service of developmental needs. The current research investigated social network activity and indicators of well-being in a sample of University students who engage in Facebook use. In addition, this research has sought to extend previous research and examine the relationship between perceptions of social support across online and offline contexts. Participants reported on the types of Facebook activities they engage in, as well as their perceived levels of stress, loneliness and social support. The results suggest that the type of Facebook activity is an important factor when considering the relationship between social media use and emerging adults' well-being. The discussion will focus on the potential positive and negative ways that emerging adults are engaging in social networking sites. The implications of this study can be used to inform future research as well as education initiatives for emerging adults.

## **Preface**

This thesis is an original work by Gemma Leonard. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name “Young adults; use of technology for socializing”, No. 00044386, January 10, 2014.

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## Introduction

With advances in varying media for communication it has become important to consider how these increasingly ubiquitous technologies impact the development and social well-being of users. Social media platforms present a novel context in which to examine the social and emotional development of youth. Central to the topic of online communication are questions surrounding the impact on interpersonal relationships and social connectivity. Research has primarily focused on the mediating role of online communication in social and emotional development, namely the potential positive and negative consequences on social well-being (Bargh & McKenna, 2004; Gross, Juvonen, & Gable, 2002; Nie, 2001). Despite considerable research, there is little to no consensus about the relationship between digital communication and social well-being (Huang, 2010).

Adolescents are the defining users of online communication technologies (Valkenburg & Peter, 2009). As a result, research has focused on this demographic and how youth use social media to interact with others, particularly peers. Peers are a primary source of social support for adolescents and are essential for developing social and emotional well-being during this developmental transitional period (Helsen, Vollebergh, & Meeus, 2000; Lyubomirsky, King, & Diener, 2005). The increasing prevalence of online communication tools raises the issue of how digital communication affects the nature and dynamics of interpersonal relationships. Research suggests that most social networking sites are used to support and strengthen already established, offline social relationships (Boyd & Ellison, 2007; Reich, Subrahmanyam, & Espinoza, 2012). Similarly, adolescents identify communicating with peers as the most important motivation for social network site use (Barker, 2009). Studying the implications of online communication on

social well-being is central to understanding how best to promote healthy development for this demographic.

Social network sites are utilized for both information gathering and social communication (Park, Kee, & Valenzuela, 2009). At present, social network sites are the primary platform for online communication; 73% of online individuals use some form of a social network site (Duggan & Smith, 2013). Social network sites (e.g., Facebook and Instagram) are reported as the most popular online communication tools (Boyd & Ellison, 2007), with Facebook reported as the dominant social networking site (Duggan & Smith, 2013; Yang & Brown, 2013). To date, research has not come to a consensus concerning the impact of all forms of online communication, and whether this relatively novel context fundamentally changes the nature of relationships or the social consequences of these connections (Amichai-Hamburger, Kingsbury, & Schneider, 2013; Huang, 2010; Tyler, 2002). As such, the goals of the present study were to further investigate the relationship between social media use, through the use of the most popular platform, and indicators of social well-being in emerging adults.

## Literature Review

The following chapter provides a review of the digital communication literature, including a discussion of the relationship between social network site use and social well-being. Within this field, Ahn (2011) has suggested that researchers must consider the features of social network sites, characteristics of users and online behaviors potentially linked to social outcomes. These themes guide the review presented here.

### A Developmental Perspective

One of the foremost developmental concerns during adolescence includes establishing intimate personal relationships, as discussed below. Developmental researchers agree that this task is central for healthy social and emotional development (Valkenburg & Peter, 2011). In view of a developmental perspective, both research and theory are beginning to explore adolescent relationships and how developmental tasks emerge within an online context (Subrahmanyam & Greenfield, 2008).

**Theoretical Framework.** Patricia Greenfield has proposed the co-construction model to conceptualize the role of media in human development (Subrahmanyam, Greenfield, & Tynes, 2004; Subrahmanyam & Smahel, 2011). This model provides a framework in which to understand social constructionist principles focused within the topic of online communication and social development. From a social constructionist orientation, the process of understanding the world can best be described in terms of social exchange and artifact (Gergen, 1985). A foundational principle within the constructionist view describes the process of understanding as an active and cooperative enterprise by means of social relationships (Gergen, 1985). Similar ideas are presented within the co-construction model.

The co-construction model suggests that adolescents' and young adults' physical, social and digital worlds are interconnected and continuous. Accordingly, an online context is predicted to reflect similar themes and topics, as well as the behaviors youth engage in offline. Grounded within constructionist principles, the co-construction model contends that social media allows youth to actively create their online environment (Subrahmanyam & Smahel, 2011). Proponents for this model suggest that users are able to co-create and construct online environments through social interaction. An online environment is conceptualized as a social process that requires the construction of shared meaning among users (Mantovani, 2001). It is expected that similar developmental issues that occur offline will be constructed within a more novel, online setting (Subrahmanyam et al., 2004). Certain features of online communication, such as disembodiment and anonymity, are thought to allow youth opportunities to approach developmental tasks in potentially novel ways (Subrahmanyam & Smahel, 2011). The following literature reviewed examines how young adults work towards these developmental tasks in an online context.

### **Digital Communication and Well-Being**

The relationship between Internet use and psychological well-being was originally presented as the Internet paradox in a classic study conducted by Kraut et al. (1998). Participating families were supplied with a personal computer, Internet access and email accounts; participants' online activity was then tracked over a 2-year period. The results of this study indicated that loneliness, depression and stress were positively associated with greater Internet use, as was diminishing communication between family members (Kraut et al., 1998). The broad definition of Internet use within this study does not reflect the current approach of research today. As technology and communication platforms have become more sophisticated,

modern research has begun to parse out the different tools and activities users are engaging in an online setting; as in the case of the present study with a focus on social network activity.

These observed effects from this classic study were labeled as a paradox because participants principally used the Internet for communication; however, this was associated with negative effects for psychological well-being. The authors suggested that by using the Internet, individuals were substituting interpersonal relationships with weaker social ties. Subsequently, the Internet paradox study was revisited with contrasting results (Kraut et al., 2002). A 3-year follow-up with the original participants found that the experienced negative effects had dissipated. Moreover, a new sample of respondents generally reported a positive impact on communication and well-being from Internet use (Kraut et al., 2002). The authors proposed that the most parsimonious explanation for their conflicting results were changes in the use of technology itself.

During the original study, participants likely had difficulty maintaining their existing social network on the Internet simply because this was in the early stages of Internet adoption and many individuals were not yet online. Increasing access to the Internet over the last decade has allowed individuals the opportunity to maintain an already established social network online, as opposed to communicating with strangers. Consequently, the original negative effects on social well-being are less likely to be observed (Valkenburg & Peter, 2009). To date, numerous researchers have investigated the impact of Internet use on social well-being, and yet research findings remain equivocal (Kim, LaRose, & Peng, 2009; Nie, 2001; Valkenburg & Peter, 2009).

Mixed research findings are divided between two competing hypotheses, both of which offer potential explanations for the social impact of digital communication. Central to this debate is whether Internet use will isolate or connect individuals and consequently undermine or

reinforce social connections (Di Gennaro & Dutton, 2007). Early findings such as the Internet paradox study support the displacement or reduction hypothesis. The displacement hypothesis is based on the assumption that time spent online replaces face-to-face interactions, thereby reducing the quality of existing relationships and well-being (Blais, Craig, Pepler, & Connolly, 2008; Huang, 2010). Supporting this hypothesis, Caplan (2003) reported findings indicating that levels of loneliness and depression predicted levels of preference for online social interaction. This online preference was related to negative outcomes associated with problematic Internet use. Similarly, high levels of Internet use have been associated with higher ratings of loneliness; further supporting that Internet use may decrease social well-being (Moody, 2001).

As the competing explanation, the augmentation or stimulation hypothesis argues that there are positive social consequences from Internet-based activities (Huang, 2010). The argumentation hypothesis proposes that digital communication may facilitate and enhance social connectedness (Shaw & Grant, 2002; Valkenburg & Peter, 2009). Proponents for this hypothesis cite one research study that found adolescents who communicated with friends online more often reported greater feelings of closeness than those who communicated online less often. Interestingly, these effects were limited to participants who predominantly communicated with existing friends (Valkenburg & Peter, 2007). To date, evidence for both hypotheses have been well-documented within the existing literature. Both sides of this debate acknowledge that the impact of Internet use will vary depending on user characteristics, type of social relations, and particularly the type of Internet-based activity (Pollet, Roberts, & Dunbar, 2011).

Many of the early studies conceptualized Internet use broadly, but more recent research has moved towards differentiating between different types of Internet-based activities. Internet-based activity is typically classified into categories of information gathering, interpersonal

communication or entertainment (Shaw & Grant, 2002). Such distinctions are critical given that distinct Internet-based activities may differentially relate to well-being (Blais et al., 2008). The relationship between Internet use and social well-being is hypothesized to become more salient when based on social uses of the Internet (Huang, 2010), such that research focused on the emerging context of communication with social network sites is warranted.

**Social Network Sites.** Although digital communication can occur through a number of mediums including email, chat rooms, and blogs, social network sites have increasingly become the dominant platform. Digital communication occurring with social network sites offers a new context in which to examine social behavior and development. Research examining social network sites is important given that these technologies may be changing social processes and how people relate to one another (Wilson, Gosling, & Graham, 2012). Accordingly, researchers have focused on social network sites (e.g., Facebook, Instagram), the use of which has become integrated into daily practice for many consumers, particularly for adolescents (Bicen & Cavus, 2011).

Defined by Boyd and Ellison (2007), a social network site is a web-based service allowing individuals to construct a profile, articulate the connections they share with other users, and view connections made by others within this network. These functions remain fundamental to all social network sites, though the features and nature of these interpersonal connections may differ. One of the unique features of social network sites is that they allow social connections and relationships to become publicly visible (Boyd & Ellison, 2007). Despite growth in other social network sites, Facebook remains the most preferred social platform (Bicen & Cavus, 2010; Duggan & Smith, 2013). This popularity of Facebook also holds true for young adults (Bicen &

Cavus, 2011), suggesting that it is the most relevant social network site for current research and will be the focus in the present study.

**Facebook.** Launched in 2004, Facebook was originally designed to support the niche demographic of Harvard college students (Boyd & Ellison, 2007). The site gradually expanded to support students of additional institutions and has now become completely public with over 845 million users (Wilson et al., 2012). Statistics on reported Facebook use indicate high levels of user engagement, with 63% of users visiting the site daily and 40% of users visiting multiple times a day (Duggan & Smith, 2013). Users will first create a profile, typically consisting of descriptors such as age, location, and interests in addition to identifying others in the system as “friends”. Research suggests that social network sites are primarily used for communicating with individuals already a part of an offline extended social network (Boyd & Ellison, 2007; Subrahmanyam, Reich, Waechter, & Espinoza, 2008). Further, offline relationships and social interactions may be facilitated through the use of Facebook features, for example as a means to create social events and invite friends (Pempek, Yermolayeva, & Calvert, 2009).

**Facebook Activities.** Researchers are beginning to emphasize the importance of social network activities and the different modes of communication these afford. Features within Facebook allow for both direct and indirect means of communication. For example, the “wall” system allows users to post status updates as a public form of communication, whereas the messaging system provides users with a private mode of communication (Wilson et al., 2012). Directed communication includes an interaction where one friend identifies another, such as photo tagging. Indirect communication or simple observation is characterized by broad monitoring of all network content, not specific to any given friend. Typical uses of Facebook involve directed communication with a core network of friends and indirect communication

through browsing and passively following the majority of friends (Burke, Marlow, & Lento, 2010). Distinctions between these modes of communication suggests the need to examine the strong and weak social ties found within an individual Facebook network (Wilson et al., 2012).

***Characteristics of a Facebook Network.*** Individuals may use Facebook for a variety of purposes such as socializing, entertainment, self-status seeking and information gathering (Park et al., 2009). These reported uses of Facebook remain relatively consistent across time (Lampe, Ellison, & Steinfield, 2008). Research has identified social motivations behind Facebook use, communication with peers is rated as the most important motivation for social network site use (Barker, 2009; Pempek et al., 2009). Similar research findings indicate that college students express a strong interest in using Facebook to maintain social ties, as opposed to facilitating new relationships (Lampe, Ellison, & Steinfield, 2006; Lenhart, 2009).

The average Facebook user has 300 friends, but often a given individual's social network may reach into the thousands (Ellison, Steinfield, & Lampe, 2011). Interestingly, the majority of relationships within a Facebook social network are expansive but relatively impersonal (Manago, Taylor, & Greenfield, 2012). Taken together, such research reflects how Facebook is utilized as an online communication tool; however, a clear understanding of social network site use must also acknowledge a developmental perspective and the importance of user characteristics. Therefore, it is critical to review characteristics unique to the defining demographic of online communication technologies: adolescents and emerging adults.

### **Adolescence and Emerging Adulthood**

The transition into adulthood is accompanied by marked physical, cognitive and social changes (Christie & Viner, 2005). According to Erikson (1950), this period of change challenges youth with developmental tasks. As such, adolescence has been identified as a key period to

develop peer connections and intimate relationships. These intimate relationships are essential for healthy development, in that they allow adolescents to explore interests, identity, and create a sense of belonging (Erikson, 1950). Current definitions of adolescence have developed to include the stage of emerging adulthood.

The term ‘emerging adulthood’ has more recently been proposed to identify the unique period that occurs between late adolescence and young adulthood, with a focus on ages 18-25. Arnett (2000) argues for emerging adulthood as a distinct period of development change, characterized by semi-autonomy and the exploration of potential life courses. Emerging adulthood offers the unique opportunity for exploration and experimentation, with the absence of role commitments (Arnett, 2006). Within this distinct stage, emerging adults face similar, yet unique developmental challenges to adolescents that warrant independent study and research. Research has demonstrated that “emerging adults use online communication tools in the service of these unique developmental issues” (Subrahmanyam et al., 2008); this period will be the focus of the present study.

Although the literature includes studies that have been conducted with varying demographic populations (e.g., older adults) and methodologies (e.g., self-reports, interviews) (Hogeboom, McDermott, Perrin, Osman, & Bell-Ellison, 2010; Xie, 2008, Young, 2011), the majority of research has largely focused on university-based samples (Ellison et al., 2011, Manago et al., 2012; Park et al., 2009; Subrahmanyam et al., 2008). The stage of emerging adulthood often coincides with participation in higher education and the experience of transitioning to university (Arnett, 2006). First-year students typically report that the adjustment to a new academic setting is stressful and feel a lack of connection (Gall, Evans, & Bellerose, 2000; Perry & Allard, 2003). Accordingly, social support may be particularly crucial to well-

being for this demographic. Central to understanding these developmental challenges is the issue of how relationships and social support relate to positive social and emotional development.

### **Social Network Activity and Well-Being**

**Social Support.** Close and meaningful relationships are thought to be essential for healthy development. As youth transition out of childhood, peer relationships become increasingly central to social and emotional development. The relationship between interpersonal relationships and social well-being is one of the most robust findings in the literature (Helsen et al., 2000; Lyubomirsky et al., 2005). Meaningful peer relationships provide individuals with feelings of intimacy, belonging, and promote future positive well-being. Moreover, interpersonal relationships offer the benefit of social support (Amichai-Hamburger et al., 2013). Defined broadly, social support includes emotional support, empathetic understanding, material aid (e.g., money, services) and the provision of information (Wellman & Gulia, 1999). Research has largely examined the implications of emotional support and will be the focus here.

An extensive body of literature has indicated that social support is central to social well-being, including but not limited to self-esteem, coping skills, and increased physical and mental health (Lyubomirsky et al., 2005; Schiffrin, Edelman, Falkenstern, & Stewart, 2010). Conversely, peer rejection is found to predict depression and adjustment difficulties in later adolescence and adulthood (Hartup, 1996; Oberle, Sconert-Reichl, & Thomson, 2010). Taken together, these findings provide evidence that the notion of social support as a critical protective factor for adolescents, promoting resilience and healthy development (Adams, Santo, & Bukowski, 2011; DuBois, Felner, Brand, Adan, & Evans, 1992). The importance of social support for healthy development is also evident within the emerging adult demographic. Research demonstrates that emerging adults who report increasing levels of social support over the course of this

developmental stage also report increases in psychological well-being (Galambos, Barker, & Krahn, 2006). Social support is crucial for successful adjustment to higher education and can buffer against feelings of loneliness and stress in a new environment (Wilcox, Winn, & Fyvie-Gauld, 2005). Such research emphasizes the connection that social support is especially critical for emerging adults given that the transition to University is a time of academic challenge.

Interesting research is beginning to explore how social network sites may offer an avenue of social support that is relevant for university-based emerging adults. One study examined how Facebook use facilitated student integration into university life (Madge, Meek, Wellens, & Hooley, 2009). Participants reported that they joined Facebook in order to make new friends at university and also to maintain pre-existing relationships with people from home. The authors concluded that Facebook offers potential as a critical social tool to aid the transition into university life (Madge et al., 2009). Given the essential role of supportive peer relationships to well-being, it has become increasingly important to examine interpersonal relationships and well-being within the setting of online communication (Gross et al., 2002); particularly how an online context may facilitate social connectedness.

**Enhanced Communication.** Researchers have sought to understand the underlying process behind the relationship between digital communication and social connectedness. Grounded within the augmentation hypothesis, researchers have proposed that the positive effects of the Internet on social connectedness may be explained through enhanced self-disclosure (Valkenburg & Peter, 2009). Research suggests that users are motivated to disclose personal information through social network sites because of the conveniences these afford in developing and maintaining social relationships (Krasnova, Spiekermann, Koroleva, & Hildebrand, 2010).

The unique qualities of digital communication are thought to facilitate more intimate self-disclosure. For instance, the relative anonymity afforded through online communication presents individuals with the opportunity to share personal information with less concern about how they are perceived (McKenna, Green, & Gleason, 2002). Furthermore, forms of online communications are likely attractive to adolescents and emerging adults in that it allows for greater controllability of self-presentation and self-disclosure (Valkenburg & Peter, 2011). Self-disclosure and networked communication are social network behaviors that lend themselves to strengthening social relationships (Ahn, 2012); particularly status updates (Manago et al., 2012).

**Social Capital.** Research that has focused on the social impact of social network sites has centered on social capital as a construct for well-being. Social capital is characterized as the benefits that interpersonal relationships offer and can be further categorized into bridging and bonding capital (Steinfeld, Ellison, & Lampe, 2008). Bridging relationships are often between acquaintances and offer benefits such as information or connections to the larger community. Bonding relationships are typically close relationships and provide social and emotional support (Ahn, 2012). Studies have demonstrated that Facebook use is related to bridging but not bonding capital; time spent on Facebook allows users to connect with a wider network, without necessarily developing close relationships (Ahn, 2012). Similar research findings indicate that individuals with larger online social networks are often less emotionally close to each member, suggesting a potential trade-off between the quantity and quality of interpersonal relationships (Pollet et al., 2011).

Brandtzæg (2012) has conducted one of the few longitudinal studies in the field and compared social network site users with nonusers across several dimensions of social capital. Significantly higher bridging capital scores were found among social network site users

compared to nonusers, indicating that social network site use is associated with social capital, allowing for easy communication and serving to strengthen certain social bonds. At the same time, social network site users reported higher levels of loneliness than nonusers (Brandtzæg, 2012). The author also states that while findings such as these have important implications, effect sizes are relatively small, limiting the strength of association between social network site use and social capital.

To further clarify the nature of the relationship between Facebook use and social outcomes, Ellison et al. (2011) examined specific Facebook communication behaviors and activities. In this study, three dimensions of specific communication behaviors were observed. The authors make the distinction between initiating, maintaining and social information-seeking social behaviors. Initiating behaviors were defined as Facebook use to meet strangers or make new friends. Maintaining behaviors reflect the use of Facebook to maintain existing close connections. Lastly, social information-seeking represents using Facebook for learning more about individuals, with whom the user has some offline connection. Only the dimension of social information-seeking was found to be related to perceptions of social capital (Ellison et al., 2011). Similar research has demonstrated that receiving messages, a direct form of communication, from friends is associated with increases in bridging social capital but that other uses of Facebook are not (Burke, Kraut & Marlow, 2011). The relationship between Facebook activities and additional indicators of well-being, such as stress and loneliness, are similarly complex.

**Stress.** Stress is thought to arise when an individual reacts to a seemingly threatening situation to determine if there are the resources needed to meet the demands placed on them (Bevan, Gomez, & Sparks, 2014). Stress is known to inversely impact physical health and psychological well-being (Herbert & Cohen, 1993). Extensive research provides clear evidence

that social support reduces feelings of stress and minimizes its negative effects (Cohen & Wills, 1985; Nabi, Prestin, & So, 2013). Current investigations are beginning to examine the relationship between stress, social support and social networking site use within an online setting. Offline social networks are thought to influence well-being by enhancing an individuals' ability to cope with stressful events, through the provision of emotional and instrumental support (Bevan et al., 2014). Extending this idea to include social media use, it would follow that the use of social networking sites should be associated with decreased levels of stress. Investigations into this topic have generated mixed results. Nabi et al. (2013) reported findings that the number of Facebook friends was associated with stronger perceptions of social support, which in turn was associated with reduced stress levels and greater well-being. Additional research supports the idea that youth do engage in social media use as a means to seek social support and reduce daily stress (Frison & Eggermont, 2015).

Conversely, Facebook may be a new source of psychological stress (Campisi et al., 2012; Fox & Moreland, 2015; Maier, Laumer, Eckhardt & Weitzel, 2014) with research finding that higher stress levels are reported with more time spent on social networking sites (Bevan et al., 2014). Similar investigations indicate that social interactions through Facebook are associated with feelings of distress (Chen & Lee, 2013) and many users find Facebook to be stressful (Campisi et al., 2012). Particularly as individuals feel burdened to provide social support to increasingly large social networks (Maier et al., 2014). Taken together, these contradictory findings highlight that more research is needed to further clarify the dynamic between stress and Facebook use, especially with regard to specific Facebook activities. Research acknowledging the impact of different Facebook activities has more so been conducted with a focus on loneliness.

**Loneliness.** Loneliness is the negative experience of feeling socially isolated and alone (Cacioppo, Grippo, London, Goossens, & Cacioppo; Cacioppo, Fowler, & Christakis, 2009). Current research supports the idea that Facebook use as a means to minimize feelings of loneliness is moderated by the type of Facebook activity (Wilson et al., 2012). One study has demonstrated correlational evidence that participants who directly communicated with others (e.g., messaging) reported decreased feelings of loneliness (Burke et al., 2010). These results were in contrast with participants who reported increased feelings of loneliness when they spent time passively viewing news feed without directly engaging in social interaction.

As evident in the literature reviewed here, numerous researchers have investigated the impact of social network site use on indicators of well-being, including social capital, stress and loneliness. While research findings have largely been in support of the augmentation hypothesis, these studies also emphasize the complexity of factors surrounding social media use (Ahn, 2011; Jelenchick, Eickhoff, & Moreno, 2013; Pollet et al., 2011). The relationship between social network site use and well-being is not completely understood, particularly with regards to social support.

**Comparing Relationship Quality.** The social support offered in an online context has been shown to provide similar benefits as face-to-face social support, including social and emotional well-being (Amichai-Hamburger et al., 2013). However, it is not apparent if the social support offered in an online context transfers to an individuals' offline social network. For instance, research suggests that while the size of an individual's online social network is associated with life satisfaction and well-being, it is not associated with offline emotional closeness (Pollet et al., 2011).

Available research has established that most social networking sites exist primarily to support already established social relationships (Boyd & Ellison, 2007) and that emerging adults use an online context to strengthen offline relationships (Reich et al., 2012; Subrahmanyam et al., 2008). Despite the growing continuity between online and offline domains, questions still remain surrounding the differences, and similarities, between these modes of interaction and communication. Research suggests that face-to-face communication is considered more valuable for establishing and maintaining close social relationships than digital communication (Schiffirin et al., 2010). Similar research has demonstrated that the quality of offline relationships is rated higher than online relationships, across dimensions such as understanding, interdependence, and commitment (Chan & Cheng, 2004). Interestingly, the perceived difference between online and offline friendship quality is moderated by relationship duration, with relationships lasting for more than a year demonstrating only minor differences between an online or offline setting (Chan & Cheng, 2004).

One study directly compared the quality of adolescent relationships with a focus on the specific contexts where friendships are commonly formed, namely at school, in the neighborhood and online (Mesch & Talmud, 2007). Friends who met at school and in the neighborhood were closer than friendships than those formed solely online. Research such as this suggests that there are differences in the quality between adolescents' online and offline relationships. Related research has examined how online and offline interactions affects the quality of relationships together. Xie (2008) argues that communication through multiple media will create stronger relationships than interacting through one medium alone. However, the strengthening of social relationships through digital communication is likely dependent on the choice of Internet-based activity. Evidence comes from research reporting that instant messaging

was positively associated with friendship quality whereas visiting chat rooms was inversely associated with friendship quality (Blais et al., 2008).

### **Present Study**

The present study seeks to extend existing research on emerging adults' use of social network sites and is grounded within a social constructionist framework and the co-construction model. This study contributes to the existing literature by aiming to further clarify the nature of the relationship between social media activities and perceived levels of social support. Similar to previous research, social support, loneliness and stress are used as indicators of well-being. This study exclusively examines emerging adults' use of the social network site Facebook. A review by Wilson et al. (2012) suggests that a singular focus will avoid any overgeneralizations across social network sites in terms of specific demographics, function and network development.

The primary objective of this study is to draw comparisons between the perceived level of social support and how this relates to intensity of Facebook use. Although the study of Facebook use and implications for social support is not novel, the present study compares perceptions of social support in both an online and offline context; a question not considered in previous research. Examining specific Facebook activities (e.g., messaging, commenting on others posts) will allow for a clearer understanding of how social network activity relates to indicators of well-being. Research questions are investigated through a survey design.

### **Research Questions and Hypotheses**

1. What is the relationship between intensity of Facebook use and perceptions of social support, loneliness and stress in emerging adults? It was expected that higher ratings of Facebook intensity would be positively associated with ratings of social support and negatively associated with ratings of loneliness. Similar to previous research findings, intensity of Facebook use was

also predicted to be positively associated with stress ratings (Campisi et al., 2012; Fox & Moreland, 2015).

2. What is the relationship between participants' varying Facebook activities and perceptions of stress, loneliness and social support in emerging adults? Based on previous research, it was expected that direct forms of communication (e.g., messaging), compared to indirect forms of communication (e.g., passive consumption of news feed) would predict increased ratings of social support (Burke et al., 2010; Manago et al., 2012). Similarly, it was predicted that direct forms of communication would predict decreased ratings of loneliness, while indirect forms of communication would predict increased ratings of stress.

3. What is the relationship between ratings of social support across online and offline contexts in emerging adults? As this question was exploratory in nature, no hypothesis was proposed.

## **Method**

### **Participants**

All participants were undergraduate students in the Educational Psychology participant pool at the University of Alberta and received course credit for their voluntary participation. According to the demographic information collected, a total of 167 participants (128 female and 39 male) completed the study and the majority (83%) identified within the 18-24 age range. The majority (78%) of respondents self-identified as from Caucasian decent and all participants reported English as their first language.

### **Measures**

**Social Support.** Participants completed a revised version of the *Multidimensional Support Scale* (Winefield, Winefield, & Tiggemann, 1992). Participants were asked to consider the kind of support available to them from family and friends in coping with their life at present

(e.g., “How often did you feel that they were really trying to understand your problems?”).

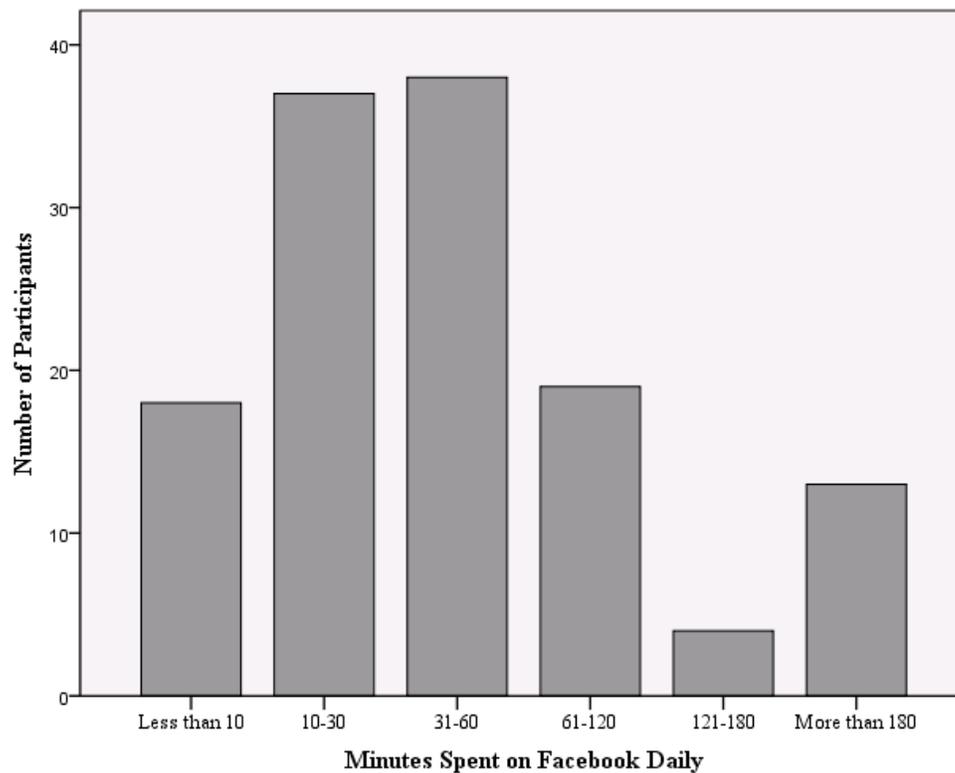
Participants’ responses indicated how often each statement was true of them. Response categories included “never, sometimes, often and usually/always” and were scored according to a 4-point Likert scale. Higher scores indicate higher ratings of social support. Cronbach’s alpha for the sample was .88. Additionally, participants were asked to complete the same questions while considering the help and support available to them within an online setting, Cronbach’s alpha was .93. See Appendix A for all measures.

**Loneliness.** Participants responded to the *UCLA Loneliness Scale* and were asked how often they experienced feeling the way described by each item (e.g., “How often do you feel that you lack companionship?”). Responses ranged on a 4-point Likert scale (1=never, 4=always). Higher scores indicate higher ratings of loneliness (Russell, 1996). Cronbach’s alpha was computed and indicated strong internal consistency at .93.

**Stress.** The *Perceived Stress Scale* was administered to provide a measure of stress (e.g., “In the last month, how often have you felt that things were going your way). Participants’ were asked to indicate their level of agreement to each item (Cohen, Kamarck, & Mermelstein, 1983). Responses were scored according to a 5-point Likert scale, ranging from “never” to “very often”. Higher scores indicate higher ratings of stress. Cronbach’s alpha (.85) suggested good internal consistency for this scale.

**Measures of Facebook Use.** Participants responded to multiple self-report scales on Facebook. Respondents were initially asked if they were Facebook members, if so, a series of scales related to their Facebook use was presented. In this sample, 92% of participants indicated that they were Facebook members. Additional Facebook information was collected including the

number of Facebook friends ( $M = 387.09$ ,  $SD = 218.30$ ) and number of minutes spent in Facebook daily ( $M = 82.68$ ,  $SD = 124.72$ ). Time spent on Facebook is depicted in Figure 1.



*Figure 1. Reported number of minutes participants spent on Facebook daily.*

**Facebook Activity.** Participants responded to *The Activity Patterns of Facebook Use* self-report scale. For the present study, scores were calculated for the direct interaction (e.g., “I posted on other people’s wall”) and passive consumption (e.g., “I checked out news feed”) subscales only. Participants were asked to indicate how well the activities applied to them; response categories ranged on a 7-point Likert scale from “not at all” to “very well” (Yang & Brown, 2013). Cronbach’s alpha was computed for both the direct interaction (.85) and passive consumption (.84) subscales.

**Facebook Intensity.** The *Facebook Intensity Scale* was included to provide a measure of the extent to which Facebook use was integrated into daily activities (Ellison, Steinfield, & Lampe, 2007). Participants responded to items such as “I feel I am a part of the Facebook community” and “Facebook has become part of my daily routine”. Participants indicated their level of agreement with each item, ranging from strongly disagree to strongly agree. Higher scores indicate that Facebook has become more integrated into daily activities. This measure has correlated relatively well with actual Facebook site behavior and is intended to provide a better measure of Facebook use over frequency scales (Burke et al., 2010). Cronbach’s alpha (.88) suggested good internal consistency for this scale.

## **Procedure**

After receiving ethics approval from the University of Alberta Research Ethics Board 2, data was collected between January and March 2014. An online survey, hosted on the website Fluid Survey, was developed and included multiple measures as part of a larger study. Participants accessed the online survey through the Research Participation System. Informed consent was presented prior to beginning the survey; if participants selected ‘no’ they were exited out of the survey and no data was collected. All survey responses were anonymous.

## Rationale for Analyses

To begin, descriptive statistics were calculated for each variable as exploratory analyses. Correlations were conducted to examine the type and direction of the relationships between Facebook intensity, stress, loneliness and social support. Next, separate multiple regression analyses were conducted with stress, loneliness and social support as individual response variables. For each of the regression analyses, direct Facebook activities and passive Facebook activities were entered as predictor variables. In addition, a Pearson correlation was carried out in order to determine the degree of relationship between offline and online ratings of social support. Prior to any analyses, assumptions for multiple linear regression were checked and are discussed below. All analyses were carried out with a significance level of  $\alpha = .05$ .

## Results

### Descriptive Statistics

Table 1 presents means, standard deviations, and ranges for scores on all variables. To check for normality and the presence of outliers, each variable was examined with respect to skewness and kurtosis. The presence of skew and kurtosis is determined by values greater than 2.0 (Hanneman, Kposowa, & Riddle, 2012). All of the variables fell within acceptable limits.

*Table 1. Means, Standard Deviations and Score Ranges for Study Variables*

	<i>N</i>	Mean	SD	Range	Skewness	Kurtosis
Stress	167	29.13	5.73	15-45	.08	-.35
Loneliness	167	47.94	11.75	21-85	.57	.30
Offline Social Support	167	22.03	4.57	9-28	-.60	-.43
Online Social Support	167	13.50	5.22	6-24	.22	-.78
Facebook Intensity	154	19.86	5.36	6-30	-.06	-.37
Direct Facebook Activities	154	16.86	4.50	5-25	-.12	-.55
Passive Facebook Activities	154	14.69	3.78	5-20	-.28	-.85

### Intensity of Facebook Use

In order to determine the relationship between intensity of Facebook use and perceptions of stress, loneliness and social support, Pearson correlations were conducted. This statistic was selected because of the use of continuous variables. These correlations are presented in Table 2. Emerging adults reported intensity of Facebook use was not significantly correlated with ratings of stress, loneliness, or social support. Both loneliness and social support scores were significantly correlated with stress. Ratings of loneliness and social support were also negatively associated. Based on these results, there is no significant relationship between intensity of Facebook use and indicators of well-being in this sample of emerging adults.

*Table 2. Correlations of Facebook Intensity, Stress, Loneliness and Social Support Scores*

Variable	Stress	Loneliness	Social Support	Facebook Intensity
Stress	1	.54*	-.25*	.08
Loneliness		1	-.50*	-.14
Social Support			1	.06
Facebook Intensity				1

\*  $p < 0.05$  (2-tailed)

### **Facebook Activities**

Table 3 presents the Pearson correlations that were run between variables used in the regression analyses to determine the type and direction of relationships. Direct Facebook activities were significantly associated with loneliness scores, while indirect Facebook activities were significantly associated with stress scores. There was also a significant positive association between direct and indirect types of Facebook activities. The following assumptions of linear regression were checked for all three models (Chatterjee & Simonoff, 2013). Linearity was assessed using scatter plots, while the assumptions of normality and homoscedasticity were

checked using plots of the residuals. The analyses confirmed that these three assumptions were met for the regression models.

*Table 3. Correlations for Multiple Regression Analyses*

Variable	Stress	Loneliness	Social Support	Direct Activities	Indirect Activities
Stress	1	.54*	-.25*	.10	.21*
Loneliness		1	-.50*	-.21*	-.03
Social Support			1	.16	.08
Direct Activities				1	.74*
Passive Activities					1

\*  $p < 0.05$  (2-tailed)

Lastly, independence of predictor variables were examined. The presence of a strong correlation between predictor variables, as is seen with this data, may suggest a violation of the multicollinearity assumption. Estimating the true power of predictor variables and interpreting their coefficients becomes difficult and potentially unreliable when predictor variables are not independent (Osborne & Waters, 2002). According to Lomax (2007), computing a variance inflation factor (VIF) for each predictor variable is a viable means to detect a violation of multicollinearity. It is suggested that the VIF should be less than 10 in order to satisfy this assumption, as was determined here. Multiple regression analyses were conducted with stress, loneliness and social support as individual response variables.

**Stress.** A multiple regression was conducted to determine how well Facebook activities predict stress scores. This combination of variables significantly predicted stress,  $F(2,151) = 4.21$ ,  $p = .017$ . An adjusted  $R$  squared value of .04 indicates that 4% of the variance in stress scores are explained by the model. According to Cohen (1988), this is a small effect. The beta weights, presented in Table 4, suggest that Facebook activities of passive consumption contribute most to

predicting stress scores. Facebook activities of direct interaction also contribute to this prediction, although not significantly.

*Table 4. Multiple Regression Analysis Summary for Direct and Indirect Facebook Activities Predicting Stress Scores*

Variable	<i>B</i>	<i>SEB</i>	$\beta$
Direct Facebook Activities	-.18	.15	-.14
Passive Facebook Activities	.48	.18	.31*
Constant	25.10	2.0	

\*  $p < 0.05$

**Loneliness.** To investigate how well Facebook activities predict loneliness scores, linear multiple regression was conducted. This combination of variables significantly predicted loneliness,  $F(2,151) = 6.01, p = .003$ . The adjusted *R* squared value was .06. This indicates that 6% of the variance in loneliness scores are explained by the model. Again, this is a small effect (Cohen, 1988). The beta weights, presented in Table 5, suggest that Facebook activities of direct interaction contribute most to predicting loneliness scores. Facebook activities of passive consumption also contribute significantly to this prediction.

*Table 5. Multiple Regression Analysis Summary for Direct and Indirect Facebook Activities Predicting Loneliness Scores*

Variable	<i>B</i>	<i>SEB</i>	$\beta$
Direct Facebook Activities	-1.05	.31	-.41*
Passive Facebook Activities	.82	.36	.26*
Constant	53.40	3.90	

\*  $p < 0.05$

**Social Support.** Multiple regression was conducted to determine how well Facebook activities predict social support scores. This combination of variables did not significantly predict social support,  $F(2,151) = 2.04, p = .133$ .

### **Social Support Across Context**

In order to investigate the relationship between ratings of offline and online social support, a Pearson correlation was conducted. Emerging adults reported ratings of offline social support was positively correlated with ratings of online social support ( $r = .24, p = .002$ ). This finding suggests that ratings of offline social support do vary significantly with online social support ratings.

### **Discussion**

In an effort to understand the implications of social networking site use for social and emotional development in emerging adults, the current study has examined the relationship between Facebook use and indicators of well-being. Additionally, this study has extended previous research by examining the association between social support offered within an online and offline context. The following section will interpret and discuss the results from the present study. Limitations of the current study and suggestions for future research will be presented, as will the implications of this research.

The findings of this research contribute to the understanding of how social networking sites relate to the psychosocial well-being of youth and emerging adults. Given how pervasive social media has become, research is needed to determine how the development of communication media and technologies impact our connections with other people. As sources of emotional and instrumental support, social networks have a profound effect on individuals' daily life. With advances in digital communication, it would seem apt to include the use of social media within this definition of social networks (Donath & Boyd, 2004). The current research has sought to determine the potential positive and negative associations of social networking site use and explore beyond general social media, by focusing on specific activities within Facebook use. The present study's findings lend support to recent studies that show the relationship between

Facebook interaction and psychological well-being varies as a function of Facebook activity (Burke et al., 2010; Yang & Brown, 2013).

### **Intensity of Facebook Use**

The primary research question of the present study sought to determine the relationship between intensity of Facebook use and perceptions of social support, loneliness, and stress in emerging adults. Contrary to previous research, no association was found between intensity of Facebook use and indicators of well-being. Findings from the secondary research question suggest that specific Facebook activities more accurately predict emerging adults' ratings of stress and loneliness and will be discussed subsequently.

The hypothesis that there would be a positive association between intensity of Facebook use and social support was not confirmed by the current study's results. The lack of relationship between social support and intensity of Facebook use, while unexpected, suggests that additional factors play a role in emerging adults' use of social networking sites. Any additional factors would not have been captured in the measure of Facebook intensity, and may partially explain the null results found here. Previous research has examined users' motivations for engaging in social media and composition of a social network in relation to social support (Manago et al., 2012; Yang & Brown, 2013). A given individual's social network is likely composed of both close connections and more distant kinds of relations. As an easy and efficient means to maintain relationships, social media allows for large networks of weaker ties (Donath & Boyd, 2004). It is possible that these types of weak social ties do not lead to perceptions of social support, unless individuals are actively using social networking sites for this purpose. For instance, research has demonstrated that there are differences in perceptions of social support for individuals who utilize social media to maintain existing, close ties versus establishing new ones. Participants

who were highly convinced that Facebook was useful for procuring social support, were those with high proportions of maintained connections within their social networks (Manago et al., 2012). Taken together, the association between intensity of social media use and perceived social support may not be a direct relationship.

### **Facebook Activities**

In order to determine the relationship between varying Facebook activities and indicators of well-being, the current study examined the association between direct and indirect forms of communication with emerging adults' perceptions of stress, loneliness, and social support. The findings of the present study indicate that there are well-being benefits and disadvantages associated with Facebook activities, and that this association is dependent on the type of activity users are engaging in. Specifically, we find that direct Facebook activities are associated with decreased feelings of loneliness, while passive activities are associated with increased levels of stress in emerging adults. Contrary to predictions, no significant relationship was found between Facebook activities and perceived social support. As such, these results suggest that there are different implications for emerging adults' social and emotional development depending on different Facebook activities.

**Stress.** The hypothesis that indirect forms of communication would predict increased ratings of stress was supported. One potential explanation for these findings is that indirect forms of interaction, such as news feed viewing, may create feelings of jealousy or exclusion. It may be that by passively viewing Facebook newsfeed and other profiles, participants felt a sense of missing out. Researchers have hypothesized that this occurs through a process of social comparison (Fox & Moreland, 2015). Facebook users can become inundated with posts about positive events happening in other individuals' lives. Such that frequent Facebook users are more

likely to feel that others have better lives; these feelings of relative deprivation can increase psychological distress (Chen & Lee, 2013) and lower self-esteem (Kalpidou, Costin, & Morris, 2011). Previous research has also examined this pathway between Facebook interaction and psychological distress; reporting that reduced self-esteem and communication overload from Facebook interactions are associated with greater distress (Chen & Lee, 2013). Communication overload occurs when people feel overwhelmed by communication coming in from multiple channels and sources. The concept of communication overload raises an interesting consequence of social networking site use only recently considered.

Belonging to a social network undoubtedly provides opportunities to receive social support; however, it is often overlooked that this also includes the obligation to provide support. An interesting possibility may be that people become overburdened and stressed by the drain of too many social connections through social network sites (Brandtzæg, 2012). Maier et al. (2014) describe this newly observed phenomenon as social overload. Social network sites create numerous opportunities for social exchange, such that users may begin to experience the burden of providing social support to individuals within their social network. In their study, Maier et al. (2014) sought to identify the antecedents and consequences of social overload. The results demonstrate that the number of friends, extent of usage, and type of relationship contribute to social overload. Moreover, these findings suggest that feelings of social overload have behavioral and psychological consequences. Users reported feelings of social network site exhaustion, low levels of user satisfaction and high intentions to stop or reduce social network site use (Maier et al., 2014). Similar research suggests an association between social networking site use and decreased social well-being. Participants reported increased levels of stress and decreased quality of life as the time spent on social networking sites increased (Bevan et al.,

2014). Such research conceptualizes the potential negative consequences of digital communication use beyond the traditional displacement hypothesis.

**Loneliness.** The hypothesis that direct Facebook activities would result in decreased ratings of loneliness was supported. Results indicate that there are benefits to social well-being that are associated with feeling a connection to others. One possible explanation may be that more direct Facebook interactions facilitate self-disclosure. Emerging adults may feel more connected when directly communicating, as they share personal information with others (Bevan et al., 2014; McKenna et al., 2002). Self-disclosure in general has been shown to alleviate stress and may explain decreased feelings of loneliness in an online context as well (Bevan et al., 2014). The findings of the current study are in support with studies that have found a positive relationship between direct communications via Facebook and social well-being. For example, more frequent engagement in activities of direct communication has been associated with lower levels of loneliness and better social adjustment (Burke et al., 2010; Yang & Brown, 2013); while individuals who consume greater levels of Facebook content without direct social interaction report increased loneliness (Burke et al., 2010).

Given the nature of relational analyses, the results do not determine the direction of these findings. It may be that participants who felt less lonely sought out direct communication with others through Facebook. This interpretation would suggest that social networking sites are potential avenues for individuals to connect.

**Social Support.** The hypothesis that direct forms of communication would predict increased ratings of social support was not supported. These results were unexpected given that previous research has demonstrated such an association (Burke et al., 2010; Manago et al., 2012). The idea that social network composition and users' motivation will play a role in perceptions of

social support may also apply here. It is possible that a large social network comprised of weak social ties do not provide a sense of social support, even when emerging adults are using direct forms of communication. An idea supported by studies of social capital and Facebook use which suggest a stronger association with bridging capital than bonding capital (Ellison et al., 2011). Researchers have also proposed that there may be differences between Facebook friends and ‘actual’ friends. It is unlikely that individuals would benefit in terms of social support from others who are not considered to be real friends (Ellison et al., 2011). These potentially moderating variables, while not accounted for in the current study may play a role in the findings. As noted by previous researchers, “the social implications of the Internet often depend on user characteristics and usage patterns” (Chen & Lee, 2013).

### **Social Support Across Context**

An additional aim of the current study was to explore the relationship between ratings of social support across online and offline contexts in emerging adults. The findings indicate that perceptions of social support in one context are associated with perceptions of social support in the other. The causal relationship between perceptions of social support across context remains unclear as this association was examined through correlational analyses. It may be that emerging adults who report higher ratings of offline social support experience similar ratings of online social support or vice versa. These results are not unexpected given previous research demonstrating an overlap in emerging adults’ offline and online social networks (Reich et al., 2012); participants may receive social support from the same close relationships across online and offline contexts. In this sense, social networking sites may promote perceptions of social support by blending online and offline settings (Ahn, 2012). Previous research has demonstrated that online communication may help to build and maintain intimacy in existing offline

friendships by allowing individuals to connect conveniently and frequently (Amichai-Hamburger et al., 2013). Furthermore, the association between perceptions of social support across context suggests a continuity between these social worlds; an idea best reflected within a developmental perspective.

### **Developmental Approach**

To examine the developmental implications of the current findings, these results will be considered within the theoretical perspective of the co-construction model. The co-construction model was previously presented to conceptualize the role of communication media and technologies in human development (Subrahmanyam, et al., 2004; Subrahmanyam & Smahel, 2011). This model proposes that the physical, social and digital worlds of today's young adults are interconnected and continuous. Given that social media allows youth to actively create their online environments, it is expected that similar developmental issues will occur within offline and online settings (Subrahmanyam et al., 2004). Previous studies have focused on how the developmental processes of youth occur online; in many ways they remain unchanged. Based on the present study's results, the association between direct channels of communication and decreased loneliness is not novel, merely occurring in an online context. In this sense, these findings are aligned with principles of the co-construction mode.

Similarly, the relationship between offline and online ratings of social support suggest that these spheres are not independent. It is possible that emerging adults are actively creating an online environment to meet similar developmental needs as they could receive in an offline context. Furthermore, social networking sites offer a potential avenue for social connection, with similar benefits to those provided in offline relationships (Grieve, Indian, Witteveen, Tolan, & Marrington, 2013). The similarities between the developmental processes occurring online and

offline may suggest that social networking sites simply provide a more visible platform where these processes play out.

A developmental perspective acknowledges how the boundary between offline and online worlds has become “increasingly blurred for youth today” (Subrahmanyam & Greenfield, 2008). To date, the majority of research has operated under the assumption that there is an element of separation between online and offline communication and relationships. Given the increasing saturation of digital communication and technologies, it may no longer be constructive to distinguish between these types of relationships (Grieve et al., 2013; Yang & Brown, 2013). Rather, researchers are beginning to characterize the practices of youth as an intermixing of multiple forms of communication (Livingstone & Brake, 2010); an idea supported by research demonstrating that online communication is used to supplement offline relationships (Ellison et al., 2011; Subrahmanyam & Greenfield, 2008).

The interaction between online and offline communication is most apparent by examining social information-seeking behaviors through social networking sites. Individuals who report using social networking sites for information-seeking often use these sites to learn about acquaintances (Ellison et al., 2011). Researchers have suggested that in these cases, the identity information included in an individual’s Facebook profile may be used to initiate further offline social exchanges; in this way, social networking sites may facilitate social interaction (Ellison et al., 2011). The use of such strategies to connect with others suggests a need to acknowledge that communication channels are no longer dichotomous as online and offline social worlds become integrated (Ellison et al., 2011; Subrahmanyam & Greenfield, 2008).

**Developmental Impact of Social Network Sites.** Social networking sites provide emerging adults with the opportunity to interact and connect with others (Subrahmanyam et al.,

2008). Feeling socially connected may be especially relevant for this demographic given the developmental challenges emerging adults face. Often coinciding with the transition to higher education, emerging adults often report difficulty adjusting to a new setting while feeling less connected (Gall et al., 2000; Perry & Allard, 2003). Social media may be an important tool to facilitate social adjustment and well-being in emerging adults. Previous research has shown that students who are able to remain in contact with higher school friends report better adjustment to college life and feeling less lonely (Oswald & Clark, 2003). Additional findings suggest that the number of Facebook friends is positively related to social adjustment (Kalpidou et al., 2011). The ability to stay in touch afforded through social networking sites likely provides a buffer against the emotional stress of this transitional developmental period (Manago et al., 2012). Similarly, the current research has demonstrated the potential positive association between using social networking sites and feelings of loneliness and stress. Taken together, these research findings imply an opportunity to actively facilitate social media use and social integration in emerging adults. For example, universities could use Facebook to their benefit by creating opportunities to connect students together and with campus activities; potentially easing the first-year transition (Kalpidou et al., 2011). Integrating social networking sites and the university transition would further support how emerging adults utilize online communication tools in the service of the developmental need to stay socially connected (Subrahmanyam et al., 2008). To date, research has demonstrated that the rise of social networking sites creates new opportunities and potential concerns that warrant consideration (Wilson et al., 2012). These implications and suggestions for future research are discussed here.

### **Limitations and Future Directions**

The limitations found within this research exist with respect to both the nature of digital communication research and study design. The inherent constraints of a correlational design create limitations within the present study. Findings from this research are restricted to explaining the relationship between variables without establishing a causal relationship. This limitation applies to much of the previous literature base. As a result, there is a need for researchers to investigate the relationship between online communication and indicators of well-being both longitudinally and experimentally. In addition, the exclusive reliance on self-report measures is an additional limitation of the study design, as the accuracy of participants reported Facebook activity may be influenced by recall errors (Yang & Brown, 2013). While the current study sought to address this issue with the use of scales that correlated with actual Facebook site behavior (Burke et al., 2010), this remains an issue of consideration. Furthermore, researchers acknowledge that the differences in how key concepts are measured contribute to the conflicting results of previous research (Chen & Lee, 2013; Nabi et al., 2013). This limitation likely applies to the current study.

The use of a convenience sample creates a concern surrounding the ability to generalize the results found here. With a focus on the emerging adult population, the current study presents a limited view of the relationship between Facebook use and social well-being that may not extend to different populations. A review of the demographic information indicates that the majority of participants were born in Canada, with English as their first language. This suggests that the population of this study was largely homogenous and as such, results from this study may not generalize to other populations. Future research including a more diverse representation of participants to assess potential age and cultural differences in social media use and well-being is needed (Wilson et al., 2012). Considerations of culture taken into future studies may reveal

insight into differences of Facebook use across individualistic and collectivist cultures (Nadkarni & Hofmann, 2012). Researchers should consider adopting an integrated approach for studying social network site use. Ahn (2011) argues that users bring preexisting social, psychological and emotional characteristics to an online context. Explanations of the social effects of an online platform will consider how human variables interact to influence communication. With an integrated approach, researchers may be able to explore how technology, culture, and communication interact to impact social well-being (Ahn, 2011).

Similarly, the current study is limited in its examination of social network sites and online communication, with a sole focus on emerging adults' reported use of Facebook. The results found here may not generalize to other online media platforms. Future studies are needed to explore how the experiences of various online communities differ (Ahn, 2012). A large majority of previous research has focused solely on social media users without acknowledging that not all emerging adults have universally adopted these communication platforms (Bobkowski & Smith, 2013). To address this existing literature gap, future studies may center on the differing characteristics between social media users and nonusers.

A major challenge for online communication research is to remain current with the changing nature of social media and online behavior. Research in this area must consider the rapid growth in Facebook use and expanding function of social network sites. This is not to say that research findings become outdated each time Facebook is updated. It has been argued that despite the addition of new features, the core Facebook experience remains unchanged, where users focus on interacting with other members (Wilson et al., 2012). Moreover, as new online technologies and applications emerge, existing research methods and theoretical models will be challenged to adapt concurrently (Greenfield & Yan, 2006).

An important issue for future investigations will be to consider how distinct the boundary between offline and online worlds is for today's youth (Subrahmanyam & Greenfield, 2008). Future research should assess whether the same relationship conducted in different mediums, offline vs. online, offer youth different levels of intimacy and support to determine if the distinction between online and offline is apt. Despite these limitations, this research has contributed to a more complete understanding of the implications for social media use and digital communication.

### **Implications and Conclusions**

The current state of growth in digital communication platforms and technologies emphasizes the importance of investigating the social implications connected to online communication (Burke et al., 2010; Ellison et al., 2007; Grieve, et al., 2013). Research findings of the present study, and of the larger literature as a whole, have significant implications regarding the role of online communication in the social and emotional development of emerging adults and youth. A concern surrounding the use of social networking sites is the balance between potential safety risks and opportunities for positive social relationships. The application of research findings has become a growing area of interest for parents, educators, psychologists and researchers aiming to promote the positive development of youth (Oberle et al., 2010); particularly as it relates to promising interventions for health promotion and education.

Developments in digital communication have valuable educational implications, as instructors are increasingly turning to social network sites as a tool to support learning and teaching (Greenfield & Yan, 2006). Research suggests that Facebook may have utility in its ability for peer feedback and collaborative learning (Madge et al., 2009). Supporting research suggests partial success when Facebook is integrated in a blended learning environment

(McCarthy, 2010). Students who responded positively reported that the online format offered a space for open discussion less intimidating than the classroom. However, it may be that these online platforms are more suited to emerging adults, given that many have integrated social network site use into daily practices (McCarthy, 2010). At the same time, students may not support Facebook as a platform for formal teaching. Many first-year University students report that Facebook was used most importantly for social reasons; while it may be used informally for learning purposes, a number of students opposed the idea of using it for formal teaching purposes (Madge et al., 2009). The utility of social media platforms as learning tools will be dependent on its relationship to academic achievement. Some research has cited a negative relationship between Facebook use and academic performance, where Facebook users report lower GPA's and spending less hours studying than nonusers (Kirschner & Karpinski, 2010). Given these considerations, online platforms such as Facebook, appear to offer some potential in facilitating student learning while simultaneously presenting challenges that will need to be addressed for successful implementation.

Similarly, online communication and digital technologies offer promising avenues for health promotion and prevention. Youth are increasingly turning towards the Internet as a resource for health information (Guan & Subrahmanyam, 2009). Studies report that 81% of individuals have used the Internet to learn about a medical condition and 54% seek information about medication and medical treatments online (Purcell & Fox, 2010). More critically, those seeking health information actually adopt new health habits. For instance, 46% of online health surfers made changes to their eating or smoking habits (Purcell & Fox, 2010). Consequently, emerging adults are often targeted by social media based campaigns to promote smoking reduction, safe sex practices, and general health knowledge (Bobkowski & Smith, 2013).

Individuals now have the ability to join Facebook groups devoted to health topics, offering the opportunity for education, disclosure and social support (Bevan et al., 2014). Such research supports the idea that individuals are turning towards social networking sites to share and seek health-related information and that social media is beginning to play an important role in health education, particularly by facilitating mass communication (Mano, 2014).

Digital communication may provide an alternative type of social relationship for individuals who are reluctant to connect through traditional environments (Grieve et al., 2013). For example, an online platform may benefit individuals who struggle with anxiety due to social encounters in face-to-face interactions. In these cases, Facebook may alleviate the anxiety associated with face-to-face social interaction due to the lack of a visual audience (Desjarlais, & Willoughby, 2010). Such important applications of online communication research emphasize how social media may serve as an outlet for youth to engage in meaningful social connection and promote healthy social development.

Even as digital communication affords youth a number of prosocial opportunities, there still exists a concern for youths' safety and negative outcomes including online victimization and cyber bullying. While such implications extend beyond the findings of the present study, they do offer an interesting point of consideration. These considerations which come with social networking site use are especially critical given the use of social media is not likely to change (Fox & Moreland, 2015). A key concern with online victimization is the potential of real world consequences (Guan & Subrahmanyam, 2009); for instance, cyber bullying has been negatively associated with the emotional, social, and mental well-being of victims (Juvonen & Gross, 2008). Additional risks associated with social networking sites include potential mental health problems

including addiction (Guan & Subrahmanyam, 2009; Kuss & Griffiths, 2011). Successful intervention efforts will focus on youth most at-risk and risky online behaviors.

Concerns of safety and online victimization raise the issue of media and digital literacy. As social media platforms continue to develop, so will the digital literacy demands. Efforts to educate youth about media literacy are essential; particularly given how social media use continues to grow among younger age groups (Fox & Moreland, 2015; Livingston & Brake, 2010). A potential avenue for media education will be to incorporate digital literacy into teacher training and classroom curricula (Livingston & Brake, 2010). Such efforts will work towards ensuring users are clearly informed of how social networking sites operate as well as the potential costs and benefits (Fox & Moreland, 2015).

Overall, avenues for digital communication present youth with a unique platform with potential positive applications around health and social development. This must be tempered with efforts to target online risks for youth (Guan & Subrahmanyam, 2009). It will be critical to continue research in order to understand how to best promote healthy social development for youth in an increasingly digital social world.

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## Appendix A: Study Measures

### Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts during the last month. In each case you will be asked to indicate how often you felt or thought a certain way. (0=never, 1=almost never, 2=sometimes, 3=fairly often, 4=very often)

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and “stressed”?
4. In the last month, how often have you felt confident about your ability to handle your personal problems?
5. In the last month, how often have you felt that things were going your way?
6. In the last month, how often have you found that you could not cope with all the things that you had to do?
7. In the last month, how often have you been able to control irritations in your life?
8. In the last month, how often have you felt that you were on top of things?
9. In the last month, how often have you been angered because of things that were outside of your control?
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

### UCLA Loneliness Scale

The following statements describe how people sometimes feel. For each statement, please indicate how often you feel the way described (1=never, 2=rarely, 3=sometimes, 4=always)

1. How often do you feel that you are “in tune” with the people around you?
2. How often do you feel that you lack companionship?
3. How often do you feel that there is no one you can turn to?
4. How often do you feel alone?
5. How often do you feel part of a group of friends?
6. How often do you feel that you have a lot in common with the people around you?
7. How often do you feel that you are no longer close to anyone?
8. How often do you feel that your interests and ideas are not shared by those around you?
9. How often do you feel outgoing and friendly?
10. How often do you feel close to people?
11. How often do you feel left out?
12. How often do you feel that your relationships with others are not meaningful?
13. How often do you feel that no one really knows you well?
14. How often do you feel isolated from others?
15. How often do you feel you can find companionship when you want it?
16. How often do you feel that there are people who really understand you?
17. How often do you feel shy?
18. How often do you feel that people are around you but not with you?
19. How often do you feel that there are people you can talk to?

20. How often do you feel that there are people you can turn to?

### **Multidimensional Support Scale**

Below are some questions about the kind of help and support you have available to you in coping with your life at present. Think of your family and close friends, especially those who are most important to you, who might have been providing support to you in the last month. (1=never, 2=sometimes, 3=often, 4=usually/always)

1. How often did they really listen to you when you talked about your concerns or problems?
2. How often did you feel that they were really trying to understand your problems?
3. How often did they try to take your mind off your problems by telling jokes or talking about other things?
4. How often did they really make you feel loved?
5. How often did they help you in practical ways, like doing things for you or lending you money?
6. How often did they answer your questions or give you advice about how to solve your problems?
7. How often could you use them as examples of how to deal with your problems?

### **Activity Pattern of Facebook Use**

Indicate how well the following items apply to you using a 1-7 scale (1=not at all, 7=very well)

Which of the following Facebook activities apply to you.

1. Posted on other people's walls.
2. Checked out other people's walls without leaving a message.
3. Sent an inbox message.
4. Commented on others' photos.
5. Changed your profile photo.
6. Uploaded new photos.
7. Checked out people's photos without leaving comments.
8. Updated your "what's on your mind?"
9. Super-poked others.
10. Checked out news feed.
11. Facebook chatted with others.
12. Became a fan of someone/something.
13. Posted a note on your profile.
14. Joined a group.
15. Posted a link.
16. Replied to others' comments on your profile photo, new photos, status, and links.
17. Checked out people's notes, links and various status without leaving comments.
18. Played games on Facebook.
19. Took quizzes on Facebook.

### **Facebook Intensity Scale**

Below are eight statements with which you may agree or disagree. Using the 1-5 scale (1 = strongly disagree, 5 = strongly agree) indicate your agreement with each item.

1. Facebook is part of my everyday activity.
2. I am proud to tell people I'm on Facebook.
3. Facebook has become part of my daily routine.
4. I feel out of touch when I haven't logged onto Facebook for a while.
5. I feel I am part of the Facebook community.
6. I would be sorry if Facebook shut down.