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The Effects of Online Social Networking on Social Connectedness and Friendship Quality Among Adolescents

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THE EFFECTS OF ONLINE SOCIAL NETWORKING ON SOCIAL

CONNECTEDNESS AND FRIENDSHIP QUALITY AMONG ADOLESCENTS

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Dissertation Approval

This is to certify that the thesis presented to us by **Christine Klinkhoff**

on **the 1st day** of **May 2017**, in partial fulfillment of the requirements for the degree of

Doctor of Psychology, has been examined and is acceptable in both scholarship and

literary quality.

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Abstract

The emergence of social networking sites (SNSs) has led to marked shifts in the ways that individuals communicate, share, and acquire information. Present-day adolescents are the first generation to grow up with these technologies and are among the most frequent users (Shapiro & Margolin, 2014). Although the technological landscape continues to evolve, the impact it has on aspects of adolescent development remains poorly understood. This study examined the possible relationship between SNS use and perceptions of social connectedness and friendship quality in a sample of Canadian and American adolescents. A self-report questionnaire developed by the author was utilized to examine the ways participants use SNSs. The Social Connectedness Scale (Lee, Draper, & Lee, 2001) and a modified version of this scale were used to measure offline and online social connectedness. The Friendship Quality Scale (FQS; Bukowski, Hoza, & Boivin, 1994) and a modified version of this scale were used to measure aspects of offline and online friendship quality. The results showed a nonsignificant relationship between the amount of time adolescents spent on SNSs for both friendship quality and social connectedness. The ways that adolescents used SNSs (e.g., for communication or non-communication purposes) were also found to be nonsignificant in their relation to friendship quality and social connectedness. These results are likely due to the variability in the ways that participants spent their time online as well as the overlap between offline and online domains. The finding that using SNSs for communication purposes did not impact friendship quality or social connectedness is likely due to the changing nature of SNSs, which facilitates visually-based information sharing and can result in superficial communication. Limitations of the study and future directions are discussed.

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Chapter 1: Introduction

Statement of the Problem

Social networking sites (SNSs) are Internet-based services that allow individuals to share and view information, as well as communicate with others in their online networks. Recent survey data examining online behaviors found that visiting SNSs is the most frequent online activity among Internet users (Lenhart, 2015). As use of SNSs is incorporated increasingly into everyday life, it is important to understand the possible associated psychological and social impact (Kraut et al., 2002). Research has attempted to stay up to date with patterns of SNS use and the effect it has on individuals' health and well-being (Brown & Bobkowski, 2011; Oh, Ozkaya, & LaRose, 2014).

Studies examining online use have found that SNSs are used primarily for interpersonal communication (Kraut et al., 2002). This online tool has provided individuals with an additional avenue of communication and has altered the landscape of human interaction (Brown & Bobkowski, 2011). A considerable body of research has focused on psychological outcomes of SNS users by examining different aspects of online communication (e.g., Buffardi & Campbell, 2014; McCord, Rodebaugh, & Levinson, 2014; Murphy & Tasker, 2011). Overall, studies have yielded inconsistent results, and measurement of SNS use has varied considerably from one study to the next. For some, online communication is associated with positive outcomes, such as increased self-esteem, decreased loneliness, and increased community involvement (Kraut et al., 2002). For others, online interactions have adverse psychosocial effects, such as decreased well-being (Chan, 2014).

A topic of interest in the social networking literature concerns the impact of online communication on quality of relationships and social connectedness (Chan, 2014; Oh et al., 2014). Facebook is a leading SNS, where individuals can expand their networks and communicate with people around the globe (Facebook, 2014). The company's chief executive officer stated that the site was created to "make the world more open and connected" (Facebook, 2014). Other popular SNSs, such as Twitter and Instagram, also aim to increase connectivity by providing platforms for sharing photos, ideas, and information (Twitter, 2014). Whether individuals using SNSs are engaging in meaningful online interactions that lead to enhanced social connectedness is unclear. Social connectedness, defined as a "psychological sense of belonging" (Lee et al., 2001, p.311, is achieved through communication. Findings from empirical literature indicate that social connectedness is an important contributor to well-being and quality of life (QOL; Diener & Seligman, 2002). QOL, a multimodal term researched extensively in the mental health field, describes subjective ratings of life satisfaction and happiness (Plagnol & Scott, 2011).

It has been argued that the capacity to connect and communicate instantly with others via SNSs provides the opportunity for relationships and social supports to be maintained and strengthened (Grieve, Indian, Witteveen, Tolan, & Marrington, 2013). The need to belong and form meaningful interpersonal relationships is commonly considered a fundamental human motivation (Baumeister & Leary, 1995). Empirical investigations have found that fulfilling this need bolsters QOL and serves as a protective factor for mental health conditions. Researchers have suggested that filtering out

affective components of communication (e.g., eye contact, blushing, body language) on SNSs gives way to self-disclosure which, in turn, enhances relationship quality (Valkenburg & Peter, 2009). The claim that online communication increases self-disclosure has been supported consistently in technology research and has been coined the Internet-enhanced self-disclosure hypothesis (Tidwell & Walther, 2002; Valkenburg & Peter, 2009).

A second viewpoint suggests that communication technology adds stress to relationships and impacts the quality of relationships negatively. This perspective argues that being instantly accessible to others blurs the boundaries between private and public time, and produces negative psychological consequences (Chan, 2014; Turkle, 2011). Supporters of this view maintain that online interactions are predominantly superficial and that time spent communicating online occurs at the expense of time spent interacting face-to-face (Kraut et al., 1998). This view, known as the reduction hypothesis, received considerable empirical support in the early stages of Internet adoption (Kraut et al., 1998; Nie, 2001). It should be noted that results from these studies cannot be generalized to the present time. Motives for Internet use may have changed, and online communication is much more commonplace than it was 15 years ago. SNS use is becoming a frequent and important aspect of everyday life (Oh et al., 2014).

The implications that SNS use has on social connectedness and relationship quality are variable and remain poorly understood. For certain populations, online communication leads to favorable outcomes (e.g., older adults; Chan, 2014), whereas for others, SNS use can be detrimental (e.g., young adults; Chan, 2014). Over the last

decade, SNSs have offered a novel way for individuals to communicate with other users. Ways in which people navigate these sites and how they impact social connectedness and relationship quality remain unclear.

Purpose of the Present Study

The widespread use and rapid growth of SNSs over the last decade has revolutionized the way that humans interact. These online networks offer a novel avenue of communication that may, in turn, affect individuals' perceptions of social connectedness as well as the quality of their relationships. The existing research on SNS use and its effects on psychological states are inconclusive and appear to vary by age group (Chan, 2014) and patterns of SNS use (Buffardi & Campbell, 2014). The present study examined SNS use among an adolescent population to further understand their motivations for and the psychological effects of this communication medium. Furthermore, this investigation considered the possible relationship between SNS use and adolescents' perceptions of social connectedness and the quality of their peer relationships.

Chapter 2: Literature Review

Early Research

        In the early stages of Internet adoption, researchers predicted that the amount of time individuals spent online would impact their physical and mental health (Kraut et al., 1998). Investigators hypothesized that increased Internet use would lead to social disengagement, worsening of mood, and decreased physical activity (Brody, 1990; Sydney et al., 1998). These predictions were guided by the assumption that the Internet would be used primarily to seek information and entertainment, and that time spent online would displace prosocial activities (Kraut et al., 1998). As the Internet evolved, its role in communication took precedence over its other functions (Valkenburg & Peter, 2009). Social venues, such as chat rooms, newsgroups, and SNSs emerged online. The immense popularity of these communication platforms led to investigations on their social impact.

        An early landmark study in the field of online communication examined the relationship between Internet use, social involvement, and psychological wellbeing (Kraut et al., 1998). This examination was conducted longitudinally. Participants completed questionnaires at the start of the study, immediately prior to gaining Internet access at home, and again at 12 and 24 months after gaining access. Results from this study revealed that Internet use affected participants' social involvement and psychological well-being adversely (Kraut et al., 1998). These effects were strongest for teenagers. These findings were considered paradoxical because participants frequently used the Internet for communication, which has been shown to have positive effects

(Diener, Suh, Lucas, & Smith, 1999). Investigators alleged that these results were due to participants substituting social activities and interactions with close friends and family with time spent online.

Four years after their original study was published, Kraut and colleagues (2002) attempted to replicate the study. Findings from the replication study indicated that Internet use was associated with positive outcomes. Significant increases on dependent variables measuring social involvement and psychological well-being were found at a 1-year follow-up. The authors suggested that the contradictory findings from the two studies were due to substantial increases in the number of people who had access to the Internet, and the ways participants spent their time online (Kraut et al., 2002). Since more people were using the Internet by the second study, participants were able to use the Internet as a way of communicating with close family and friends. Findings from the replication study also indicated that extroverts and individuals with more social support achieved the most benefits from Internet use (Kraut et al., 2002). This finding is consistent with the rich-get-richer hypothesis, whereby individuals who are already effective at using social resources in the world can use the Internet to enhance their everyday social lives (Kraut et al., 2002).

These landmark studies examining Internet use made an important contribution to the literature on online communication. First, they illustrate that Internet use has meaningful effects on social relationships and psychological well-being. Second, they suggest that these effects can differ over time as the online social environment evolves.

Lastly, these studies demonstrate that time spent online can look different across age groups and can lead to distinct outcomes.

Generational Differences in Social Networking Site Use

Findings from the SNS literature indicate that different age groups have distinct motivations and patterns of communication on online networks (Chan, 2014). Results from a recent study revealed that increased use of communication technologies, such as instant messaging and SNSs, led to decreased well-being among young adults but enhanced well-being among older cohorts (Chan, 2014). Older cohorts tended to use SNSs to communicate with people with whom they had strong ties, such as close friends and family members. Conversely, younger participants were more likely to engage in interactions with people with whom they had weaker ties, such as acquaintances (Chan, 2014). Relationships characterized as weak ties are considered more casual than strong tie relationships (Chan, 2014). These relationships tend to be less emotionally satisfying than relationships with close friends.

Socioemotional selective theory (SST; Carstensen, Isacowitz, & Charles, 1999) was proposed as a plausible explanation for finding distinct patterns of SNS use in different age cohorts. This theory helps to clarify why adolescents use SNSs to communicate primarily with weak ties and older adults use SNSs to interact with strong ties. SST suggests that the perception of time plays an essential role in the selection, pursuit, and prioritization of social goals (Cartensen et al., 1999). According to SST, one's awareness of time is significantly different in adolescence than it is in adulthood. Adolescents tend to perceive time as unlimited, which leads them to pursue knowledge-

related goals that may be relevant to them in the future (Cartensen et al., 1999). Emotional rewards or costs are often delayed in order to prioritize their futures. Therefore, adolescents are more driven to develop their relationships with weak ties, as these relationships can help them to obtain instrumental benefits and knowledge (Chan, 2014). SNSs facilitate the maintenance of weak tie connections and provide individuals with an additional medium where they can cultivate more of these weak tie relationships. This may be a particularly appealing aspect of SNSs for adolescents.

Conversely, older adults view time as limited and, thus, their goals are more present oriented. Such goals include attainment of positive mood states and deriving emotional meaning in situations (Cartensen et al., 1999). Because emotional regulation is an important objective, older adults are more careful in their selection of social partners. They often choose social partners who are familiar and whether they can accurately predict how they will feel in this partner's presence. A SNS provides an additional medium for individuals to communicate and enhance relationships with strong ties. According to SST, the ability to continue and further develop relationships with close friends and family makes SNSs appealing for older adults.

Three presumptions underlie SST. First, it is presumed humans have a predisposition for social attachment. Second, a presumption of SST is that humans are agentic and goal oriented; therefore, behaviors in which they engage are purposeful and premeditated. Third, SST presumes that goal selection is a precursor to action (Cartensen et al., 1999). Thus, when applying this theory to SNS use, ways that individuals navigate SNSs should be understood as goal directed and driven by underlying motivations.

Humans' instinctual desire for social attachment is another important facet to consider when understanding motivations for SNS use. Given that adolescents use SNS primarily to communicate with weak ties, understanding the supportive elements of these relationships can help to clarify the functions and benefits of SNS use among adolescents.

Consequences of SNS Use for Adolescents

Research indicates that adolescents use SNSs more frequently than adults (Valkenburg & Peter, 2009). Given the high frequency of adolescent SNS users, several studies have focused on the consequences of online communication among this population specifically (e.g., Bessiere, Kiesler, Kraut, & Boneva, 2008; Kraut et al., 2002; Valkenburg & Peter, 2009).

In a recent longitudinal study, SNS use was measured by examining how frequently participants used these sites for communication functions versus other functions, such as entertainment and information-seeking (Bessiere et al., 2008). Results indicated that when adolescents used SNSs for reasons other than direct communication, it had no discernible effects on their well-being; however, when adolescents used SNS to interact with strong ties, they experienced a significant reduction in depressive symptoms (Bessiere et al., 2008). Conversely, when participants used SNSs to communicate with weak ties, their depressive symptoms increased. Results from this study suggest that positive effects of SNS use are found only when adolescents use these sites to maintain existing friendships.

Social anxiety, a psychological state characterized by excessive and unreasonable fear of social situations (American Psychiatric Association [APA], 2013), has been

explored in relation to adolescent SNS use. The social compensation hypothesis suggests

that using SNSs is especially attractive for socially anxious adolescents (McKenna &

Bargh, 2000). This hypothesis postulates that due to the reduced audiovisual cues of

online communication, socially anxious youth feel more at ease interacting online than in

real life (Valkenburg & Peter, 2009). Support for this hypothesis has been mixed. Some

studies show that adolescents with high social anxiety use SNSs more often than their

socially competent counterparts and gain more benefits from online communication

(Bessiere et al., 2008; Murphy & Tasker, 2011). Other studies have failed to find a

correlation between social anxiety and SNS use (Fernandez et al., 2012; McCord et al.,

2014). A competing view, known as the rich-get-richer hypothesis, has received

substantial support. Research has shown consistently that adolescents who are socially

competent in offline settings expand their networks and communicate with their

connections via SNSs (Baumeister & Leary, 1995; Valkenburg & Peter, 2007).

Narcissism, a personality trait characterized by grandiosity and an inflated sense

of self-importance (APA, 2013), has been widely studied in the SNS literature.

Narcissistic individuals strive for attention and admiration to bolster their self-esteem

(Buffardi & Campbell, 2014). SNSs offer a gateway for self-promotion, vanity, and the

formation of many shallow relationships (Buffardi & Campbell, 2014). Research

suggests that higher levels of narcissism among adolescents predict increased social

activity and more self-promoting content, such as posting photos and profile updates on

SNSs (Buffardi & Campbell, 2014).

These investigations of adolescents' online behavior suggest that distinct personality characteristics are associated with different SNS usage. Given the many functions of SNSs, deconstructing the use of these online platforms into smaller components can help clarify the relationship between specific patterns of use on psychological states.

Social Connectedness

Despite adolescents' extensive use of SNSs to maintain and develop friendships, few studies have focused on how online communication affects their perceptions of social connectedness (Valkenburg & Peter, 2009). As fundamentally social creatures, humans seek relationships with others (Baumeister & Leary, 1995). Research suggests that building connections with others offers adolescents a sense of satisfaction and gives their lives purpose (Baumeister & Leary, 1995).

Social connectedness refers to an individual's perception of "emotional distance or connectedness between one's self and other people, both friends and society" (Lee & Robbins, 1995, p.233. Higher levels of social connectedness are associated with increased well-being and higher self-esteem among adolescents (Cohen, Gottlieb, & Underwood, 2000). Conversely, low levels of social connectedness have been associated with unhealthy cognitive, emotional, and social development (Newcomb & Bagwell, 1996). Empirical research examining specific mechanisms implicated in this relationship suggest that the dysfunctional interpersonal behaviors among individuals who report low social connectedness mediate the relationship between psychological distress and social connectedness (Lee et al., 2001).

A longitudinal study investigating the interaction between well-being and social connectedness among adolescents found that global connectedness predicted well-being, but not the reverse (Jose, Ryan, & Pryor, 2012). This global connectedness measure encompassed four domains: family, school, peer, and community connectedness. The study's results implicate global connectedness as a critical contributor to well-being and psychological adjustment in adolescence (Jose et al., 2012). A second important finding from this study was that connectedness and well-being remained stable throughout adolescent years. These results suggest that well-being can be improved indirectly—and may endure once improved—by fostering positive relationships within families, schools, communities, and peers (Jose et al., 2012).

Because connections can be made both in real life and online, examining the effects that online communication has on social connectedness is relevant for today's adolescents, who are growing up during the technological revolution. Several studies have examined social connectedness in relation to SNS use (e.g., Grieve et al., 2013; Valkenburg & Peter, 2007). At present, research shows that social connectedness is enhanced when adolescents use SNSs to communicate with their existing networks of friends, but not when they are used to communicate with strangers (Valkenburg & Peter, 2007).

A recent study examined connectedness achieved through the popular SNS site Facebook. Participants were Australian undergraduate students and individuals in the community. The mean age of the sample was 28 and in order to take part in this study, participants had to be over the age of 18 and a member of Facebook (Grieve et al., 2013).

Researchers sought to determine whether online connectedness could be conceptualized as separate than offline connectedness, and whether the benefits associated with each were similar (Grieve et al., 2013). The findings indicated that connectedness derived from Facebook use was distinct from offline social connectedness. These results suggest that individuals can experience social connectedness differently with online friends than they do with their offline friends. In terms of disconnectedness, however, this construct was constant both online and offline. Also, Facebook social connectedness had a moderate relationship with positive psychological outcomes, such as lower depression, lower anxiety, and greater subjective well-being (Grieve et al., 2013). This study provided an important contribution to the SNS literature because its findings suggest that SNS use might provide an alternate and meaningful form of social connection. Thus, for individuals who are unwilling or unable to connect with people in offline settings, SNS may serve as a valuable source of social connection and support (Grieve et al., 2013).

Online Self-Disclosure

One theory used to explain the positive social outcomes achieved through online communication is referred to as hyperpersonal communication theory (Walther, 1996). This theory argues that the absence of social cues (e.g., auditory, visual, and contextual) and editing capabilities on online environments facilitates disclosure of personal and intimate information. According to Walther's (1996) theory, due to the reduction in social cues via online communication, individuals feel less self-conscious about how others perceive them. This leads to decreased feelings of inhibition, thereby promoting the disclosure of intimate information (Walther, 1996). Among adolescents, this process

may be especially appealing since self-consciousness is inherent to their developmental

stage (Valkenburg & Peter, 2009). Hyperpersonal communication theory has received

substantial support in the empirical literature (Tidwell & Walther, 2002; Valkenburg &

Peter, 2009). Research suggests that individuals who communicate online tend to

"hyperpersonalize" their interactions to a greater extent than they would in face-to-face

contexts (Tidwell & Walther, 2002). Support for this theory implies that communicating

over SNSs is an effective way of getting to know someone, as intimate details are shared

more easily.

A second attribute assumed to enhance online self-disclosure is the controllability

of online interactions (Walther & Parks, 2002). Users can edit their messages and can

take time to form a desired response. This feature of online communication is considered

central in explaining increased online self-disclosure (Shouten, Valkenburg, & Peter,

2007). The capacity to control interactions on SNSs also allows users to carefully

manage how they present themselves to others in their online networks. Self-presentation

is crucial during adolescence, as individuals tend to be especially self-conscious during

this developmental stage (Erikson, 1968). Therefore, having greater control over how

they present themselves to the world, a distinctive feature of SNS communication, is

likely to appeal to this demographic.

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interactions to a greater extent than they would in face-to-face contexts (Tidwell &

Walther, 2002). Support for this theory implies that communicating over SNS is an effective way of getting to know someone as intimate details are more easily shared. Research on adolescent friendships suggests that friendship quality is enhanced via self-disclosure (Valkenberg & Peter, 2009). Adolescents who are unwilling to self-disclose tend to have lower levels of self-esteem and well-being than those who are more apt to discuss intimate information (Collins & Miller, 1994). Because online communication facilitates this process, understanding the relationship between online self-disclosure and friendship quality may point to precise mechanisms whereby the positive outcomes of SNS use are achieved.

Friendship Quality

Research suggests that having friends is an indication of good social adjustment (Hartup & Stevens, 1997). Cross-sectional comparisons show that adolescents seeking treatment for psychological problems are more likely to be friendless than their well-adjusted peers (Rutter & Garmezy, 1983). Adolescents without friends report lower self-esteem and more depression than those who have at least one friend (Ladd, 1990; Newcomb & Bagwell, 1996; Parker & Asher, 1993). Reducing friendship measurement to quantity of friends, however, is not an accurate indication of friendship experiences because it fails to account for the variability in reciprocity and quality of these friendships (Hartup & Stevens, 1997).

Operational definitions of friendship have varied considerably across studies. Investigations examining adolescents' number of friends, both in online and offline environments, have failed to implicate quantity of friends as a significant predictor of

psychological well-being (Bukowski et al., 1994; Hartup & Stevens, 1997). Qualitative

and dimensional assessments of friendship provide a more accurate and reliable

measurement of the breadth of these relationships.

Dimensional structures of friendship quality include both positive and negative

friendship attributes. Closeness, intimacy, supportiveness, and conflict are features that

have been identified as important contributors to friendship quality (Bukowski et al.,

1994; Weiss, 1986). Investigations of friendship quality among adolescents have found

consistently that high quality friendships predict enhanced well-being and better stress

coping (Windle, 1994). Additionally, adolescents with high quality friendships tend to be

significantly happier than their counterparts without such relationships (Hartup &

Stevens, 1997). Positive outcomes associated with high quality friendships have been

studied widely, and have been shown to be the best predictor of adolescent emotional

adjustment in offline contexts (Demir & Urberg, 2003).

Studies investigating the effects of SNS use on friendship quality, specifically

among adolescents, are scarce. One study examined how patterns of online

communication affected adolescents and pre-adolescents existing friendships

(Valkenburg & Peter, 2007). The sample consisted of 665 students between the ages of

10 and 16. To examine peer relationships, participants' closeness to their offline friends

was assessed. Results from this study indicated that participants who communicated

online more often felt closer to their existing friends (Valkenburg & Peter, 2007). Also,

88% of participants reported using the Internet to communicate with people they met in

offline settings. These findings suggest that when adolescents used the Internet for

communication purposes, they felt closer to their existing friends. Seeing as closeness is an important component of friendship quality, it is likely that online communication also enhanced friendship quality.

Friendship quality was examined explicitly in a follow-up study, in which the authors also examined other dimensions of this multimodal construct, including relationship satisfaction, approval, and support (Valkenburg & Peter, 2009). The same participants were surveyed a year later. Findings revealed that online communication was related to increased quality of existing friendships. These two studies suggest that from a social standpoint, the effects of online communication were largely positive in this adolescent sample.

Comparing Constructs

As previously discussed, researchers have argued that it is inefficient to reduce friendship experiences to the number of people in one's friend network (Hartup & Stevens, 1997). This applies to research in both online and offline settings, as friendships maintained in these environments can have negative and/or positive features. Friendship is a multimodal construct that incorporates qualitative and quantitative dimensions, such as number of friends and depth of friendships. The present study examined two distinct, yet theoretically similar constructs: friendship quality and social connectedness.

High quality friendships and high social connectedness have each been associated with enhanced well-being and self-esteem in adolescent populations (Collins & Repinski, 1991; Valkenburg & Peter, 2009). Friendship quality is composed of several facets, including acceptance, security, and closeness (Thien, Razak, & Jamil, 2012).

Alternatively, social connectedness involves an individual's ability to relate to others, and his or her perception of self in relation to the social environment (Grieve et al., 2013). This construct does not account for friendship, though research suggests that social connectedness influences the way in which individuals interact with others (Lee & Robbins, 1995).

The Internet is becoming increasingly more pervasive in the lives of adolescents, but there remains a paucity of research on how it affects well-being (Gross, 2004). Given the importance of high quality friendships and social connectedness in this demographic, understanding how SNS use influences these variables may provide useful information regarding adolescents' experiences.

Adolescence in Context

Peer relationships during adolescence are particularly important because this is a time when individuals begin to develop identities external to their family systems (Armsden & Greenberg, 1987). Establishing close ties with peers helps adolescents to cope with the increasing separation from their parents (Erikson, 1968). It also provides them with opportunities to explore their identities in light of their new skills, roles, and responsibilities (Reich, Subrahmayam, & Espinoza, 2012). In Erikson's (1986) model of psychosocial development, adolescence is associated with exploration and commitment. Adolescents who successfully establish a cohesive identity reach a self-defined commitment following a period of searching and questioning (Campbell, Adams, & Dobson, 1984).

SNSs allow users to maintain and enhance their existing friendships while also providing a platform for self-presentation and identity exploration (Valkenburg & Peter, 2007). Over the last 5 years, SNS use has become a part of adolescents' daily lives and has been shown to contribute to their social development (Valkenburg & Peter, 2009). These sites provide their users with additional opportunities to manage their relationships with acquaintances, peers, family members, and romantic partners. Such relationships have the capacity to impact social and emotional development, and according to developmental theorists, are particularly important during childhood and adolescence (Erikson, 1968; Newcomb & Bagwell, 1996).

SNS users have access to tools that allow them to modify their profiles quickly and easily (Cingel, Lauricella, Wartella, & Conway, 2013). Through this medium, adolescents can connect with other users to cope with issues pertinent to their developmental stage, including sexuality, identity, and partner selection (Reich et al., 2012; Smahel & Subrahmanyam, 2007).

Adolescent SNS Use

Adolescents use SNSs more than any other age group (Schouten et al., 2007). Understanding how adolescents navigate SNSs can help to clarify how time spent engaging in specific online functions can influence their perceptions of social connectedness and friendship quality. Researchers have separated online practices by placing them into distinct functions (Cingel et al., 2013). Constructive communication practices on SNSs involve active forms of communication. Examples of these include users posting updates on their pages, posting on another user's wall, or using the chat

function to communicate with other users. Engaging in these activities implies that the user has the intention of engaging other users in some form of interaction (Cingel et al., 2013). Non-communication practices refer to more passive forms of SNS use. This involves looking at other people's posts, photos, or videos (Cingel et al., 2013). When users are involved in non-communication practices, they are not actively seeking reciprocal interactions with other users.

A recent Pew study investigating the current landscape of teens' technology use found differing patterns of use according to participants' gender, socioeconomic status (SES), and ethnic background (Lenhart, 2015). This study collected self-report data from 1,060 teenagers between the ages of 13 and 17 in the United States. Ninety-two percent of surveyed participants reported using SNSs on a daily basis. Additionally, Facebook emerged as the most popular SNS, with 41% of teenagers reporting this as the site they used most frequently (Lenhart, 2015).

Findings from the Pew study also showed that teenage girls tended to use more visually oriented SNSs, such as Instagram, more than their male counterparts (Lenhart, 2015). SNS use was also divided according to SES, with teens from wealthier families being more likely to use Snapchat and Twitter as their top SNSs, and their counterparts from lower income families being more likely to use Facebook as their preferred site (Lenhart, 2015). In terms of ethnicity, African American teens were the most likely of any other group to have smartphones. Ownership of these devices was related to increased SNS use, which made African Americans the heaviest SNS users in this study.

To measure frequency of SNS use, qualitative descriptors were obtained. Twenty-four percent of individuals who reported going on these sites daily described their use as "constant" (Lenhart, 2015), whereas 56% reported using these sites several times per day. These figures suggest that for the majority of teenagers living in the United States, SNS use is a part of their daily routines. Data from this Pew study also highlight the various ways that SNS use can be studied empirically. Given the variability in measurement of SNS use in the existing literature, examining specific functions, sites used, and frequency of use may help to operationalize this construct reliably.

Summary

Social connectedness and friendship quality are overlapping constructs that encompass one's ability to relate to others and perceived emotional distance from peers. High quality friendships and elevated perceptions of social connectedness promote social and emotional development, and have important implications for adolescent populations (Cohen et al., 2000; Hartup & Stevens, 1997). In recent years, teenagers have used the Internet as an additional medium to establish and strengthen relationships (Schouten et al., 2007). Therefore, examining how SNS use influences peer relationships and perceptions of connectedness may offer insight into the impact of this medium on adolescent development.

Chapter 3: Hypotheses

Hypothesis I

It was hypothesized that time spent using SNSs would predict social connectedness. Current research suggests that social connectedness is enhanced when adolescents use SNSs to communicate with their existing networks of friends (Valkenburg & Peter, 2007). Given that adolescents primarily use SNSs to connect with acquaintances and friends rather than strangers (Kraut et al., 2002), the above hypothesis was derived.

Hypothesis II

It was hypothesized that time spent using SNSs would predict friendship quality. Research suggests that adolescents who communicate with their friends online feel closer to these friends, compared to individuals who do not communicate online (Valkenburg & Peter, 2007). Furthermore, increased online communication has been associated with enhanced friendship quality (Valkenburg & Peter, 2007). These findings contributed to the development of this hypothesis.

Hypothesis III

It was hypothesized that participants would report using SNSs significantly more for communication purposes than for non-communication purposes. Empirical investigations of SNS use have found consistently that this online platform is used primarily as a way for individuals to interact with others (Bressiere et al., 2009; Chan, 2014; Kraut et al., 2002).

Hypothesis IV

It was hypothesized that individuals using SNSs for communication purposes would report better friendship quality and better social connectedness compared to individuals who use SNSs primarily for non-communication purposes. Given that communicating with friends and cultivating relationships leads to positive outcomes (Baumeister & Leary, 1995; Grieve et al., 2013), it was hypothesized that participants who use SNSs for their communication functions would fare better on social connectedness and friendship quality compared to participants who use SNSs for their other functions.

Chapter 4: Method

Study Design

The following study is a cross-sectional, quantitative, correlational research design. This study was designed to capture adolescent experiences based on their involvement on SNSs. Specifically, how adolescents use these sites and whether specific functions influence friendship quality and social connectedness were assessed.

Participants

Participants included students in grades 8 through 11Fifty-five participants took part in this study. Thirty-nine participants were students at a private bilingual (English and French) all-girls high school in Eastern Canada. Sixteen participants were eighth grade students at a bilingual (English and Spanish) co-ed charter school in the mid-Atlantic region of the United States. Participants were between the ages of 13 and 16.

The school used to recruit the Canadian sample was located in an upper-middle to upper class neighborhood, and students in grades 7 to 11 had individual iPads, to which they had access during and after class. The school used in the American sample was a charter school located in an impoverished community. The majority of students attending this school were of Latino descent and from a low socioeconomic bracket. Individual computers were not provided to students by the school; therefore, technology ownership varied in this sample.

The majority of participants were female (n = 49). In regard to primary language spoken at home, 53% of participants identified English as their primary language, 9% reported French as their primary language, 13% indicated English and French, 2%

reported Italian, 2% reported English and Shaghainese, 11% reported Spanish, and 11% stated that English and Spanish were their primary languages.

A summary of these results can be found in Table 1. Regarding ethnicity, 42% identified as Caucasian/While, 24% identified as Hispanic/Latino, 16% identified as multicultural, 9% identified as Asian/ Pacific Islander, 2% identified as Arab, and 7% indicated that they would rather not say.

Table 1
Demographic Data

	N	%
Gender		
Female	49	89
Male	6	11
Age		
13	22	40
14	7	13
15	10	18
16	16	28
Grade		
8	25	46
9	6	11
10	13	24
11	11	20

Table 1 Continued

	N	%
Ethnicity		
Arab	1	2
Asian/ Pacific Islander	5	9
Caucasian/ White	25	42
Hispanic	7	13
Latino	6	11
Multicultural	9	16
Would rather not say	4	7
Primary Language(s)		
English	29	53
French	5	9
English and French	7	13
Italian	1	2
English and Shaghainese	1	2
Spanish	6	11
English and Spanish	6	11

Inclusion criteria. Participants included students in grades 8 through 11 who attended either of the two schools described above, and who were also granted parental permission to participate. Students who do not use or do not have SNSs were also included in this study.

Measures

Scales. The Social Connectedness Scale (SCS; Lee et al., 2001) is a 20-item measure that assesses the emotional distance or connectedness between the respondent and other people. Ten statements are worded negatively (e.g., "I feel disconnected from the world") and 10 items are worded positively (e.g., "I am able to connect with other people"). Individuals are instructed to rate each statement on a scale of 1 (*strongly agree*) to 6 (*strongly disagree*). Higher scores indicate increased connectedness and lower scores indicate a heightened disconnect from friends and society. In a study providing normative data for the SCS, 626 undergraduate students were included as study participants (Lee & Robbins, 2001). Sixty-six percent of the population identified themselves as European American, 19% African American, 10% Asian American, and 2% Hispanic American (Lee & Robbins, 2001). The mean age of the sample was 20 years. The original study yielded an alpha reliability coefficient of r = 0.92 (Lee & Robbins, 1995). This scale has also been used to assess social connectedness among adolescents with an alpha reliability coefficient of r = 0.93 (Neff & McGehee, 2010).

The Online Social Connectedness Scale (OSCS) was adapted from Facebook Social Connectedness Scale (Grieve et al., 2013). The current study's author modified 20 items from the original scale to assess connectedness derived from a larger SNS platform

encompassing other popular SNS sites, such as Twitter and Instagram. The Facebook

Social Connectedness Scale was adapted from the original SCS (Lee et al., 2001) to

assess individuals' perceptions of self in relation to their online environments (Grieve et

al., 2013). For the present study, test items were modified to capture SNS connectedness.

For example, "I find myself actively involved in my Facebook friends' lives" was

changed to "I find myself actively involved in my SNS friends' lives." Participants are

instructed to rate each statement on a Likert scale of 1 (*strongly agree*) to 6 (*strongly

disagree*).

The FQS (Bukowski et al., 1994) is a 23-item self-report questionnaire that

assesses the quality of an individual's friendships on the basis of five dimensions:

companionship, conflict, help, security, and closeness. Ratings for each item range from

1 (*not true*) to 5 (*really true*). This scale was normed on a high school population. The

scale was modified for the purposes of this study to assess relationships with multiple

friends rather than one friend. Previous research suggests that the dimensions on this

scale make up the theoretically meaningful aspects of friendship (Buhrmester & Furman,

1987; Bukowski et al., 1994). The first subscale on this measure is companionship and

refers to the amount of voluntary time the respondent spends with friends. Conflict refers

to the extent that an individual disagrees and argues with his or her friends. Help refers

to the extent to which an individual will offer his or her mutual help to friends. Security

refers to the extent that an individual can confide in and trust his or her friends.

Closeness refers to the extent that an individual feels valued and accepted by his or her

friends. Cronbach's alpha for these five dimensions are .73, .76, .80, .74, and .86, respectively (Bukowski et al., 1994).

The Online Friendship Quality Scale (OFQS) was developed by the author to assess online friendship quality. Statements from the FQS (Bukowski et al., 1994) were modified to assess online friendships. Test questions were modified with appropriate wording to represent the nature of online friendships. In cases when items represented qualities of offline friendships exclusively, they were removed from the questionnaire. The following items were removed from the OFQS: "When we can, my friends and I go to each other's houses after school and on weekends," "If I forgot my lunch or needed a little money, my friend would loan it to me," and "If my friends had to move away I would miss them."

The SNS Use Scale was created by the author. Questions were adapted from previous measures assessing patterns and motivations for Facebook use (Park, Kee, & Valenzuela, 2009). Because multiple SNSs were scrutinized in this study, the items from this questionnaire were modified from Park et al.'s (2009) measure entitled Facebook Groups Uses and Gratifications to assess more than one SNS. Participants were asked to check off one box indicating their primary motivation for SNS use. Three options were listed and described. These options included "I primarily use SNS to communicate with others," "I primarily use SNS for non-communication purposes," and "I use SNS equally for communication and non-communication purposes." Under each option were examples of functions that fall under communication purposes (e.g., to talk about something with others, to meet interesting people, to update others about my life) and

non-communication purposes (e.g., to view other people's photos and/or videos, to be in the know about events that are happening). In addition to indicating how they use SNSs, items were created to assess the frequency, duration, and type of SNS (e.g., Twitter, Facebook, Instagram) that participants were using.

Demographic questionnaire. A demographics questionnaire was created for the purpose of this study. On this measure, participants were asked to report on their age, gender, ethnicity, and grade in school.

Procedure

At the Canadian school, letters detailing the study were sent home to parents of children in grades 8 through11 by the school's principal. The principal included a letter stating that high school students have a unique opportunity to take part in a research study. The letter included a brief explanation of the study, information about the researcher, and the study consent forms. At the American school, consent forms were distributed to parents of students in grade 8 at "Back to School Night." The responsible investigator researcher called all families with students in grades 8 through11 at the Canadian school and families of students in grade 8 at the American school to discuss the research study and answer any questions.

Students who received parental consent to take part in the study made up this study's sample. Parents were asked to send consent forms back with their children to be handed in to the high school director. Students were also required to provide assent to participate in this study.

For participants in the Canadian sample, questionnaires were administered on two Friday mornings after their weekly school assemblies. The researcher made an announcement at each school assembly. During the announcement, she explained that she would be setting up a table in the gym after the assembly where students who returned their consent forms could fill out questionnaires. Students were informed that their questionnaires were anonymous. The researcher also stated that this procedure should take approximately 20 minutes, that their identities would be kept anonymous, and that she would be available to answer any questions students had while completing the measures.

Students sat in chairs and were provided clipboards to write in their answers. After participants finished the measures, the researcher provided snacks for the students as a reward for completion.

At the American school, the responsible researcher, in conjunction with the guidance counselor, scheduled a time to distribute questionnaires to eighth graders whose parents signed consent forms. Questionnaires were administered in a room set aside for this task.

For both samples, the researcher provided a brief explanation of the study to each class before distributing the measures to students whose parents provided informed consent. After completing the measures, participants placed their measures in a sealed envelope provided by the researcher. The researcher collected this envelope and stored the data at her graduate school.

Chapter 5: Results

Descriptive Analyses

A power analysis was conducted prior to beginning this study to determine the sample size required to detect a medium effect with a confidence interval of 80%. Results indicated that 100 participants were needed in order to conduct all of the analyses. A minimum of 50 participants were needed to conduct the first three analyses.

Descriptive statistical analyses were conducted for age, gender, race, grade in school, and primary language. These results are presented in Table 1. Before beginning hypotheses testing, two Pearson correlations were conducted to assess whether online and offline measures of social connectedness and friendship quality were distinct constructs.

If the measures of online friendship quality and online social connectedness were highly correlated with their counterpart questionnaire examining these constructs in offline settings, then online and offline measures would have been merged. This would result in one inclusive measure for friendship quality as well as one general measure of social connectedness. This would imply that friendships and social connectedness derived face-to-face are related to those developed online and do not need to be examined separately.

A Pearson's correlation was conducted to determine whether there was a significant relationship between the SCS (Lee et al., 2001) and the OSCS (Klinkhoff, 2016). These measures were not significantly correlated $r(53) = .17$, $p = .19$. This indicates that adolescents' perceptions of offline social connectedness are not related to their perceptions of online connectedness. Given that the social connectedness measures

did not correlate significantly, the examiner did not combine online and offline measures for the data analysis.

A Pearson's correlation was also conducted to assess whether there was a significant relationship between total scores on the FQS (Bukowski et al., 1994) and the OFQS (Klinkhoff, 2016). These measures correlated significantly, r (53) = .31, p = .02, suggesting that adolescents' perceptions of the quality of their offline friendships are related to their perceptions of the quality of their online friendships. Nevertheless, to be consistent with the ways that friendship quality and Social connectedness would be analyzed, the examiner decided to separate online and offline constructs for the data analyses.

SNS Use

Descriptive data analyses were conducted to examine general patterns of SNS use among adolescents. Table 2 includes general SNS use data. Reported average daily time spent on SNSs among participants in this sample ranged from 0 minutes daily to 8.5 hours daily. Twenty-two percent of participants (n = 12) reported using SNSs for 50 minutes or less daily, 35% of participants (n = 19) indicated that they used SNSs between 60 and 90 minutes daily, and 24% of participants (n = 13) reported using SNSs between 150 and 510 minutes daily. Specific patterns of SNS use, including number of times participants checked sites and the amount of time spent on these sites, were also examined. Further, weekday and weekend SNS use were explored. The following section outlines patterns of use categorized by SNS platform.

Table 2

Overall Time Spent on SNS Daily

Average Minutes Per Day	N	%
0	1	1.8
3-10	3	5.5
30-60	18	32.7
70-90	11	20
120-180	16	29
190-260	3	5.5
300-510	3	5.5

Facebook use. For weekday Facebook use, 47.3% of participants (n = 26)

indicated that they did not have a Facebook account. The majority of participants with

Facebook reported using the site between 1 and 5 times daily and spending less than 5

minutes each time they checked the site. Facebook use increased on the weekends, with

the majority of participants reporting using the site 10 to 20 times daily, though they also reported checking the site for less than 5 minutes each time

Instagram use. For weekday Instagram use, the majority of participants (n = 21, 38%) reported using the site between 1 and 10 times daily and using the site for 5 to 30 minutes each time. Weekend Instagram use increased, with the majority of participants reporting checking the site 10 to 20 times daily and using the site between 10 and 30 minutes.

Twitter use. For weekday Twitter use, 81.8% (n = 45) of participants indicated that they did not have a Twitter account. For participants with Twitter accounts, the majority reported checking the site 1 time or less and spending less than 5 minutes on the site. Results were comparable for weekend use.

Other. For the "other" category, 63.6% of participants (n = 35) described Snapchat use. The majority of participants reported using the site between 1 and 20 times daily for 5 to 10 minutes each time. This use increased on weekends, with the majority of participants reporting checking between 10 and 20 times daily for 5 to 10 minutes each time. Tables 3 through 6 depict usage data for SNSs on weekdays and weekends.

Table 3

Weekday SNS Use: Number of Times Checked by Site

SNS	No Account		Has Account		0 - 5 daily		5-10 daily		10-20 daily		Can't Keep Track	
	N	%	N	%	N	%	N	%	N	%	N	%
Facebook	26	47.3	29	52.7	17	30.9	4	7.3	3	5.5	5	9.1
Instagram	8	14.5	47	85.5	20	36.4	17	30.9	9	16.4	1	1.8
Twitter	45	81.8	10	18.2	9	16.3	1	1.8	0	0	0	0
Other	17	30.9	37	67.3	14	47.3	6	10.9	12	21.8	6	10.9

Table 4

Weekend SNS Use: Number of Times Checked by Site

SNS	No Account		Has Account		0 - 5 daily		5-10 daily		10-20 daily		Can't Keep Track	
	N	%	N	%	N	%	N	%	N	%	N	%
Facebook	26	47.3	29	52.7	17	20	4	7.3	9	16.4	5	9.1
Instagram	8	14.5	47	85.5	20	25.5	12	21.8	16	29.1	6	10.9
Twitter	45	81.8	10	18.2	9	16.4	2	3.6	0	0	0	0
Other	17	30.9	37	67.3	9	16.4	8	14.5	12	21.8	7	12.7

Table 5

Weekday SNS Use: Amount of Time Spent by Site

SNS	No Account		Less than 10 mins		10-30 min		30-60 mins		60-180 min		More than 180 mins	
	N	%	N	%	N	%	N	%	N	%	N	%
Facebook	27	49.1	19	34.5	7	12.7	1	1.8	9	16.4	0	0
Instagram	7	12.7	22	40	20	36.4	4	7.3	16	29.1	2	3.6
Twitter	47	85.5	8	14.6	0	0	0	0	0	0	0	0
Other	19	34.5	20	36.4	4	7.3	8	14.5	12	21.8	3	5.5

Table 6

Weekend SNS Use: Amount of Time Spent by Site

SNS	N/A - No Account		Less than 10 mins		10-30 min		30-60 mins		60-180 min		More than 180 mins	
	N	%	N	%	N	%	N	%	N	%	N	%
Facebook	25	45.5	14	25.5	7	12.7	8	14.5	1	1.8	0	0
Instagram	8	14.5	16	29.1	20	36.4	7	12.7	3	5.5	1	1.8
Twitter	47	85.5	8	14.6	3	5.5	0	0	0	0	0	0
Other	21	38.2	14	25.5	8	14.5	6	10.9	3	5.5	2	3.6

Congruence between Online and Offline Measures

To test the first hypothesis, correlations between friendship quality and social connectedness online and offline were conducted as preliminary analyses for the simple regression. A high correlation between the online measures (OFQS and OSCS) and offline measures (FQS and SCS) would indicate that the predictor variable of time would have a similar influence on these outcome variables. The correlation between the FQS and SCS was statistically significant, $r(53) = .48$, $p = .0$. This is supported in the literature (Lee & Robbins, 1995). Furthermore, the correlation between online measures, OFQ, and OSC was statistically significant, $r(53) = .62$, $p = .0$; however, neither correlation was significant enough to indicate mulitcollinearity.

Correlations were also conducted to examine the relationship between the predictor variable (time spent on SNS) and outcome variables (SC, OSC, FQ, OFQ) prior to conducting the regression analyses to test the first two hypotheses. The correlation between SCS score and time on SNSs was not statistically significant, $r(53) = 0.09$, $p = .51$. The relationship between time spent on SNSs and OSCS score was also found to be insignificant, $r(53) = .18$, $p = .18$. The correlation between FQS score and time on SNSs was found to be insignificant $r(53) = -.08$, $p = .56$, as was the relationship between OFQS score and time on SNS, $r(53) = .43$, $p = .43$. The results of these correlations indicate that the relationships between the predictor and outcome variables in the first two hypotheses are not linear. Therefore, regression analyses were not needed; however, for the purposes of learning about data analysis for the dissertation process, the author carried out regression analyses for the first two hypotheses.

Hypothesis I

Given that online versus offline social connectedness were not correlated with each other and, therefore, seen as two separate constructs, two simple regressions were conducted to assess how well the amount of time spent using SNSs would predict scores on the SCS and OSCS. For the SCS, results were not statistically significant, $F(1,53) = .446\ p = .507$. The adjusted R squared value was -.010. This indicates that none of the variance in total SCS scores was explained by time spent online. Therefore, the amount of time adolescents spent on SNSs did not predict their perceptions of social connectedness in offline settings.

For the OSCS, results from the simple regression were not statistically significant, $F(1,53) = 1.856$. The adjusted R squared value was .016, indicating that 1.6% of the variance in total OSCS scores was explained by time spent online. Thus, the amount of time adolescents spent on SNSs did not predict their perceptions of social connectedness on an online setting.

Hypothesis II

Although FQS and OFQS scores were significantly correlated with each other, to be consistent with data analyses, two simple regressions were conducted to assess how well the amount of time spent using SNSs would predict scores on the FQS and OFQS. A second simple regression was conducted to test how well time spent using SNSs would predict FQS and OFQS scores. For the FQS, results were not statistically significant, $F(1,53) = .346, p = .56$. The adjusted R squared value was -.012, indicating that none of

the variance in total FQS scores was explained by time spent online. Thus, the amount of time adolescents spent on SNSs did not predict the quality of their offline friendships.

For the OFQS, results from the simple regression were also not statistically significant $F(1,53) = .63$, $p = .433$. The adjusted R squared value was -.007. This indicates that none of the variance in total OFQS scores was explained by time spent online. Therefore, the amount of time adolescents spent on SNSs did not predict the quality of their online friendships.

Hypothesis III

The third hypothesis postulated that participants would report using SNSs significantly more for communication purposes than for non-communication purposes. A frequency count was conducted for this hypothesis. This hypothesis was not supported, as the majority of participants reported using SNSs equally for communication and non-communication purposes (n = 36, 65.4%), whereas 12.7% (n = 7) reported using SNSs primarily for communication functions and 21.8% (n = 12) primarily for non-communication purposes. Different patterns of use were found in the communication and non-communication groups. The majority of participants in the communication group reported using Facebook (n = 5, 71%), whereas only a minority of participants in the non-communication group reported using this site (n = 4, 33%).

Hypothesis IV

A MANOVA was conducted to determine whether participants who used SNSs for communication functions would differ on measures of social connectedness and friendship quality compared to participants who used SNSs for non-communication purposes or equally for both communication and non-communication purposes. This hypothesis was tested by comparing mean scores on all four measures (FQS, OFQS, SCS, OSCS). The Levene's test was found not to be significant for FQS ($p = .088$), OFQS ($p = 0.787$), SCS ($p = .905$), and OSCS ($p = .274$); therefore, equal variances can be assumed across groups. The MANOVA revealed no significant differences across groups, Wilks $\Delta = .857$, $F(4,49) = .981$, $p = .456$. Thus, there were no differences in adolescents' perceived quality of friendships or social connectedness if they used SNSs for communication purposes, non-communication purposes, or equally for both. These results are presented in Table 7.

Table 7

Means and Standard Deviations of FQ, OFQ, SC, and OSC

Measure	M	SD	Range	Min	Max
Friendship Quality	92.85	10.05	53	58	111
Online Friendship Quality	63.9	15.13	54	36	90
Social Connectedness	84.6	14.25	65	49	114
Online Social Connectedness	74.15	18.78	86	32	118

Chapter 6: Discussion

Implications

This study examined how SNS use may be related to adolescents' perceptions of social connectedness and friendship quality. This research sought to identify precise pathways whereby adolescents' interpersonal relationships and sense of belongingness could be strengthened or weakened through SNS use. Research examining how these online networks influence aspects of adolescent development is important, as SNS use has become ubiquitous in the lives of teenagers (Valkenburg & Peter, 2009).

To date, some empirical investigations have found that SNS use leads to positive outcomes among adolescents (Greieve et al., 2013; Tidwell & Walther, 2002; Valkenburg & Peter, 2009). Results from select studies suggest that these sites allow teenagers to strengthen their existing friendships which, in turn, has positive effects on their well-being and self-esteem (Greieve et al., 2013; Valkenburg & Peter, 2009). These results are encouraging and imply that use of these online platforms has benefits for adolescents and addresses important developmental needs (Reich et al., 2012).

At present, empirical investigations of SNSs primarily have used time spent on these sites as the dependent variable (Chan, 2014; Valkenburg & Peter, 2009). The present study examined specific ways in which adolescents use SNSs, in addition to time spent on these sites, to examine SNS use with greater precision. This investigation explored whether participants were motivated to use SNSs to communicate with individuals on their online networks or for non-communication purposes.

Findings

Hypothesis I, which examined whether time spent on SNSs would predict both online and offline social connectedness, was not supported. Social connectedness, which is the emotional distance between oneself, others, and society (Lee & Robbins, 1995), was not associated with time spent on SNSs. These findings are consistent with those from Kraut et al.'s (2002) research, which concluded that time spent on the Internet did not impact participants' psychological well-being and perceptions of belongingness. Conversely, the present results are inconsistent with the findings from Valkenburg and Peter's (2009) study that found that time spent on SNSs fostered a greater sense of social connectedness among adolescents when they used sites to communicate with existing friends. The authors proposed that because SNSs provided an additional platform for individuals to communicate with their peers and social groups, increased time communicating on SNSs enhanced their sense of belongingness (Valkenburg & Peter, 2009).

The current study did not require participants to specify whether they were interacting with existing friends or with strangers online. Therefore, it cannot be assumed that participants only communicated with close friends on SNSs. Moreover, the majority of participants in this study reported using SNSs for both communication and non-communication purposes, thus, the ways in which adolescents allotted their time on SNSs varied. A possible reason that time spent on SNSs did not impact social connectedness is because participants in this study were not using SNSs strictly to communicate with their close offline friends. By using SNSs for their other functions

and as a means of communicating with acquaintances, perhaps participants were not utilizing SNSs in ways that would impact their perceptions of social connectedness.

The potential for constant connection offered through SNSs may, in turn, affect adolescents' definitions of social connectedness. Findings from the present study suggest that adolescents access SNSs often and in different settings. Participants reported using SNSs at school, with friends, and at home. This suggests that using SNSs does not occur in isolated settings and are accessed frequently in social situations whereby adolescents have the capacity to interact simultaneously with individuals in their online and physical environments (Cingel et al., 2013).

Utilizing these online environments has become a routine activity for present generation youth (Antheunis et al., 2016). This demographic is among the first to grow up with an expectation of continuous connection (Turkle, 2011) and may have different perceptions of social connectedness than older cohorts. Research has shown that adolescents can derive a sense of social connectedness both online and offline depending on how they navigate these environments (Antheunis et al., 2016; Jose et al., 2012; Valkenburg & Peter, 2007).

Participants in the current study demonstrated variability in the ways they spent their time online, the locations where they accessed SNSs, and with whom they communicated. The measure of time spent on SNSs did not account for individual differences in SNS use nor did it take into consideration the overlap of online and offline domains. These factors may have been important components of social connectedness.

Use of an open-ended question assessing the online activities of participants would have led to a greater understanding of SNS use and its impact on perceptions of belongingness.

Current research indicates that time spent on SNSs can lead to an increased sense of belonging when individuals use these sites to acquire social support (Bressiere et al., 2008) and to interact with close friends (Valkenburg & Peter, 2007). Assessing online use through open-ended questionnaires rather than forced choice items used in this study (communication, non-communication, or equally for both) did not allow for the researcher to explore how adolescents use their time on SNSs. An open-ended question format would have offered greater insight into the intricacies of online behaviors and their impact on perceptions of belongingness.

Hypothesis II, which explored whether time spent on SNSs would predict online and offline friendship quality, was not supported; increased time online was not associated with the quality of friendships among this sample. These results contradict findings from studies that have found that online use stimulates adolescents' friendship quality (Antheunis et al., 2016; Valkenburg & Peter, 2009). A recent study examining the role of SNSs on adolescent relationships found that individuals who used SNSs for greater periods of time showed increased scores on friendship quality (Antheunis, etl al., 2016). These results were found only when participants had a large network of online friends who were also considered close ties (Antheunis et al., 2016). In a second study exploring Internet use and friendship quality, friendship quality was enhanced only when adolescents used SNSs to self-disclose personal information to their existing friends (Valkenburg & Peter, 2009).

SNS research has found that these online venues are important platforms for interactions that have social implications for adolescent populations (Antheunis et al., 2016; Chan & Cheng, 2004). Other factors, including with whom adolescents are communicating online and the quality of these interactions, are likely more accurate predictors of friendship quality.

A noteworthy finding that emerged in the data was the discrepancy in scores of online and offline friendship quality. Participants reported higher quality relationships with their offline friends compared to their online friends. This finding suggests that online friendships do not encompass many of the positive aspects of offline friendships. The majority of adolescents in this sample used SNSs for an equal blend of communication and non-communication practices, suggesting that they were not utilizing these sites primarily to foster high quality friendships. Although some studies have suggested that online communication leads to enhanced self-disclosure and, in turn, bolsters friendship quality (Antheunis et al., 2016; Tidwell & Walther, 2002; Valkenburg & Peter, 2009), others have found that strong relationships are not improved online among adolescent populations (Chan & Cheng, 2004; Kraut et al., 2002). The current study supports the latter viewpoint and suggests that, ultimately, ties formed online are not the ties that bind (Turkle, 2011). The lack of visual context cues and spontaneity, as well as the increased response time that defines online interactions, may make close relationships more difficult to develop on SNSs (Chan & Cheng, 2004).

A second notable finding was the null relationship between social connectedness and online social connectedness as evidenced by the insignificant correlation between the

two scales measuring these constructs (r (53) = .17). This finding suggests that these two

constructs are distinct and that connectedness achieved through offline settings is not

related to connectedness in online settings. This outcome is consistent with research by

Greive et al. (2013), who found different connectedness scores between offline and

online contexts (specifically, Facebook). Results from the presents study imply that

individuals navigate their online and offline environments differently, which can lead to

separate outcomes.

SNSs offer adolescents opportunities to access information that can be used to

help normalize developmental difficulties (Hartup & Stevens, 1997) as well as obtain

social support that they may lack in offline domains (Greive et al., 2013). It is likely that

participants who used SNSs to attain support and to acquire information about their

challenges or interests achieved enhanced online social connectedness. These same

individuals may not have been as skillful at gaining information and forming connections

with people offline. Conversely, individuals who were effective at connecting with

others offline and acquiring support may not have been as successful in doing so through

SNSs. Therefore, a discrepancy in one's ability to navigate offline and online

environments would explain the insignificant relationship between the two measures of

social connectedness.

Hypothesis III, which proposed that participants would report using SNSs for

their communication functions compared to their other functions, was not supported.

Adolescents in this sample reported using SNSs equally for both communication and

non-communication purposes. This finding contradicts empirical investigations of SNS

use, which have consistently found that SNSs are used primarily as a way for individuals

to interact with others (Bressiere et al., 2009; Chan, 2014; Kraut et al., 2002). Recent

Pew data indicated that adolescents use SNSs for a blend of communication and non-

communication practices, and that females tend to use SNSs more for communication

purposes compared to males (Cingel et al., 2013).

The SNS landscape has changed since researchers began investigating SNS use.

In the current study, adolescents reported using platforms such as Instagram and

SnapChat, with far fewer reporting Facebook use than past research suggests (Bressiere

et al., 2009; Chan, 2014). Thus, results from this study reveal that adolescents' online

behaviors are different than they were in past years. Various studies examining SNS use

were published prior to the widespread popularity of applications such as Instagram and

SnapChat (e.g., Bressiere et al., 2009; Kraut et al., 1998; Kraut et al., 2002; Valkenburg

& Peter, 2009). The current study's hypotheses were established and founded on past

research that found that time spent on SNSs and using these sites for communication

functions had meaningful effects on friendship quality and social connectedness (Chan &

Cheng, 2004; Reich et al., 2012; Valkenburg & Peter, 2009). Due to the changing nature

of SNSs and the ways adolescents reportedly utilize these sites in the current study,

measuring online use by time spent online and communication or non-communication

purposes were found to be insufficient as standalone measures of online use. These

measures did not provide information on how patterns of use can impact friendship

quality and social connectedness.

Another possibility that resulted in this response pattern is that having the option of responding "I use SNS equally for communication and non-communication" resulted in participants thinking less critically about the break down of their SNS use and selected the option that encompassed the most comprehensive list of SNS functions. An open-ended question assessing online use would have provided more precise data on the popularity of specific SNS functions.

Although the number of participants in both the communication and non-communication groups was low, distinct patterns of use were found between these groups. The majority of participants in the communication group reported using Facebook (n = 5, 71%), whereas only a minority of participants in the non-communication group reported using this site (n = 4, 33%). Participants in the communication group also reported using Facebook more than other sites. This finding suggests that for participants in this sample, Facebook use was associated with enhanced online communication.

Hypothesis IV stated that participants who used SNSs for communication functions would differ on measures of social connectedness and friendship quality compared to participants who used SNSs for non-communication purposes or equally for both communication and non-communication purposes. This hypothesis was not supported. The small number of participants (n = 7) who reported using SNSs primarily for communication purposes may have contributed to this finding. The majority of participants reported using SNSs equally for communication and non-communication

purposes; there was an uneven distribution of participants in all three groups, making it less likely to detect meaningful differences if they existed.

Another possible reason that this hypothesis was not supported is that participants did not specify the parameters (e.g., quality and intensity) of their online interactions. The simulation hypothesis (McKenna & Bargh, 2000) and hyperpersonal communication theory (Walther, 1996) propose that adolescents are more prone to self-disclose personal and intimate information over SNSs than they would during face-to-face interactions. These theories suggest that "hyperpersonal" communication occurs due to the absence of social cues and the presence of editing capabilities on SNSs (Tidwell & Walther, 2002). Investigations have shown that this intimate communication occurring on online settings facilitates the formation of friendships and enhances the quality of existing relationships (Valkenberg & Peter, 2009). Seeing as the present study did not investigate the nature of participants' online communication, it is unclear whether they were using these sites as a channel for self-disclosure or if they were communicating in a more superficial manner.

Instagram and SnapChat are currently among the most popular sites for adolescents (Antheunis et al., 2016). Although these applications can be accessed for their communication functions, they are visually-oriented sites that are used commonly to view other users' live photos and videos (Cingel et al., 2013). Because participants in this study reported using Instagram and SnapChat more frequently than other sites, it is likely that their conversations did not encompass the intimacy and depth needed to result in enhanced friendship quality.

Research has also shown that communicating on SNSs can help to enhance

existing friendships (Reich et al., 2012; Valkenberg & Peter, 2009). In one study of high

school students, 43% of participants indicated that SNS use helped them to feel closer to

their offline friends (Reich et al., 2012). In another study examining SNS use among

college students, only 20% of participants indicated that SNS use impacted their offline

friendships positively, whereas 73% of the sample stated that SNS use did not impact their

relationships (Subrahmanyam, Reich, Waechter, & Espinoza, 2008). Therefore, it is

likely that for participants in the current study, communicating with friends on SNSs did

not take away from or bolster these friendships but simply provided an additional

platform for interacting with individuals in their social networks.

SNS literature has found frequently that users utilize these sites to communicate

with or view content of close friends and acquaintances who they know from offline

settings (Ahn, 2011; Gross et al., 2004 Subrahmanyam et al., 2008). One investigation

found that for approximately 50% of participants, their top face-to-face friends were also

the people with whom they communicated most frequently online (Subrahmanyam et al.,

2008). Valkenburg and Peter (2009) found that when adolescents used SNSs to

communicate with their close offline friends, they achieve increased social connectedness

scores. Conversely, negative outcomes of SNS use, such as cyberbullying, harassment,

and decreased social connectedness, were found when adolescents utilized SNSs to

connect with acquaintances and strangers (Ahn, 2011; Valkenburg & Peter, 2009). The

present study did not differentiate between communication with high and low quality

friends nor did it examine whether online communication occurred between close offline

friends. Due to the visual-based nature of Instagram and SnapChat, which allows users to

connect to friends, acquaintances, and strangers, it is likely that participants

communicated with a combination of individuals with whom they had either high or low

quality relationships, thus leading to distinct outcomes. Therefore, examining

communication as a standalone construct without considering the recipient of the

conversation may be insufficient in determining its impact on social connectedness and

friendship quality.

Limitations

There are several limitations to this study. The generalizability of the study is

limited due to the sample itself. The majority of the sample was derived from a

predominantly upper-middle to upper class population, with 39 participants (70% of the

sample) enrolled at a private all-girls school in Eastern Canada. Individuals within this

socioeconomic bracket are more likely to have access to cell phones, computers, and

tablets which, in turn, facilitate SNS use. The ease at which participants in this sample

were able to access SNSs may be different than what other adolescents experience in

terms of device and Internet access, which hinders the generalizability of the study's

results. Moreover, the sample was predominantly female. Recent Pew research found

that SNS use differs between adolescent males and females, with female users using more

visually-oriented sites than their male counterparts (Lenhart, 2015). Another gender

difference reported in SNS literature is the finding that females tend to be more frequent

SNS users than males (Ahn, 2011). Therefore, the findings of the present study are likely

to represent patterns of SNS use among teenage girls and cannot be generalized to an

adolescent male population.

Another limitation of this study is the use of self-report measures, which are susceptible to errors of recollection and social desirability (Reich et al., 2012). Because SNS use has become incorporated increasingly into teenagers' daily routines (Schouten et al., 2007), participants in this study may have had difficulty approximating their daily SNS use. Given that the majority of adolescents report going on SNSs several times per day or almost constantly (Lenhart, 2015), the high frequency of their use may make it challenging for them to provide a precise estimate and, consequently, may have affected the validity of this study's results. Another weakness of this study relating to self-report measures was the potential for participants to depict their perceptions of social connectedness and friendship quality inaccurately. They may have reported feeling more connected and having higher quality friendships than they actually have due to concerns that faculty would have access to their responses. Also, since students completed measures in a group setting, they may have had concerns that their peers would see their responses.

The measure of time spent on SNSs presents another limitation. This item did not provide information on specific patterns of use, nor did it account for the intersection between online and offline domains. Overall, this measure was found to be too imprecise when considering its implications on friendship and social connectedness.

Furthermore, using modified versions of existing measures to measures online social connectedness and online friendship quality pose another limitation. There is no reliability and validity data available on these measures since they were created for this

study. For this reason, whether these measures are truly assessing important features of

online social connectedness and friendship quality remains unclear.

One final limitation to consider is the transient nature of SNSs (Chan, 2014).

SNSs are evolving constantly and new sites are growing in popularity and becoming

integrated into adolescents' daily routines. Early SNS research focused on MySpace and

AOL chat rooms, which are used rarely today (Shapiro & Margolin, 2014), and were not

reported to be used by any participants in the current study. More recent SNS literature

has shifted to examining Facebook use and its associated implications. Although

Facebook has maintained widespread popularity over the past decade (Shapiro &

Margolin, 2014), the current SNS culture has shifted, and Instagram and SnapChat have

emerged as the most popular sites among adolescent users (Cingel et al., 2013). These

findings were corroborated in the present study, with only 53% of participants indicating

that they had a Facebook account and the majority of participants reporting using

SnapChat (n = 35) and Instagram (n = 47). Due to the rapid evolution of technology, it is

difficult for SNS research to remain current. It is possible that online behaviors and site

use among adolescents have shifted since data were collected for this study.

Future Directions

The effects of SNS use on adolescent development remain an understudied area of

research (Bressiere et al., 2008). The current study examined whether social

connectedness and friendship quality were related to specific patterns of SNS use.

Findings from this study could serve as a starting point for future SNS research exploring

group differences in SNS use and related outcomes. The existing literature suggests that

adolescent girls and boys have distinct patterns of SNS use (Cingel et al., 2013; Lenhart, 2015). For example, gender differences relating to how males and females navigate these sites and may achieve enhanced social connectedness and friendship quality is an area worthy of study. Nevertheless, specific outcomes of SNS use predicted by gender remains an understudied area and was not explored in the current study.

Empirical research suggests that older adults achieve more positive benefits from SNS use compared to young adults and adolescent populations (Chan, 2014). Although the current study used quantitative analyses to examine patterns of use among high school students, qualitative research exploring motivations for use and outcomes among this demographic could help to provide a more comprehensive understanding of adolescent SNS use. Moreover, qualitative studies examining distinct patterns of use in older and younger cohorts would help to clarify the relationship between SNS use and precise pathways in which friendship quality, social connectedness, and other psychosocial consequences are affected.

The present study explored whether time spent on SNSs and patterns of online use influenced friendship quality and social connectedness among a cross-cultural sample of adolescents. Findings from this study did not reveal a significant relationship between SNS use and online and offline measures of friendship and social connectedness. It is possible that the lack of breadth and depth found in the measure of time alone was insufficient at predicting these constructs. Moreover, although SNS use was operationalized into communication and non-communication purposes, whether participants used these sites as a platform for self-disclosure and whether they were

speaking with close friends, acquaintances, or strangers were not explored. These specific online behaviors have been shown to impact relationship development and perceptions of belongingness (Ahn, 2011; Reich et al., 2012; Valkenburg & Peter, 2009). Qualitative investigations exploring how specific online behaviors contribute to psychosocial sequelae are warranted.

The majority of research exploring SNS use among teenagers has used samples comprised of high school students (Bressiere et al., 2009; Chan, 2014; Valkenburg & Peter, 2009). Although some study participants may meet the clinical threshold for a psychiatric diagnosis, it is likely that the majority of adolescents used for SNS studies represent a normative, non-clinical sample. Therefore, examining the implications of SNS use among adolescents with psychopathology could help to further illuminate the risks and protective factors of SNS use within this demographic.

Another area worthy of study is cross-cultural differences in SNS use. While the present investigation had a diverse sample in terms of participants' socio-cultural backgrounds, no differences were found between cultural groups and their use of SNS. Using a larger sample size and including participants from multiple countries and backgrounds would allow for a more thorough examination of the role of culture in SNS use.

Conclusion

The emergence of SNSs has redefined the landscape of communication by offering additional platforms for cultivating relationships and accessing valuable resources, information, and social support (Ahn, 2011). The use of technology plays a

central role in the lives of teenagers, as they are the first generation to have grown up

with SNSs. The developmental stage of adolescence is marked by self-exploration,

individuation, and separation from the family unit (Armsden & Greenberg, 1987).

Although SNSs offer new avenues for self-presentation and communication, the ways in

which adolescents utilize features of SNSs and how these contribute to friendship quality

and social connectedness remains uncertain.

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