



Belonging and loneliness in cyberspace: impacts of social media on adolescents' well-being

Douglas Smith, Trinity Leonis & S. Anandavalli

To cite this article: Douglas Smith, Trinity Leonis & S. Anandavalli (2021) Belonging and loneliness in cyberspace: impacts of social media on adolescents' well-being, Australian Journal of Psychology, 73:1, 12-23, DOI: [10.1080/00049530.2021.1898914](https://doi.org/10.1080/00049530.2021.1898914)

To link to this article: <https://doi.org/10.1080/00049530.2021.1898914>



Published online: 31 Mar 2021.



Submit your article to this journal [↗](#)



Article views: 14013



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 14 View citing articles [↗](#)



Belonging and loneliness in cyberspace: impacts of social media on adolescents' well-being

Douglas Smith , Trinity Leonis and S. Anandavalli

Department of Psychology, Southern Oregon University, Ashland, OR, USA

ABSTRACT

Objectives: The rapidly shifting landscape of social media technology presents challenges to researchers and clinicians attempting to understand the impact of such technology on individuals' psychosocial development. In this paper, we provide a historical perspective on research exploring the relationship between social media use and loneliness and belonging among adolescents and young adults.

Method: Rather than attempting an exhaustive review of literature in this area, we provide a narrative review on the evolution of social media technology over the past 20 years and its impact on socialization experiences of adolescents and young adults.

Results: Our narrative review, based on three prominent theoretical models in the field, reveals somewhat divergent findings, which may, to a large extent, reflect the remarkable evolution over the past few years in how youths use communication media technology. In this review, we consider individual, societal, and cultural factors that may explain preferences for various forms of online communication and related social outcomes such as belonging and loneliness.

Conclusions: Rather than asking whether social media involvement leads to feelings of loneliness and isolation for youth or opens a new frontier for connectedness and belonging, a more useful question is under what circumstances and for whom do these outcomes occur. Social media technology can be both a deterrent and a boost to youths' sense of social well-being, depending on the nature of its use. We provide some cautions and guidelines for utilizing social media to promote psychological well-being among youth.

KEY POINTS

What is already known about this topic:

- (1) Social media is a primary means of communication for adolescents and young adults in developed countries around the world. More than 90% of youth regularly subscribe to social media platforms.
- (2) Previous research suggests that use of social media may be detrimental to more intimate social relationships that are dependent on face-to-face interactions.
- (3) Excessive use of social media may ultimately lead to feelings of loneliness and isolation among youth.

What this topic adds:

- (1) Social media communication is a legitimate means of developing social connections and can foster a sense of belonging among youth.
- (2) Whether social media serves as a boost or deterrent to positive social relationships is dependent upon a wide range of factors including personality style, extent of use, and responses from others.
- (3) Social media use and its impact on socialization among youth is a rapidly evolving field, deserving of the attention of social scientists and mental health professionals. In particular, there is a need for time-series or longitudinal studies and studies addressing cultural differences in social media use.

ARTICLE HISTORY

Received 14 August 2020

Accepted 25 February 2021

KEYWORDS

Belonging; loneliness; social media; youths; social development; psychological well-being

Extant research indicates that online communication has emerged as a primary means of youths' (15 to 24 years) social interactions throughout the developed world. In Australia, the United States, and other developed nations, upwards of 95% of youths use social

media platforms such as Snapchat, Instagram, YouTube, TikTok, WeChat, or Twitter daily (Tankovska, 2021). Interestingly, within this social media use landscape, it is also clear that a sizeable portion of adolescents and young adults report experiencing feelings of

loneliness and social isolation regularly. Recent surveys conducted in the U.S., Australia, and the U.K. indicate that about one-third of youths and young adults report feeling lonely, and more than 20% feel lonely often or always ("Australian Loneliness Report," 2018; Kaiser Family Foundation/The Economist, 2018; Office for National Statistics [ONS], 2018). Given these circumstances, questions naturally arise about the relationship between pervasive feelings of loneliness and isolation and widespread social media use among today's youths. Does reliance on social media as a primary communication tool somehow limit relationship building and maintenance and ultimately lead to isolation and loneliness? Some studies suggest that online communication, by its very nature, is devoid of the richness and complexity of face-to-face social interactions, thereby resulting in less fulfilling social encounters and, ultimately, heightened risks for loneliness (Putnam, 2000; Spears et al., 2002). However, a growing body of research suggests that social media technology enables the formation of interactions with individuals and groups well outside the bounds of face-to-face encounters; that is, social connections expand. Furthermore, users have opportunities to deepen connections and foster an enduring sense of identity and purpose (Valkenburg & Peter, 2011; Verduyn et al., 2017; Vincent, 2016).

In this paper, we review research investigating the effects of social media on youths' experiences of loneliness and belonging. Much of the existing research is based on overly simplistic main effects models that examine, for example, the frequency of social media use on well-being. Our review focuses primarily on studies that offer some perspective on the mechanisms that underlie relationships between youths' social media use and perceptions of belonging and loneliness. Our review addresses these questions: Does social media detract from or facilitate social interactions among youths, and in what way does it impact the quality of their social relationships? Are some youths, based upon personal attributes, dispositions, circumstances, or cultural considerations, more inclined to gravitate towards social media as a primary means of socialization? Is there a point at which social media usage can become excessive and detrimental? If so, what effect does this have on other important life endeavours, including school, family, and work? These questions assume even greater significance during the current Covid-19 pandemic conditions, which mandate greater physical distancing and the likelihood of even more reliance upon social media to connect with others.

This review's results focus on understanding how social media promotes youths' social well-being. To

that end, we will summarize the risks and rewards of social media as a means for establishing relationships with others, and provide suggestions and recommendations for reducing potential harm and maximizing its positive effects.

Perspectives on loneliness, belonging, and social media use among youth

Loneliness

Loneliness is a subjective experience of distress occurring when one's social relationships are perceived to be less than desired (Hawkley & Cacioppo, 2010). Although loneliness may be related to both the quantity and quality of relationships with others, research suggests that lonely people often feel misunderstood and that their relationships lack meaning (Lim et al., 2016). Weiss (1973) conceptualized loneliness as resulting from unmet needs for attachment, social isolation, nurturance, a reassurance of worth, a sense of reliable alliance, and guidance in stressful situations. His model (more recently expanded upon by others) differentiated between emotional, relational, and collective dimensions of loneliness. Emotional or intimate loneliness refers to the perceived lack of a significant other or others to depend on for emotional support (Dunbar, 2014; Weiss, 1973). Relational loneliness refers to the perceived absence of family or friend connections on whom to count for instrumental support (e.g., advice, assistance with projects, and loans; Buys & Larson, 1979; Dunbar, 2014). Finally, collective loneliness refers to one's lack of sense of inclusion in a network of others with common interests or values (e.g., clubs, hobbies, recreational pursuits; Granovetter, 1973; Hawkley et al., 2005).

For both practical and ethical considerations, few controlled experimental studies attempt to manipulate loneliness levels to identify causal factors or associated outcomes. Given its subjective nature, most of the research relies upon self-report measures, such as the Revised UCLA Loneliness Scale (Russell et al., 1980), to examine individual differences in overall reports of loneliness, as well as feelings of social isolation. A large and growing body of research attests to relationships between loneliness and personality characteristics such as shyness, low self-esteem, external locus of control, and feelings of isolation (Booth et al., 1992; Vanhalst et al., 2013), as well as negative emotional states such as depression and life dissatisfaction (Cacioppo et al., 2006; VanderWeele et al., 2011).

Belonging

Belongingness, or sense of belonging, has a rich history in the psychological and educational literature, dating back to Maslow's hierarchy of needs model (Maslow, 1968). Belonging is a fundamental emotional need to feel accepted by others and be part of a group (Maslow, 1968). According to Baumeister and Leary (1995) belongingness model, humans have "a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships" (p. 497). Rather than just a desire for contact with others, belonging implies a desire to bond with others in stable, meaningful, and emotionally supportive ways. In some sense, achieving a sense of belonging takes us beyond our boundaries and allows us to develop a life in concert with others (Lambert et al., 2013). When the need for belonging is unmet, feelings of isolation, rejection, and alienation are likely to ensue (Baumeister & Leary, 1995).

Several self-report instruments measure the subjective sense of belonging. These include the Sense of Belonging Instrument (Hagerty & Patusky, 1995), the General Belongingness Scale (Malone, Pillow, & Osman, 2012), and the Need to Belong Scale (Leary et al., 2013). There is also interest in measuring a sense of belonging or connectedness in specific environments, including work and school settings. Goodenow and Grady (1993) define school belonging as "the extent to which students feel personally accepted, respected, included, and supported by others in the school social environment" (p. 80). Some popular instruments for measuring belongingness in school settings include the Psychological Sense of School Membership (Goodenow, 1993), the School Connectedness Scale (Lohmeier & Lee, 2011), and the School Engagement Instrument (Appleton et al., 2006).

Like loneliness, a sense of belonging links to several social, emotional, and behavioural outcomes in adolescents and young adults (Arslan et al., 2020). Numerous studies indicate that sense of belonging is negatively associated with distressing mood states such as depression and anxiety (Cockshaw & Shochet, 2010; Pittman & Richmond, 2007). Other studies suggest that belonging may be a protective factor against adolescents' externalizing problem behaviours (Newman et al., 2007). Achieving a sense of belonging strengthens social bonds with others and results in an increased feeling of adequacy and self-worth (Walton et al., 2012). A growing body of research suggests that belonging enhances academic performance and motivation (Allen & Kern, 2017; Neel & Fuligni, 2013). It also leads to increased feelings of satisfaction at school and other positive emotions related to school (Jose et al., 2012; Pittman & Richmond, 2007).

Social media

Social media refers to computer-based technology that allows for the sharing of ideas, information, and personal content within virtual communities. It includes social networking sites such as Facebook and Google+, microblogging sites such as Twitter, and photo and video sharing sites such as Instagram, Snapchat, and YouTube. Research examining associations between social media technology activities and youths' psychosocial well-being has evolved rapidly over the past two decades. Most of the research has been cross-sectional, with only a handful of studies tracking social media usage and perceptions of loneliness or belonging over time. These studies' results are far from conclusive and suggest somewhat disparate viewpoints concerning how social media and social well-being are related and underlying explanatory mechanisms. Three major theoretical frameworks that appear most prominently in the literature organized this review: *social displacement*, *rich-get-richer*, and *social compensation*. Although various other models continue to be developed to better understand social media's role in facilitating or inhibiting social relationships, we selected these three based on their extensive research and their explicit focus on a social media framework. In the following sections, we review research explicating each of those viewpoints.

Social displacement model

The social displacement model posited by Kraut et al. (1998) hypothesized that the use of social media and the internet displaces, or takes the place of, face-to-face, deeper social interactions. Although their study was conducted on families, not youths exclusively, the data offers informative findings that might generalize to the population we are concerned with – adolescents and young adults. In a seminal HomeNet study of 93 new computer user households (not previously owning a computer), Kraut et al. (1998) tracked internet use over a one- to two-year period assessing its impact on social well-being indices. The key findings were that increased internet use was associated with declines in family communication and the overall size of participants' social networks in the real world. More importantly, for this review, increased internet use was also associated with self-reports of increased stress, depression, and loneliness. The association between increased internet use and loneliness, and declines in social support, was even more pronounced for teen versus adult participants in the study. Based on their study's panel design, Kraut and colleagues inferred that increases in internet use were related to decreases

in social support and accompanying feelings of loneliness.

Two possible interpretations of the data were put forth by Kraut and colleagues, reflecting the quantitative and qualitative impacts of online communication. The first was that time spent on the internet likely displaces time traditionally spent in face-to-face social interactions with family and friends, thereby lessening the influences of these contacts. A second possibility is that the types of social connections established and maintained online are qualitatively different and perhaps inferior to those taking place in person. From this perspective, internet relationships lack the depth and intimacy of face-to-face encounters and are less fulfilling to participants. With more time spent in seemingly shallow, less fulfilling online relationships at the expense of more meaningful face-to-face contact with others, heavy internet communication involvement decreases the sense of social involvement and increases loneliness. The term “internet paradox” was used to describe the effect, whereby a medium intended to provide greater access to social communication results in lower social well-being.

Although the Kraut et al. (1998) study is impressive in its design and attempt to provide a causal connection between internet use and feelings of loneliness, it presents some limitations. The first is that all the participants were selected on the basis of having a previous connection to a school or neighbourhood group. Hence, it is likely that the sample was skewed positively in terms of initial loneliness. It is unknown whether significantly lonelier individuals would have experienced further increases in loneliness due to increased computer use. A second confounding factor is that, at the time of the study, “internet” use was operationalized in terms of either “informational” or “communication” purposes, with communication being further restricted to include only electronic mail and various types of web chat lines. Virtual social networking platforms were unavailable at the time of the study and may influence social communication in significant ways. In their discussion, Kraut and colleagues suggest that newer technologies, on the horizon at the time, might provide greater support for building social communities online, thus perhaps enhancing the depth of these relationships.

A few other cross-sectional studies (e.g., Ahn & Shin, 2013; Ellison & Vitak, 2015; Dunbar, 2016) provide limited support for online communication media displacing close friends and family relationships, thereby increasing loneliness and other social distress

symptoms. A recent meta-analysis of 9000 youth and adult Facebook users by Song et al. (2014) found a weak but positive relationship between the extent of use and reported feelings of loneliness ($r = .13$). Taken as a whole, these studies do not provide sufficient evidence that these outcomes are due to a decline in intimate face-to-face encounters with others, as postulated by the social displacement model.

Two recent longitudinal studies by Hall et al. (2018) with a sizeable sample of participants from the Longitudinal Study of American Youth (Miller, 2016) examined changes in social media use over time and its relationship to changes in the frequency of face-to-face contacts with close others including family and friends, along with reported increases or decreases in subjective well-being. Using a series of structural equation panel models, the research provided little support for the hypothesis that social media use displaces direct social contacts with close others and suggested just the opposite – increased social media use was associated with positive well-being changes. More recent studies, including one by Houghton et al. (2018), also suggest that broad conclusions on the negative effects of social media use and screen time on social relationships and mental health may not be justified. In their study, Houghton et al. (2018) examined Australian school youths’ social media usage and screen time using latent growth trajectory models and again found little support for the idea that increased use was related to loneliness and depression within this sample.

Although the social displacement model served as one of the earliest frameworks to examine the role of internet and social media use on loneliness experiences, research results have not yielded an unambiguous and linear relationship between these two variables. Alternatively, some scholars have posited a Goldilocks Hypothesis (Przybylski & Weinstein, 2017), whereby moderate social media screen use can be a viable and positive means of connecting with others.

Rich-get-richer model

The rich-get-richer model presents the idea that individuals with high social capital and personal assets maximize the benefits of social media. Social capital is a term used to describe “the benefits one receives from one’s relationship with other people” (Steinfeld et al., 2008, p. 434). This is juxtaposed with low capital and assets individuals who while experiencing social

anxiety, isolation or other social/relational concerns fare worse in online communication (Kraut et al., 2002).

In a follow-up paper to the HomeNet study, Kraut et al. (2002) reported significant shifts in their participants' reports of how internet use impacted their social lives. Interestingly, over a two to three year period of internet use, the relationship between time spent communicating online and perceptions of increased loneliness and depression all but disappeared in the sample. Although internet use over the extended period tested was associated with increased stress, loneliness was not related to the extent of internet use, and depressive symptoms declined as a function of time spent online. Kraut et al. (2002) speculated that these observed changes over time might be due to their participants better integrating the internet into their lives as they became more computer savvy. Additionally, more and more of their family and friends also began utilizing the internet, thus increasing the prospect of communicating with their social network.

A second longitudinal study reported by Kraut et al. (2002) compared individuals who recently purchased a home computer with a control group of recent television buyers. This study compared groups in terms of a broader range of social and psychological outcome variables than those collected in the HomeNet study. The 406 respondents completed extraversion and perceived social support measures, two variables considered to mediate the relationship between online communication media usage and psychological well-being. Results indicated overall increases in participants' social involvement as a function of internet use. Those using the internet more expanded their local and distant social circles, communicated more with family and friends, and reported higher levels of community involvement. These results became more compelling when considering the impact of individual differences in extraversion and perceived social support. In terms of community and personal involvement, extraverts and those with initially high social support increased their involvement as a function of internet usage. On the other hand, introverts decreased community involvement as their internet use increased. Notably, in terms of psychological and social well-being, extraverts who reported using the internet extensively also reported decreases in loneliness and other negative emotions. The opposite was true for introverts; increased internet use correlated with increased loneliness, depression, and lowered self-esteem.

Kraut et al. (2002) interpreted these findings as supportive of a rich-get-richer model, linking online communication with various social and emotional

adjustment indices. For those who already have extensive and satisfying social networks, the internet and other communication media tools broadened these networks and enhanced psychological well-being perceptions. These individuals may be better positioned to utilize the benefits of online communication in furthering their social agendas.

Further supporting the rich-get-richer model, a study by Valkenburg et al. (2017) used a cross-lagged panel model to test the longitudinal relationship between social media use and social self-esteem in a Dutch sample. Findings indicated that youths high in social self-esteem showed increased social media use, and social media use resulted in further improvements in self-esteem. The authors suggested that youths high in self-esteem might be less hesitant to communicate online and share positive information about themselves. Doing so might increase the likelihood that they received positive feedback from others, which, in turn, boosted their self-esteem.

The argument in favour of the rich-get-richer model has continued to evolve over the years. Cheng et al. (2019) meta-analysis reviewed social network site queries to examine how variables, such as social anxiety and loneliness, affected individuals' social media use benefits. After a review of over 150 studies with global samples, the authors noted that online social capital, or the skill to manoeuvre and leverage the benefits of social media space, played a pivotal role in social media response. Cheng et al. (2019) conclude that extraverted individuals with significant online social capital maximized social media's resources and accumulated more capital over time. Individuals with low online social capital and existing loneliness feelings leveraged fewer resources.

Social Compensation Model

The social compensation model posits that social media technology might reduce the loneliness of isolated individuals because they see this as a safer, more desirable option for creating social contacts. Ellison et al. (2007) found that level of self-esteem moderated the relationship between social network site use (Facebook) and perceptions of social capital in a sample of college students. Social capital may accrue either due to an extensive network of friends and acquaintances (weak ties) or a smaller group of close friends and family (strong ties). In the Ellison et al. (2007) study, online communication has a disinhibiting effect on interactions with others. Thus, it may be particularly advantageous for individuals who are socially anxious, introverted, or less likely to self-disclose.

In the past several years, several studies have expanded the social compensation model's tenets and sought to identify some of the personal and environmental circumstances that help to explain in a more nuanced way how social media may impact outcomes related to loneliness and belonging. Some of these studies employ a cultural lens to understand how personality factors and preferences may mediate these outcomes. In one such study conducted in Japan, Ando et al. (2008) investigated the bidirectional causal relationships between internet use and psychological variables (e.g., loneliness) among Japanese youths. The researchers were interested in understanding the relationship between internet use and depression, loneliness, and aggression and whether youths prefer the internet to face-to-face communication. The study followed a group of middle school youths to assess internet use within their natural settings. Students' reports of internet usage, loneliness, depression, aggression, and internet communication preference were collected at two different points during a school year to assess changes in internet use and psychological dispositions (loneliness, depression, aggression). Although the authors could not conclude that internet use had a causal effect on loneliness, they suggest a rich-get-richer effect on participants (Takahira et al., 2008). Students who initially experienced low levels of loneliness tended to use the internet more frequently to communicate with family and friends and establish stronger personal relationships.

In agreement with earlier studies conducted mainly with young adult and adult populations (e.g., Kraut et al., 2002), Takahira et al. (2008) conclude that the internet has positive effects in boosting social capital for younger, more socially adept students. Conversely, those students who initially reported depressed moods appeared to be adversely affected by internet use, as depressed mood increased following their opportunities to communicate (synchronous or asynchronous) via the internet. Takahira et al. (2008) suggest that these students' inability to access nonverbal cues via internet communication, immature social skills, and negative experiences on the internet (e.g., cyber harassment) are stressors that may increase depressed moods. In addition, students manifesting depressed moods engaged in more non-social internet use, such as information searches for school assignments and entertainment, instead of communicating with others. The authors conclude that there is a vicious cycle between youths' preferences for online communication and internet use levels in which the two reinforce one another (Takahira et al., 2008). Regardless of the tool or purpose, youths' internet use reinforces a preference for internet-based communication. In turn, the reinforced preference for internet-based communication increases

the level of internet usage. The authors suggest that this cycle of frequent internet use may become pathological but do not conclude whether youths identified as depressed preferred online communication over face-to-face, as suggested by other studies (e.g., Griffiths, 2000). The authors' overall conclusions suggest that there are both positive and negative effects of internet use on youths' psychological well-being and social behaviours. They suggest that further research needs to identify specific strategies that may increase the benefits of internet use among while minimizing harmful effects.

Two studies further examined processes that might mitigate social media effects on adolescents' well-being from a social compensation model. Valkenburg and Peter (2007, 2009) proposed the "internet-enhanced self-disclosure hypothesis," that is, social media use promotes a sense of belonging by offering enhanced opportunities for self-disclosure. Online self-disclosure includes communication about one's feelings, worries, and vulnerabilities, topics that are not often easily disclosed by adolescents and young adults. According to the hypothesis, social media, due to its reduced visual, auditory, and contextual cues, serves to stimulate self-disclosure because participants become less concerned about how others perceive them. Research by Valkenburg and Peter (2009) and Tidwell and Walther (2002) support the finding that online communication results in increased intimate self-disclosure among participants. A second assumption of the hypothesis is that enhanced self-disclosure enhances the quality of relationships. The longitudinal study by Valkenburg and Peter (2009) demonstrated that, within one year, adolescents' online self-disclosure resulted in higher quality friendships. Online self-disclosure mediated the relationship between communication and quality friendships.

Vincent (2016) analysed social media's applicability to facilitate a sense of belonging in college students. The research specifically looked at the use of social media as a therapeutic modality used by college counsellors to help college students create a sense of belonging on campus. Vincent's (2016) reflection on the importance of a sense of belonging to students' college success recognized it as essential to making progress towards a degree. Experiencing a sense of belonging to a community, both socially and academically, helped to better integrate students into campus life and navigate barriers to gaining their education. The popularity of social media use among college students made it a potentially useful tool for facilitating a sense of belonging among students who are struggling to integrate into the campus community.

Connecting with others positively on social media can help create a sense of belonging, which improves well-being and encourages the continued use of social media. Alternatively, experiencing isolation on social media can harm a person's sense of belonging and subsequently diminish their well-being. A study by Schneider et al. (2017) looked at how experienced ostracism via the ostracism online tool on a social media platform could impact fundamental human needs and mood. The research found that the participants reported a negative impact on their sense of belonging, the meaning of their existence, self-esteem, and mood when they experienced social ostracism online. This study highlights the potential risk to a person's sense of self-worth and mood state if they experience ostracism online (Schneider et al., 2017). Social media platforms can help build a sense of belonging and community or create a sense of ostracism and isolation, depending on how others receive them on the platform. Recognizing social media as a tool with the potential to either build community or isolate users based on how the tool is managed is essential to accurately understanding social media's potential to help facilitate a sense of belonging.

A more nuanced view of social media involvement and its effects

In this review of loneliness, belonging, and social media literature, it is evident that a linear and causal relationship among the three variables cannot be easily established. Although each of the models discussed previously offers unique perspectives into the motivations and influences on youths' social media use, the models' are not mutually exclusive. In other words, it is plausible that each of the models explains various facets of the more extensive experience of youths' social media use. A more nuanced review of the models and the data associated with each indicate that social media users' motivation plays a pivotal role in their experience of loneliness and belonging. The emotional experience of a sense of belonging is not a time-limited positive emotion but rather a long-term experience that permeates into other aspects of life.

A study by Liu et al. (2018) found that when belonging was a central motivating factor for social media users, positive feelings and a sense of community was likely to increase. The study went on to show that social media habit formation is an important consideration in its continued use. Social media usage habit formation is not due solely to instant gratification. Instead, it develops on the basis of the user's feelings of belonging, which extend beyond the time when the user is actually using the

platform. By experiencing a sense of belonging, which stays with the user after they have moved on to other activities, the user is encouraged to use the social media platform again. At this point, they re-experience a sense of belonging and thus continue the cycle. The stronger the belonging feeling, the more likely the user returns to the social media platform. While past use frequency seemed to impact later use frequency, establishing a sense of belonging moderated past frequency trends. It is essential to acknowledge that other moderating factors at play contribute to an individual's likelihood of using a social media platform. However, a sense of belonging is a crucial component for sustained frequent use.

Furthermore, how social media as a tool is used is not the only determining factor. While social media is an umbrella term for describing many different social media platforms, there is a natural variance between social media platforms and what most impacts a user's sense of belonging. Zhou et al. (2019) examined the difference between what impacted a user's sense of belonging on social networking sites (SNS) versus micro-blogging sites. The article intentionally split social networking sites and micro-blogging sites as distinct forms of social media. SNS users were more focused on communication and relationship cultivation with individual acquaintances. In contrast, micro-bloggers tended to take a more global view by following overall trends and opinions rather than individual ones. One of the unique aspects of this study was that instead of creating an artificial SNS or micro-blogging site to conduct the research, they used real social media sites to collect the data. The study found that a sense of belonging and satisfaction impacted the users' likelihood of continuing to use the social media platform positively and that both peer influence and self-image regulated the users' emotional experience of belonging. Importantly, while both self-image and peer influence impacted SNS and micro-bloggers' sense of belonging, the study found that self-image was more of a determinate for SNS users. In contrast, peer influence had a more significant impact on micro-bloggers' sense of belonging (Zhou et al., 2019). Regardless of the motivation, experiencing a sense of belonging is essential to continued social media use across platforms.

Summary and Conclusions

Overall, research examining loneliness, sense of belonging, and social media involvement among adolescents and young adults suggests the relationships between these variables are multifaceted and complex. The landscape in which youths communicate and develop social relationships is rapidly changing

with the advent of newer technologies with advanced features that offer some intriguing possibilities for connecting with others.

Changes in social media over time dictate the manner and process whereby social interactions are established and maintained. As social networking technologies are better able to mimic the key components of face-to-face interactions, they presumably lead to more satisfying encounters and reduced feelings of loneliness. Also, the increasing popularity of mobile media devices increases social media accessibility and provides increased accessibility for social interactions and the development of social supports. The variety of social media available may also allow for individual and cultural preferences for communicating, for example, with or without visual options.

Whether social media relieves or exacerbates loneliness feelings and social isolation is related primarily to user characteristics, such as introversion/extraversion, social anxiety, self-esteem, and need to belong – relatively stable traits and dispositions. The majority of studies included in this review suggest that social media may offer a somewhat more hospitable path towards social engagement for those with limited interpersonal skills and/or confidence. Social networking sites such as Instagram and Snapchat provide support through various indirect and direct messaging options, which presumably create a friendlier and less risky environment for interactions to occur.

Our review of social media's impact on youths' psychosocial development suggests that these technologies vastly expand social engagement's breadth and depth. On the one hand, socially introverted and reserved youths seemingly have a great opportunity, via social media technology, to establish social relationships in less demanding and perhaps less threatening social contexts. Extraverts and those with high social support levels may also benefit by bridging social capital; that is, by expanding their range of weaker social ties and cultivating and cementing stronger ties. On the other hand, research suggests that social media's potential advantages depend upon a wide range of user characteristics and variables related to purposes and extent of social media use, accessibility options, and other factors.

Kraut et al. (1998), Kraut et al. (2002) conducted some of the earliest studies on loneliness and internet use in psychology and understanding human behaviour. The researchers in these studies acknowledge that it is challenging to pinpoint the exact effects of the internet and social media use. However, some factors emerged that may help users determine what the potential consequences of the same could be. For instance, Kraut

et al. (2002) suggested that an individual's extraversion/introversion personality characteristics influence their sense of belongingness. Extraverts may enjoy internet use, which allows them to engage in social interactions in diverse manners, while introverts may experience more loneliness, depression, and lowered self-esteem. Considering Kraut's finding, introverts may cautiously use social media, especially if their psychological well-being is vulnerable. For introverts, smaller and more intimate group interactions on social media may be better suited, ensuring an emotionally safe experience (Steinfeld et al., 2008). Introverts' unique social media experiences have implications for universities and schools attempting to encourage a sense of belongingness among their vulnerable members.

This review shows that mattering on social media is essential to foster a meaningful sense of belonging (Costin & Vignoles, 2020). Mattering and meaning in life invite individuals to experience a welcoming, inclusive sense of social media belonging. Even within this idea of mattering, it is crucial to understand the unique effects of positive and negative empathy. Andreychik and Migliaccio (2015) noted that fostering a supportive sense of empathy was more likely to foster belonging. Individuals seeking to find affiliations and a sense of community in the online space of social media may want to initiate posting materials that encourage and stimulate positive empathy among their circles, consequently inviting more connection. Such empathic gestures may also have implications for those engaging in social justice work seeking to offer safe spaces to individuals from marginalized backgrounds. The types of materials they share on social media (e.g., materials that stimulate positive empathy versus that which stimulates negative empathy) can have implications for the responses they evoke among their readers, including prosocial behaviour (Andreychik & Migliaccio, 2015).

A sense of belongingness and connection is so powerful that Liu et al. (2018) found it a significant factor in predicting habit formation using social media. Thus, users' sense of mattering and having a meaningful presence can be critical in helping individuals form a habit. Thus, community experience and belonging may have critical applications in the treatment of psychological disorders based on habits such as obsessive-compulsive disorder, self-harm, and addictions.

Even as individuals prepare themselves to be intentional participants and social media users, there are certainly concerns that may be out of an individual's control, including the negative experiences of cyberbullying, cyberstalking (e.g., Al-Rahmi et al., 2020), and toxic ostracism (Schneider et al., 2017). These challenges can result in a painful sense of low self-esteem

and low positive mood for individuals. Additionally, Bettmann et al. (2020) indicated that young adults in the typical college age range may be susceptible to increased depression and anxiety as their social media use increases. In this context, college counselling centres working with youths with depression and anxiety might need to offer caution and recommendations on appropriate social media use.

Future directions

An important research direction is understanding how and under what circumstances social media use and social media technology influences adolescents' sense of loneliness and belongingness. Given the technology-heavy lives most people lead, it is imperative that social media consumers become aware of its impact on their well-being. This literature review discussed several influencing factors that determined individuals' experience on social media and how it contributed to their sense of belongingness and loneliness.

More research is needed to clarify the long-term effects of social media usage on adolescents' and young adults' social outcomes. At this point, the mechanisms through which online communication media affects psychological well-being remain unclear. In particular, there is a need to examine outcomes from complex and inclusive causal modelling strategies. Also, longitudinal studies are needed to clarify the directionality and causality of the relationships among youths' social media use, loneliness, and belongingness.

Although much is known about the potential factors that influence social media users' experience of belonging and loneliness, little is known about how demographics impact the same. For instance, are there differences in how men, women, and nonbinary individuals experience belongingness in social media? Additionally, does the purpose and experience of belonging evolve as the users' chronological age increases? Knowing about the influences of demographics variables (e.g., gender identification, sociocultural identification, socioeconomic circumstances) could help users frame social media experiences accordingly. A limitation of the current review is that it used search platforms mostly grounded in the developed world. The literature on belonging and social media use of developing nations and cultures where English is not the predominant language of academia is an additional research focus.

There is a need for additional efforts to help social media users become intelligent consumers of platforms.

Given the rise in cyberbullying and hate messages, users may need information on potential social media use adverse effects. When seeking belongingness on social media, users may experience counterintuitive experiences such as ostracism.

With the inevitability of mass infusion of online communication globally, research focused on online communication and strategies that maximize youths' social engagement benefits appears to be a promising direction. Newer social networking platforms support online linkages with a wide range of people, thus presumably creating easy access to weak ties that may be easily maintained.

Although the extent of research on loneliness and belongingness in social media use is increasing rapidly, users may have to determine for themselves the appropriate and safe social media levels of use. Social media and sense of belonging may be especially relevant in global crises, such as the ongoing COVID-19 pandemic. For instance, Mucci et al. (2020) note that as individuals maintain social distance, they may experience an aggravated sense of isolation. In this context, social media may become an especially relevant platform to seek belonging. With the inevitability of mass infusion of online communication globally, research focused on the beneficial uses of online communication and strategies that maximize the benefits for youths' social engagement appears to be a promising direction. Newer social networking platforms support online linkages with a wide range of people, thus presumably creating access to weak ties that may be easily maintained.

Although we attempted to conduct a narrative literature review on social media use and its relevance to youths' well-being from a comparative models perspective, this is a rapidly evolving field. The current world pandemic and resulting social isolation add a significant new dimension. Social media has become the preferred and perhaps only way to communicate with those outside our immediate social circle for many people. The extent to which this will constitute new normal is unknown, but it certainly provides a new frontier for social media research.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Douglas Smith  <http://orcid.org/0000-0003-2265-2969>

References

- Ahn, D., & Shin, D. H. (2013). Is the social use of media for seeking connectedness or for avoiding social isolation? Mechanisms underlying media use and subjective well-being. *Computers in Human Behavior*, 29, 2453–2462. <https://doi.org/10.1016/j.chb.2012.12.022>
- Allen, K. A., & Kern, M. L. (2017). *School belonging in adolescents: Theory, research and practice*. Springer. <https://doi.org/10.1007/978-981-10-5996-4>
- Al-Rahmi, W. M., Yahaya, N., Alturki, U., Alrobai, A., Aldraiweesh, A. A., Omar Alsayed, A., & Kamin, Y. B. (2020). Social media-based collaborative learning: The effect on learning success with the moderating role of cyberstalking and cyberbullying. *Interactive Learning Environments*, 1–14(February), 2020. <https://doi.org/10.1080/10494820.2020.1728342>
- Ando, R., Takahira, M., & Sakamoto, A. (2008). The effects of Internet use on junior high school students' loneliness and social support. *Proceeding of Science of Human Development for Restructuring the "Gap Widening Society"*, 1, 123–133. <https://doi.org/10.2132/personality.14.69>
- Andreychik, M. R., & Migliaccio, N. (2015). Empathizing with others' pain versus empathizing with others' joy: Examining the separability of positive and negative empathy and their relation to different types of social behaviors and social emotions. *Basic and Applied Social Psychology*, 37(5), 274–291. <https://doi.org/10.1080/01973533.2015.1071256>
- Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology*, 44(5), 427–445. <https://doi.org/10.1016/j.jsp.2006.04.002>
- Arslan, G., Allen, K. A., & Ryan, T. (2020). Exploring the impacts of school belonging on youth wellbeing and mental health: A longitudinal study. *Child Indicators Research*, 13, 1619–1635. <https://doi.org/10.1007/s12187-020-09721-z>
- Australian Loneliness report: A survey exploring the loneliness levels of Australians and the impact on their health and wellbeing. (2018). Australian Psychological Society Limited. <https://www.psychweek.org.au/wp/wp-content/uploads/2018/11/Psychology-Week-2018-Australian-Loneliness-Report.pdf>
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>
- Bettmann, J. E., Anstadt, G., Casselman, B., & Ganesh, K. (2020 February 15). Young adult depression and anxiety linked to social media use: Assessment and treatment. *Clinical Social Work Journal*. Advance online publication. <https://doi.org/10.1007/s10615-020-00752-1>
- Booth, R., Bartlett, D., & Bohnsack, J. (1992). An examination of the relationship between happiness, loneliness, and shyness in college students. *Journal of College Student Development*, 33(2), 157–162. <https://eric.ed.gov/?id=EJ444152>
- Buys, C. J., & Larson, K. L. (1979). Human sympathy groups. *Psychological Reports*, 45, 547–553. <https://doi.org/10.2466/pr0.1979.45.2.547>
- Cacioppo, J. T., Hughes, M. E., Waite, L. J., Hawkley, L. C., & Thisted, R. A. (2006). Loneliness as a specific risk factor for depressive symptoms: Cross sectional and longitudinal analyses. *Psychology and Aging*, 21, 140–151. <https://doi.org/10.1037/0882-7974.21.1.140>
- Cheng, C., Wang, H.-y., Sigerson, L., & Chau, C.-I. (2019). Do the socially rich get richer? A nuanced perspective on social network site use and online social capital accrual. *Psychological Bulletin*, 145(7), 734–764. <http://dx.doi.org/10.1037/bul0000198>
- Cockshaw, W., & Shochet, I. (2010). The link between belongingness and depressive symptoms: An exploration in the workplace interpersonal context. *Australian Psychologist*, 45(4), 283–289. <https://doi.org/10.1080/0005006100375241>
- Costin, V., & Vignoles, V. L. (2020). Meaning is about mattering: Evaluating coherence, purpose, and existential mattering as precursors of meaning in life judgments. *Journal of Personality and Social Psychology*, 118(4), 864–884. <http://dx.doi.org/10.1037/pspp0000225>
- Dunbar, R. I. M. (2014). The social brain: Psychological underpinnings and implications for the structure of organizations. *Current Directions in Psychological Science*, 23, 109–114. <https://doi.org/10.1177/0963721413517118>
- Dunbar, R. I. M. (2016). Do online social media cut through the constraints that limit the size of offline social networks? *Royal Society Open Science*, 3, e150292. <https://doi.org/10.1098/rsos.150292>
- Ellison, N. B., & Vitak, J. (2015). Social network site affordances and their relationship to social capital processes. In S. S. Sundar (Ed.), *The handbook of the psychology of communication technology* (pp. 205–227). Wiley.
- Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends": Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, 12(4), 1143–1168. <http://dx.doi.org/10.1111/j.1083-6101.2007.00367.x>
- Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools*, 30(1), 79–90. <https://doi.org/10.1002/1520-6807>
- Goodenow, C., & Grady, K. E. (1993). The relationship of school belonging and friends' values to academic motivation among urban adolescent students. *The Journal of Experimental Education*, 62, 60–71. <https://doi.org/10.1080/00220973.1993.994383>
- Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360–1380. <https://doi.org/10.1086/225469>
- Griffiths, M. (2000). Does Internet and computer "addiction" exist? Some case study evidence. *CyberPsychology & Behavior*, 3(2), 211–218. <https://doi.org/10.1089/109493100316067>
- Hagerty, B. M., & Patusk, K. (1995). Developing a measure of sense of belonging. *Nursing Research*, 44(1), 9–13. <https://doi.org/10.1097/00006199-199501000-00003>
- Hall, J. A., Kearney, M. W., & Xing, C. (2018). Two tests of social displacement through social media use. *Information, Communication, & Society*, 22(10), 1396–1413. <https://doi.org/10.1080/1369118X.2018.1430162>
- Hawkley, L. C., Browne, M. W., & Cacioppo, J. T. (2005). How can I connect with thee? Let me count the ways. *Psychological Science*, 16, 798–804. <https://doi.org/10.1111/j.1467-9280.2005.01617.x>

- Hawkey, L. C., & Cacioppo, J. T. (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annals of Behavioral Medicine*, 40(2), 218–227. <https://doi.org/10.1007/s12160-010-9210-8>
- Houghton, S., Lawrence, D., Hunter, S. C., Rosenberg, M., Zadow, C., Wood, L., & Shilton, T. (2018). Reciprocal relationships between trajectories of depressive symptoms and screen media use during adolescence. *Journal of Youth and Adolescence*, 47, 2453–2467. <https://doi.org/10.1007/s10964-018-0901-y>
- Jose, P. E., Ryan, N., & Pryor, J. (2012). Does social connectedness promote a greater sense of well-being in adolescence over time? *Journal of Research on Adolescence*, 22(2), 235–251. <https://doi.org/10.1111/j.1532-7795.2012.00783>
- Kaiser Family Foundation/The Economist. (2018). *Loneliness and social isolation in the United States, the United Kingdom, and Japan: An international survey*. <http://files.kff.org/attachment/Topline-Kaiser-Family-Foundation-The-Economist-Survey-on-Loneliness-and-Social-Isolation-in-the-United-States-the-United-Kingdom-and-Japan>
- Kraut, R., Kiesler, S., Boneva, B., Cummings, J. N., Helgeson, V., & Crawford, A. M. (2002). Internet paradox revisited. *Journal of Social Issues*, 58(1), 49–74. <https://doi.org/10.1111/1540-4560.00248>
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53(9), 1017–1031. <https://doi.org/10.1037/0003-066X.53.9.1017>
- Lambert, N. M., Stillman, T. F., Hicks, J. A., Kamble, S., Baumeister, R. F., & Fincham, F. D. (2013). To belong is to matter: Sense of belonging enhances meaning in life. *Personality and Social Psychology Bulletin*, 39(11), 1418–1427. <https://doi.org/10.1177/0146167213499186>
- Leary, M. R., Kelly, K. M., Cottrell, C. A., & Schreindorfer, L. S. (2013). Construct validity of the need to belong scale: Mapping the nomological network. *Journal of Personality Assessment*, 95(6), 610–624. <https://doi.org/10.1080/00223891.2013.819511>
- Lim, M. H., Rodebaugh, T. L., Zyphur, M. J., & Gleeson, J. F. (2016). Loneliness over time: The crucial role of social anxiety. *Journal of Abnormal Psychology*, 125(5), 620–630. <https://doi.org/10.1037/abn0000162>
- Liu, Q., Shao, Z., & Fan, W. (2018). The impact of users' sense of belonging on social media habit formation: Empirical evidence from social networking and microblogging web-sites in China. *International Journal of Information Management*, 43, 209–223. <http://dx.doi.org/10.1016/j.ijinfomgt.2018.08.005>
- Lohmeier, J. H., & Lee, S. W. (2011). A school connectedness scale for use with adolescents. *Educational Research and Evaluation*, 17(2), 85–95. <https://doi.org/10.1080/13803611.2011.597108>
- Malone, G. P., Pillow, D. R., & Osman, A. (2012). The General Belongingness Scale (GBS): Assessing achieved belongingness. *Personality and Individual Differences*, 52(3), 311–316. <https://doi.org/10.1016/j.paid.2011.10.027>
- Maslow, A. H. (1968). *Toward a psychology of being*. D. Van Nostrand Company.
- Miller, J. D. (2016). Longitudinal study of American youth, 1987–1994, 2007–2011. User guide. *Inter-University Consortium for Political and Social Research*. <https://doi.org/10.3886/ICPSR30263.v6>
- Mucci, F., Mucci, N., & Diolaiuti, F. (2020). Lockdown and isolation: Psychological aspects of COVID-19 pandemic in the general population. *Clinical Neuropsychiatry: Journal of Treatment Evaluation*, 17(2), 63–64. <https://doi.org/10.36131/CN20200205>
- Neel, C. G., & Fuligni, A. (2013). A longitudinal study of school belonging and academic motivation across high school. *Child Development*, 84(2), 678–692. <https://doi.org/10.1111/j.1467-8624.2012.01862.x>
- Newman, B. M., Lohman, B. J., & Newman, P. R. (2007). Peer group membership and a sense of belonging: Their relationship to adolescent behavior problems. *Adolescence*, 42 (166), 241–263. PMID: 17849935
- Office for National Statistics [ONS]. (2018). *Loneliness—What characteristics and circumstances are associated with feeling lonely? Analysis of characteristics and circumstances associated with loneliness in England using the Community Life Survey, 2016 to 2017*. UK Office for National Statistics. <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/lonelinesswhatcharacteristicsandcircumstancesareassociatedwithfeelinglonely/2018-04-10>
- Pittman, L. D., & Richmond, A. (2007). Academic and psychological functioning in late adolescence: The importance of school belonging. *Journal of Experimental Education*, 75(4), 270–290. <https://doi.org/10.3200/jexe.75.4.270-292>
- Przybylski, A. K., & Weinstein, N. (2017). A large-scale test of the Goldilocks hypothesis: Quantifying the relations between digital screen use and the mental well-being of adolescents. *Psychological Science*, 28(2), 204–215. <https://doi.org/10.1177/0956797616678438>
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Touchstone Books/Simon & Schuster.
- Russell, D., Peplau, L., & Cutrona, C. (1980). The revised UCLA Loneliness Scale: Concurrent and discriminant validity evidence. *Journal of Personality and Social Psychology*, 39, 472–480. <https://doi.org/10.1037/0022-3514.39.3.472>
- Schneider, F. M., Zwillich, B., Bindl, M. J., Hopp, F. R., Reich, S., & Vorderer, P. (2017). Social media ostracism: The effects of being excluded online. *Computers in Human Behavior*, 73, 385–393. <http://dx.doi.org/10.1016/j.chb.2017.03.052>
- Song, H., Zmyslinski-Seelig, A., Kim, J., Drent, A., Victor, A., Omori, K., & Allen, M. (2014). Does Facebook make you lonely? A meta-analysis. *Computers in Human Behavior*, 36, 446–452. <https://doi.org/10.1016/j.chb.2014.04.011>
- Spears, R., Postmes, T., Lea, M., & Wolbert, A. (2002). When are net effects gross products? The power of influence and the influence of power in computer-mediated communication. *Journal of Social Issues*, 58(1), 91–107. <https://doi.org/10.1111/1540-4560.002>
- Steinfeld, C., Ellison, N. B., & Lampe, C. (2008). Social capital, self-esteem, and use of online social network sites: A longitudinal analysis. *Journal of Applied Developmental Psychology*, 29(6), 434–445. <http://dx.doi.org/10.1016/j.appdev.2008.07.002>
- Takahira, M., Ando, R., & Sakamoto, A. (2008). Effect of Internet use on depression, loneliness, aggression and preference for internet communication: A panel study with 10- to 12-year-old children in Japan. *International*

- Journal of Web Based Communities*, 4(3), 302–318. <https://doi.org/10.1504/IJWBC.2008.019191>
- Tankovska, H. (2021, January 28). *Percentage of U.S. population who currently use any social media from 2008 to 2019*. Statista. <https://www.statista.com/statistics/273476/percentage-of-us-population-with-a-social-network-profile/#:~:text=In%20the%20United%20States%2C%20an,exceed%20257%20million%20by%202023>
- Tidwell, L. C., & Walther, J. B. (2002). Computer-mediated communication effects on disclosure, impressions, and interpersonal evaluations. *Human Communication Research*, 28, 317–348. <https://doi.org/10.1111/j.1468-2958.2002.tb00811.x>
- Valkenburg, P. M., Koutamanis, M., & Vossen, H. G. (2017). The concurrent and longitudinal relationships between adolescents' use of social network sites and their social self-esteem. *Computers in Human Behavior*, 76, 35–41. <https://doi.org/10.1016/j.chb.2017.07.008>
- Valkenburg, P. M., & Peter, J. (2007). Preadolescents' and adolescents' online communication and their closeness to friends. *Developmental Psychology*, 43, 267–277. <https://doi.org/10.1037/0012-1649.43.2.267>
- Valkenburg, P. M., & Peter, J. (2009). Social consequences of the internet for adolescents: A decade of research. *Current Directions in Psychological Science*, 18(1), 1–5. <https://doi.org/10.1111/j.1467-8721.2009.01595.x>
- Valkenburg, P. M., & Peter, J. (2011). Online communication among adolescents: An integrated model of its attraction, opportunities, and risks. *Journal of Adolescent Health*, 48(2), 121–127. <https://doi.org/10.1016/j.jadohealth.2010.08.020>
- VanderWeele, T. J., Hawkey, L. C., Thisted, R. A., & Cacioppo, J. T. (2011). A marginal structural model analysis for loneliness: Implications for intervention trials and clinical practice. *Journal of Consulting and Clinical Psychology*, 79, 225–235. <https://doi.org/10.1037/a0022610>
- Vanhalst, J., Luyckx, K., Scholte, R. H., Engels, R. C., & Goossens, L. (2013). Low self-esteem as a risk factor for loneliness in adolescence: Perceived—but not actual—social acceptance as an underlying mechanism. *Journal of Abnormal Child Psychology*, 41(7), 1067–1081. <https://doi.org/10.1007/s10802-013-9751-y>
- Verduyn, P., Ybarra, O., Resibois, M., Jonides, J., & Kross, E. (2017). Do social network sites enhance or undermine subjective well-being? A critical review. *Social Issues and Policy Review*, 11(1), 274–302. <https://doi.org/10.1111/sipr.12033>
- Vincent, E. A. (2016). *Social media as an avenue to achieving sense of belonging among college students. Ideas and Research You Can Use: VISTAS*. https://www.counseling.org/docs/default-source/vistas/social-media-as-an-avenue.pdf?sfvrsn=f684492c_8
- Walton, G. M., Cohen, G. L., Cwir, D., & Spencer, S. J. (2012). Mere belonging: The power of social connections. *Journal of Personality and Social Psychology*, 102(3), 513–532. <https://doi.org/10.1037/a0025731>
- Weiss, R. S. (Ed.). (1973). *Loneliness: The experience of emotional and social isolation*. MIT Press.
- Zhou, M., Cai, X., Liu, Q., & Fan, W. (2019). Examining continuance use on social network and micro-blogging sites: Different roles of self-image and peer influence. *International Journal of Information Management*, 47, 215–232. <http://dx.doi.org/10.1016/j.ijinfomgt.2019.01.010>