Creating, Consuming, and Connecting: Examining the Relationship Between Social Media Engagement and Loneliness

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Abstract

This study explores the relationship between social media attitudes and behaviors and loneliness among college students. The study looks at the interaction of loneliness with three popular social media platforms (Facebook, Twitter, and Instagram), as well as how often those students create and/or consume content within each platform. A survey administered to 432 undergraduates at two universities in the Pacific Northwest identified a significant relationship between social media attitudes and behaviors and offline

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loneliness. In particular, as students' affinity for Twitter and Instagram increased, their self-reported loneliness decreased. Similarly, the more they both created and consumed content within Twitter and Instagram, the more reported loneliness decreased. No significant correlations among attitudes, behaviors and loneliness were found for Facebook usage.

As the number of worldwide mobile phone subscriptions exceeds 7 billion (ITU, 2014) and with 68% of American adults owning smartphones (Pew, 2014), more and more people are using their phones to connect to the Internet and to each other. A recent study (Mihailidis, 2014) found that college students in particular are tethered to their mobile devices through social networking applications. These applications range in purpose from general updates (Facebook), to text, photo, or video-specific posts (Twitter, Instagram, & Vine, respectively), to democratized news feeds (Reddit, Digg).

All of these applications strive to connect people in some way. But is social media really social? Does it connect people in a way that is meaningful, or are these "connections" merely superficial? Are heavy users of social media lonelier or more connected than light or non-users? Because "social media" is a broad term that encompasses a wide array of platforms, any study of the relationship between social media and users' offline feelings of loneliness must account for different kinds of social media use. For example, does creating original content relate to more or less loneliness than browsing other people's content? Different gratification factors have been established (Chua,

Goh, & Lee, 2012) for users who contribute mobile content versus users who simply retrieve it, but research has yet to connect these findings to offline loneliness.

This study will test the relationship between various social media uses—from contributing original content to browsing others'— and offline loneliness. Attitudes toward specific platforms, as well as likelihood of content creation and consumption, were gauged in a survey of college students. Do users who actually create content experience less loneliness than those who just "like" things?

Loneliness

The Oxford English dictionary defines loneliness as "sadness because one has no friends or company." Loneliness is a serious problem in the United States. It poses risks, not only to emotional and social health, but also to physical well-being. Loneliness carries the same mortality risk as smoking and twice as much as obesity (Olien, 2014). College undergraduates—freshmen in particular—are susceptible to loneliness due to the social, emotional, and intellectual changes that come along with leaving home for the first time. The prevalence of suicide ideation (unusual preoccupation with taking one's own life) has found to increase with the degree of loneliness (Stravynski & Boyer, 2001), particularly among college students. The National Mental Health Association says that suicide is the second leading cause of death among 20- to 24-year-olds, and that one in twelve college students makes a suicide plan (NMHA, 2001).

Current technology may have exacerbated an issue raised by Riesman, Glazer, and Denny in their mid-twentieth century sociological analysis *The Lonely Crowd*

(1950). Using interdisciplinary methods from philosophy, history, popular culture, psychoanalysis, and sociology, they identify three main cultural personality types: tradition-directed, inner-directed, and other-directed. For most of human history, societies were tradition-directed, so they moved in a direction that was influenced by previous generations. Then, from the 15th to the 17th century, the Renaissance and Reformation ushered in a new inner-directed type of society. Individuals began to make decisions based on their own inner intellectual, social, and moral compasses, rather than past traditions. Inner-directed people develop their attitudes and beliefs at a young age, are typically confident, and sometimes rigid.

With the success of capitalism and the rise of a middle-class in the 20th century, people began to break away from past traditions and become more malleable. An other-direction began to take over, wherein social forces—how other people lived, what they consumed, their political views, etc.—became the driving influence on individual lives. It goes beyond simply desiring the esteem of one's contemporaries: "While all people want and need to be liked by some people some of the time, it is only the modern other-directed types who make this their chief source of direction and chief area of sensitivity" (Riesman, Glazer, & Denny, 1950, p. 23).

In a society of other-directed individuals, therefore, the prevalence of loneliness would indicate that people do not perceive that others like them. This is consistent with the definition of loneliness as sadness resulting from lack of friends or company. One of the ostensible goals of social media is to connect people and thus mitigate loneliness. Therefore Riesman et al.'s notion of an other-directed soci-

ety—one in which everyone's chief source of direction is to be loved rather than esteemed—is an appropriate theoretical context in which to study social media and loneliness.

Social Media

Basic research has been conducted into the relationship between social media use and offline loneliness. Studies have been done on mobile phone or Internet use and psychological well-being (Jin & Park, 2012; Chan, 2013; Whitty & McLaughlin, 2007), but those studies focused broadly on mobile communication and did not account for different kinds of interaction that social media affords users.

Other studies (Bonetti, Campbell, & Gilmore, 2010; Steafnone, Huang, & Lackaff, 2011) found positive correlations between loneliness and social media use, but also a positive influence of social networking sites on perceived social support. However, these studies failed to distinguish between the different kinds of engagement with social media, forcing users to minimally differentiate between "Facebook use" and "other online interaction."

As the dominant social networking site, Facebook has been the focus of much scholarly attention. Sheldon, Abad, and Hinsch (2011) found frequent Facebook usage to be positively correlated to relatedness satisfaction *and* relatedness dissatisfaction. Feelings of loneliness prompt more Facebook usage, which then results in feelings of loneliness' antithesis: connectedness. It is unclear what specific aspects of Facebook usage (posting, commenting, liking, etc.) were related to feelings of connection.

Nadkarni and Hoffman (2012) determined that people use Facebook primarily because of the need to belong

and the need for self-presentation (the ability to manage others' perception of one's self). Indeed, Kaplan and Haenlein (2010) found that, compared to other social media, Facebook offers users high levels of self-presentation. Yet, it is uncertain whether the presentation of one's self on Facebook (or any other social networking site) correlates to well-being offline.

However, initial steps have been taken. Lou, Yan, Nickerson, and McMorris (2012) explored the reciprocal relationship between loneliness and Facebook use. While the study failed to establish reciprocity, it did demonstrate that intense Facebook use mitigated loneliness. The authors developed a scale to measure Facebook intensity that accounted for an individual's number of friends, amount of time spent on Facebook, attitude toward Facebook, and extent of Facebook use. It is this last category, "extent of Facebook use," that research has yet to expand upon. What constitutes extensive social media use for one individual might seem trivial to another, and uses vary from one social networking site to another. Specifically, it is plausible that contribution to social media (commenting, posting, messaging, etc.) has different relationships than mere retrieval from social media (browsing, looking up information, etc.), though this has yet to be demonstrated.

Content Creation and Consumption

Kaplan and Haenlein (2010) argue that user-generated content is essential in defining social media. They note that the term "social media" gained popularity around 2005 and is "usually applied to describe the various forms of media content that are publicly available and created by end-users" (Kaplan & Haenlein, 2010, p. 61).

Thus, social media is often understood as different from traditional mass media in terms of technology, modes of consumption, speed of communication, etc., but its content is also radically different. Instead of consisting primarily of media published or broadcast by institutions, social media lets individuals engage with content created by other users.

Engagement with user-generated content can include original content creation, remixing existing content, or simply browsing. Initial research has examined why people might create content as opposed to retrieving what already exists. For example, Chua et al. (2012) found that factors of leisure, entertainment, and easy access positively influenced contribution of content to a mobile network, whereas the need for information fueled content retrieval. Furthermore, Singh, Jain, and Kankanhalli (2009) used game theory to demonstrate that, even though users are inherently selfish agents, they repeatedly contribute to cooperative networks that offer them little to no online reward. Both of these studies suggest that online contribution has offline merits, but this relationship has yet to be demonstrated explicitly.

Literature is lacking on the extent to which loneliness is related to the use of social media channels outside of Facebook, such as Twitter or Instagram. There is also a dearth of literature exploring the differences between *contribution to* and *consumption of* social media as they relate to user loneliness, or whether heavy users of one social media platform are likely to be heavy users of other platforms. Despite the popularity and variety of social media, the ways in which different kinds of engagement might translate into offline well-being remains understudied.

Present Study

Using the notion of "other-directed" individuals (Reisman et al., 1950) as a primary lens, this study draws on extant research to determine if Twitter and Instagram mitigate loneliness in the same way that Facebook does (Lou et al., 2012). Furthermore, because there are different motivations for content creation and consumption (Chua et al., 2012), this study seeks to assess the relationship of loneliness to how social media is used. While the primary motivation behind Facebook use has been identified as the need for self-presentation and connection (Nadkarni & Hoffman, 2012; Kaplan & Haenlein, 2010), testing two other social media platforms may shed light on what aspects of social media use are related to loneliness.

RQ1: Is affinity for social media inversely related to loneliness?

RQ2: Is there a significant difference in loneliness between those who create social media content and those who consume it?

Method
Procedure

After obtaining approval from the Institutional Review Boards at both universities, the researcher sent an email to students via the registrar (at the small university) and via Qualtrics using a list obtained from the registrar (at the large university). Students were invited to participate in an online survey that would ask about their social media usage and loneliness. In late Spring of 2014, 432 students took the questionnaire by clicking a link in the email that directed them to the Qualtrics website. Students took an average of 11 minutes to complete the sur-

vey. Of the 3,576 random students contacted via email, 432 completed the survey for a response rate of 12.0%.

Participants

A total of 432 undergraduate students from two universities in the northwest United States participated in the study during the spring term of 2014. Among 432 students, 403 (94%) had a Facebook account, 207 (52%) had a Twitter account, and 239 (61%) had an Instagram account. Most of the students (75%) of the students were between 18 and 23 years old, and 75% were female. A majority of the students ($n = 357$, 82.6%) attended a large public university, while some ($n = 75$, 17.4%) were from a small, private, religious university. It should be noted that the two schools are adjacent, share many facilities, and both were in session during the survey. Using two distinct collegiate populations should serve to increase external validity of the survey instrument.

Instrument

The instrument used in this study was adapted from the College Student Facebook Use Questionnaire (Lou, Yan, Nickerson, & McMorris, 2012). It included three components: social media attitude, social media behavior, and the UCLA Loneliness Scale.

Social media attitude. The social media platforms examined in this study are Facebook, Twitter, and Instagram. Because this study is attempting to differentiate between two types of social media engagement—creation and consumption—these platforms were selected for their popularity and range of involvement: Instagram (launched in 2010, 150 million active monthly users) lets users share

pictures; Twitter (launched in 2006, 115 million active monthly users) lets users share text (which can link to other media), and Facebook (launched in 2004, over one billion users) lets users share any combination of both.

In order to operationalize social media attitude and behavior, a Likert scale was adopted for this study from Lou et al.'s (2012) scale that measured Facebook intensity. For each platform, the user was asked a series of questions about attitude and behavior.

For attitude, several questions were asked about overlapping aspects of intensity of usage in order to increase validity. Responses options range from 1 as *strongly disagree* to 7 as *strongly agree*. For example, "Facebook has become a part of my daily activity" and "I prefer to communicate with friends outside of Facebook" are both related to attitude but are framed in opposite ways to maximize accuracy of self-reporting. This was recorded as a social media attitude scale. The higher the person's score, the more favorably he or she views that social media platform. That is, they are more likely to have a positive attitude toward a platform and spend time using it. The range in the attitude scale was from eight (lowest score on all eight questions) to 56 (highest score on all eight questions).

Social media behavior. For type of usage (creating and consuming behavior), eight questions were posed that asked respondents how likely they are to perform a certain action on that platform in the next week. Adapting from other studies that utilized perceived likelihood scales (Cepeda-Benito, & Short, 1998; Eveland, Nathanson, Detenber, & McLeod, 1999; Garbarino, & Strahilevitz, 2004; Bock, Zmud, Kim, & Lee, 2005), a Likert scale was used

with responses ranging from 1 as *very unlikely* to 7 as *very likely*. Sample questions include "post an original picture to Instagram" and "tweet someone using their @name" (Full set of questions in Appendix B).

These eight responses were then coded into two usage scales for creating and consuming. The four questions about actively creating content (original post, re-post something, comment on a post, and message someone) were recorded as the creating scale, while the four questions about more passive content consumption (browse your feed, "like" a post, click a link, browse someone else's feed) were recorded as the consuming scale. The range in both scales was from 4 (lowest score on all 4 questions) to 28 (highest score on all 4 questions). Cronbach's alpha indicated each scale was internally consistent: .774 (Facebook Creating Scale), .768 (Facebook Consuming Scale), .970 (Twitter Creating Scale), .890 (Twitter Consuming Scale), .748 (Instagram Creating Scale), and .801 (Instagram Consuming Scale). In general, a Cronbach's Alpha above a .7 is considered acceptable (Streiner & Norman, 1989).

Loneliness. This study used the UCLA Loneliness Scale (version 3) (Russell, 1996) to measure respondents' loneliness. It consists of 20 questions such as "How often do you feel that you are 'in tune' with the people around you?" and "How often do you feel that there is no one you can turn to?" The response format was a four-point Likert scale with possible answers ranging from "never" to "always." These points were added up to create a total loneliness score, with a higher score indicating greater loneliness.

The UCLA loneliness scale is a widely utilized tool

(Amichai-Hamburger & Ben-Artzi, 2003; Canary, & Spitzberg, 1993; Morahan-Martin & Schumacher, 2003) for gauging the loneliness of respondents. Results indicate it is highly reliable, "both in terms of internal consistency (coefficient alpha ranging from .89 to .94) and test-related reliability over a 1-year period (r = .73)" (Russell, 1996, p. 20). Furthermore, convergent validity is indicated through significant correlations with other measures of loneliness, and construct validity is supported by "significant relations with measures of the adequacy of the individual's interpersonal relationships, and by correlations between loneliness and measures of health and well-being" (Russell, 1996, p. 20). The range in the loneliness scale was from 0 (lowest score on all 20 questions) to 80 (highest score on all 20 questions).

How often are today's undergraduates lonely? Respondents were asked how often statements like "I have nobody to talk to" and "I feel left out" described them, with options being 1 ("never"), 2 ("rarely"), 3 ("sometimes"), or 4 ("often"). According to the students that took this survey, they are rarely lonely ($M = 39.78$, $SD = 14.1$), literally: the mean for all questions was 1.99, which falls very close to 2, or "rarely." The statement with the highest mean (2.42) was "I am unhappy doing so many things alone," and the one with the lowest (1.58) was "There is no one I can turn to." Reliability of the UCLA loneliness scale was confirmed with a Cronbach's alpha of .956.

Results
Descriptive Results

Attitudes. The first research question asked was: Is affinity for social media inversely related to loneliness?

Overall, students were apathetic about Facebook, but liked Twitter, and liked Instagram the most. Respondents were asked to rate their agreement with statements like "Facebook is fun" and "Twitter is entertaining" (full set of questions in Appendix A). As shown in Table 1, respondent attitudes were relatively ambivalent about Facebook, averaging 4.6 on a 7-point Likert scale, or about halfway between "neither agree nor disagree" and "somewhat agree" ($SD = 14.1$). Attitudes were slightly more positive toward Twitter, averaging 5.0 ("somewhat agree") on the scale ($SD = 10.8$). Respondents felt most positively about Instagram, averaging 5.5 (halfway between "somewhat agree" and "agree") on the scale ($SD = 7.0$).

Table 1

Means, Standard Deviations of Loneliness, Facebook Attitude, Twitter Attitude, and Instagram Attitude

Variables	Mean	*SD*	Min.	Max.
Loneliness (N= 379 respondents)[a]	39.78	14.1	20	79
Facebook Attitude (N=369)	4.6	5.8	8	49
Twitter Attitude (N=200)	5.0	10.8	8	56
Instagram Attitude (N=236)	5.5	7.0	8	56

[a] Significant difference was found in the loneliness scores at the two universities studied, $t(110.9) = 3.78$, $p < .001$.

The results indicated that respondents with positive attitudes about Twitter and Instagram were significantly less likely to be lonely. Pearson correlation coefficients were calculated to examine the relationships among Loneliness, Facebook Attitude, Twitter Attitude, and Instagram Attitude. The correlation coefficient between Loneliness and Twitter Attitude was negative and significant ($r = -.245$, $p = .001$), as was the correlation between Loneliness and Instagram Attitude ($r = -.264$, $p < .001$). The more positive the attitude, the less the respondent reported being lonely. In contrast, the relationship between Loneliness and Facebook Attitude was not significant ($r = .015$, $p > .05$). As attitude about Twitter or Instagram increased, loneliness decreased, especially for Instagram.

Research question one was partially answered in the affirmative: as attitudes toward social media increased, reported loneliness significantly decreased. However, this correlation was only found for Twitter and Instagram, not Facebook.

Creating and Consuming. The second research question asked was: Is there a significant difference in loneliness between those who create social media content and those who consume it? As shown in Table 2, students consume content on Facebook more than they create or share content with it. On a 7-point Likert scale of likelihood, the mean creating response was 3.8 ($SD = 6.0$), which means that in the next week, most respondents either "somewhat unlikely" (3) or "undecided" (4, the median value) as to whether or not they will create a new post, comment on a post, share a link, or message someone. However, the mean consuming response was 5.6 ($SD = 4.7$), which means that in the next week, most respondents

are either "somewhat likely" (5) or "likely" (6) to look at their wall, a friend's wall, click a link, or "like" a post.

Table 2

Means, Standard Deviations of Creating and Consuming Scales for Facebook, Twitter, and Instagram

Variables	Mean	SD
Facebook Creating Scale (N=370)[b]	3.8	6.0
Facebook Consuming Scale (N=327)	5.6	4.7
Twitter Creating Scale (N=197)	4.3	9.3
Twitter Consuming Scale (N=199)	4.3	7.9
Instagram Creating Scale (N=238)	3.6	5.4
Instagram Consuming Scale (N=237)	5.2	5.7

[B] For each variable the minimum value is 4 and the maximum value is 28.

Similarly, students consume images on Instagram more than they create or share content in it. The mean response for creating content in the next week was 3.6 ($SD =$ 5.4), and for consuming content it was 5.2 ($SD = 5.7$); both of these means align with those of Facebook. On the other hand, respondents were "somewhat likely" to both create

Twitter content ($M = 4.3$, $SD = 9.3$) and consume it ($M = 4.3$, $SD = 7.9$).

Fittingly, data show the relationships between loneliness and the creating and consuming scores for each platform are congruent with the relationship between loneliness and attitude toward that same platform. That is, only Twitter and Instagram had creating and consuming scores that corresponded to a decrease in loneliness. Pearson correlation coefficients were calculated to evaluate the relationship between Loneliness scores and the scales of creating and consuming for Facebook, Twitter, and Instagram.

The correlation coefficients between Loneliness and Twitter creation ($r = -.264$, $p<.001$) and Twitter consumption ($r = -.230$, $p = .001$) were both significant. Similarly significant were the correlation between Loneliness and Instagram creation ($r = -.146$, $p = .027$) and Instagram consumption ($r = -.171$, $p = .009$). In contrast, the relationships between Loneliness and Facebook creation ($r = .012$, $p > .05$) and Facebook consumption ($r = -.026$, $p > .05$) were not significant.

Research question two was answered in the negative: there was no significant *difference* in loneliness between those who create social media content and those who consume it, though both creation and consumption were significantly related to loneliness. The lack of correlation suggests that the more content the student creates or consumes on Twitter or Instagram, the less likely he or she will be report being lonely.

Discussion

In contrast to what some have feared—that constant social media use would make people more isolated

and significantly lonelier—the present study showed no evidence of that. On the contrary, individuals who liked and used social media more were less likely to report being lonely. It appears that college students today may be less susceptible to (or less aware of) the negative effects of loneliness than in the past. This is congruent with studies that have found a general decline in loneliness among college students over the past 35 years (Clark, Loxton, & Tobin, 2014). Clark et al. (2014) posit that, although adolescents might be more socially (physically) isolated today, they also see less of the need for physical relationships than in the past. Previous generations grew up satisfying the need for social connection through physical relationships, but adolescents today appear to be more comfortable satisfying that need—at least in part—through digitally mediated activity (Pittman & Tefertiller, 2015).

It should be noted that the loneliness question with the lowest mean was "There is no one I can turn to." The fact that students *do* feel like they have someone to turn to indicates that, at the very least, social media (and modern technology in general) offer people the ability to connect with others in a meaningful way when they need it most.

This study found that positive attitudes and usage of social media platforms indeed correlate to decreased loneliness, at least on Twitter and Instagram. While the study could not confirm a relationship between a user's loneliness and Facebook, a significant relationship was found between a user's loneliness and attitudes and behaviors for Twitter and Instagram. For both of those platforms, as affinity increased, loneliness decreased. Furthermore, as both kinds of behavior—content creation and content consumption—increased, loneliness similarly de-

creased.

For example, Chen (2011) found that the longer a person uses Twitter, the more it gratifies a need for connection. Marwick (2011) posits that the ability of people to tweet "at" a celebrity, and then have that celebrity publicly acknowledge them in a re-tweet or reply, leads to a sense of perceived intimacy between the two. Because this study found that a significant decrease in loneliness was linked to increased Twitter attitude and all manner of Twitter behavior, it may support this concept of mediated intimacy.

Of the three platforms in this study, Instagram is the newest and therefore the least studied in terms of its relationship to offline well-being. Yet the present study demonstrated its powerful relationship to mitigated loneliness. The relationship between loneliness and attitude toward Instagram was the most dramatic ($r = -.264$). This suggests that the more affinity one shows for Instagram, the less likely he or she is to report being lonely.

While previous studies (Nadkarni & Hoffman, 2012; Kaplan & Haenlein, 2010) have determined that people use Facebook to satisfy the need for self-presentation, the responses in this survey suggest that, for these college students, Instagram may have become the platform of choice for presenting one's self to others. When responding to the open-ended question about Instagram use, "sharing" was the most frequently cited answer (69 out of 205 responses, or 34%). Some responses illuminate this concept: "I like to share events or ideas and Instagram offers a more creative alternative to Twitter"; "share happenings in my own life, and catch up with others"; "sharing my experiences with friends", and so forth. The

word "share" was cited more often than "photo," "photographs," or "picture."

The need to present one's self—and the ability of certain social media platforms to meet that need—lead to a final note on loneliness. The three loneliness questions in this survey with the highest mean responses (where 2 equals "rarely" and 3 equals "sometimes") were "I am unhappy doing so many things alone" ($M = 2.42$), "I find myself waiting for people to call or write" ($M = 2.27$), and "I feel left out" ($M = 2.29$). These questions demonstrate the paradox of social media: people are afraid of missing out, so they broadcast the beautiful or interesting moments of their life to the world, which then makes other people think *they* are missing out.

The power of universal, ubiquitous, and incessant self-presentation creates a sort of Emperor's new clothes effect, where everyone has a sneaking suspicion that what we are seeing isn't real, but we would rather participate in the collective charade than be alone. Yet, as this study suggests, Twitter and Instagram attitudes and behaviors are indeed significantly related to a decrease in reported loneliness.

While significant relationships were not seen for Facebook, there are several possible explanations for these findings. Over a decade old, Facebook is not as "cool" as it once might have been. While it enjoys the most popularity in terms of number of users, Facebook was viewed the least favorably of the three platforms in this study of college-age users. Twitter, the "middle child" of the study, appropriately had fewer users than Facebook, but yielded more favorable attitudes. Instagram, the newest of the bunch, had the fewest number of users overall but the

most favorable attitudes.

Perhaps because today's college students no longer consider it cool or fun (how cool can something be when one's parents—and even grandparents—are also using it?), Facebook seems to have become a utility. It is increasingly required to log into other websites or applications, as several students noted in this study. An open-ended question asked respondents about their primary reason for using each social media platform. Facebook received the broadest range of answers, from communicating with friends or family, to coordinating events, to entertainment or alleviating boredom, to "creeping on others." Because Facebook has the broadest range of uses and users, it should not be surprising that a significant relationship between it and loneliness will be increasingly difficult to gauge.

While Facebook involves "friending" people, Twitter requires "following" them, which is ostensibly less intimate. How, then, does Twitter's use relate to *decreased* loneliness? One theory that offers some insight is that of parasocial interaction (Horton & Wohl, 1956), which is a form of mediated involvement that occurs through repetitive exposure to celebrities. For the open-ended Twitter question in this survey, one of the more frequent responses involved following favorite celebrities, musicians, or comedians. As one respondent aptly answered, "To follow famous people, duh." It would seem, then, that the dynamics of Twitter allow users to feel connected to the people or profiles they follow, even when there is little chance of any authentic or physical interaction occurring with them.

Limitations

As with any survey, self-reported data is useful to a

point, but different methods of inquiry would help uncover the relationship between social media and offline well-being. Interviews, experiments, and longitudinal studies would help scholars continue to explore these salient and evolving intersections.

This study was also limited to undergraduates in a single city. The study of social media and loneliness with other demographics and in other areas could help scholars gain a better understanding of technological effects. Subsequent scholarship will also need to look beyond the specific social media platforms, which may come and go, to examine the underlying elements of interactive connectivity that define digital culture.

The study is also limited in that it treated college students as a monolithic block, while it could be that one's age and year in school (e.g freshman) could affect attitudes toward social media and loneliness. It could be that people at different stages in their college careers have both different media habits and different orientations toward loneliness. Additionally, college students are continually adopting new platforms for connection, often with different characteristics than the ones examined in this study. Exploring attitudes and usage on these new platforms, which can be anonymous and more ephemeral (e.g. YikYak and Snapchat), and comparing them to other platforms would give a richer understanding of college students' experiences.

Conclusion and Future Study

This study has implications for education: it found a significant difference (t (110.9) = 3.78, $p < .001$.) between the loneliness of the students at the large university ($M =$

40.86, $SD = 14.3$) and those at the small university ($M = 34.65$, $SD = 11.6$). The mean loneliness response for the large school was 2.04 (just above 2, which is "rarely"), and the mean response for the small school was 1.73 (between 2 and 1, which is "never")—a moderate but noticeable difference. This suggests that some element of the small university—smaller class size, more familiar student body, proximal dorm locations, etc.—might be responsible for a greater feeling of connection, but this proposition requires further study.

Overall, it seems that in terms of loneliness, it does not matter how one uses social media, only that one does in fact use them. There seems to be little difference in terms of loneliness between creating content and consuming content, in part because users rarely do just one—they are frequently creating *and* consuming alternately, and sometimes simultaneously. Future research will need to account for this overlap while finding news ways to explore the wide range of social media activity that gets broadly labeled "use." Popular platforms may come and go, but the general phenomena of digital applications striving to mediate our social lives are here to stay. As technology becomes more prevalent in individuals' everyday lives, it is increasingly important to examine the impact of all iterations of social media on online and offline well-being.

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Appendix A

Descriptive Statistics of Attitude questions, ranging from 1 ("Strongly Disagree") to 7 ("Strongly Agree")

	N	Mean	Std. Dev.
1) Facebook has become a part of my daily activity	373	5.34	1.715
2) Facebook is a distorted version of reality	372	3.01	1.620
3) I would rather communicate on Facebook than in person	373	2.16	1.408
4) I feel disconnected if I go a few days without checking Facebook	373	3.47	1.822
5) Facebook is a waste of time	373	3.45	1.413
6) Facebook is a good way to make plans	370	5.28	1.312
7) Facebook is a good way to keep up with old friends	373	5.90	1.043
8) Facebook is boring	373	3.74	1.424

Appendix A continued

Descriptive Statistics of Attitude questions, ranging from 1 ("Strongly Disagree") to 7 ("Strongly Agree")

	N	Mean	Std. Dev.
1) I rarely use Twitter	201	4.17	2.429
2) I think Twitter is fun to use	201	4.91	1.730
3) Tweeting people is a good way to get their attention	200	4.12	1.743
4) Twitter is educational	201	4.07	1.720
5) 140 characters just isn't enough to accurately express something important	201	3.63	1.785
6) Twitter is entertaining	201	5.21	1.655
7) I prefer Twitter for following or communicating certain events	201	3.98	1.940
8) Twitter is boring	201	4.68	1.847

Appendix A continued

Descriptive Statistics of Attitude questions, ranging from 1 ("Strongly Disagree") to 7 ("Strongly Agree")

	N	Mean	Std. Dev.
1) Instagram has become a part of my daily activity	239	5.41	1.789
2) Instagram is boring	239	5.27	1.361
3) Instagram is a good way to communicate with some people	239	3.04	1.499
4) Instagram distorts reality	239	3.39	1.704
5) Instagram is a good way to kill time	239	5.58	1.378
6) I rarely use Instagram	239	5.15	1.795
7) Sharing photos is a good way to communicate who I am	238	5.01	1.378
8) Instagram is a good way to capture and share moments	237	5.95	1.001

Appendix B

	N	Min.	Max.	Mean	Std. Dev.
Descriptive Statistics of Behavior questions, ranging from 1 ("very unlikely") to 7 ("very likely")					
In the next WEEK or so, how likely will you be to...-Post an original status update to Facebook (e.g.,"I think this" or "I saw that movie")	372	1	7	2.62	1.986
In the next WEEK or so, how likely will you be to...-Share a story, link, or video to Facebook	373	1	7	3.40	2.097
In the next WEEK or so, how likely will you be to...-Look around on your news feed	372	1	7	6.25	1.168
In the next WEEK or so, how likely will you be to...-"Like" something (a post, a video, etc.)	373	1	7	5.79	1.632

Appendix B continued

Descriptive Statistics of Behavior questions, ranging from 1 ("very unlikely") to 7 ("very likely")

	N	Min.	Max.	Mean	Std. Dev.
In the next WEEK or so, how likely will you be to...-Comment on something (a post, a video, etc.)	373	1	7	4.59	1.885
In the next WEEK or so, how likely will you be to...-Click a link or video that someone else posted	373	1	7	5.60	1.462
In the next WEEK or so, how likely will you be to...-Send someone a message or put something on their wall	371	1	7	4.76	1.784
In the next WEEK or so, how likely will you be to...-Click around through someone else's activity, friends, photos, etc.	373	1	7	4.85	1.836

Appendix B continued

Descriptive Statistics of Behavior questions, ranging from 1 ("very unlikely") to 7 ("very likely")

	N	Min.	Max.	Mean	Std. Dev.
In the next week or so, how likely will you be to....-Tweet something	200	1	7	4.52	2.506
In the next week or so, how likely will you be to....-Re-Tweet something	199	1	7	4.46	2.461
In the next week or so, how likely will you be to....-Look through my Twitter feed	200	1	7	5.06	2.364
In the next week or so, how likely will you be to....-"Favorite" a tweet	199	1	7	4.84	2.427
In the next week or so, how likely will you be to....-Reply to a tweet	199	1	7	4.19	2.338
In the next week or so, how likely will you be to....-Look through some else's profile or Twitter feed	200	1	7	4.14	2.210

Descriptive Statistics of Behavior questions, ranging from 1 ("very unlikely") to 7 ("very likely")

	N	Min.	Max.	Mean	Std. Dev.
In the next week or so, how likely will you be to....-Check my (or someone else's) following/ followers list	200	1	7	3.09	2.079
In the next week or so, how likely will you be to....-Tweet with someone using their Twitter @name	200	1	7	4.14	2.364
In the next week or so, how likely will you be to...-Post a picture or video	239	1	7	4.86	1.944
In the next week or so, how likely will you be to...-Re-post a picture or video	239	1	7	1.87	1.270
In the next week or so, how likely will you be to...-Look through your Insta-gram feed	238	1	7	6.05	1.631
In the next week or so, how likely will you be to...-"Like" a post	238	1	7	6.13	1.505

Appendix B continued

Descriptive Statistics of Behavior questions, ranging from 1 ("very unlikely") to 7 ("very likely")

	N	Min.	Max.	Mean	Std. Dev.
In the next week or so, how likely will you be to...-Comment on a post	238	1	7	4.39	1.845
In the next week or so, how likely will you be to...-Look through someone's profile	239	1	7	4.91	1.861
In the next week or so, how likely will you be to...-"Explore" random posts	239	1	7	3.67	2.101
In the next week or so, how likely will you be to...-Communicate with someone using their Instagram @name	239	1	7	3.41	2.019
Valid N (listwise)	149				