Finding Friends: The Role of Loneliness on the Formation of Online Friendships Among Adolescents

Brandon Dreslin[1,2] and Meagan Elizabeth Hedrick[1,#]

[1]Exploring Careers and Education in Leadership (ExCEL) Magnet Program, Largo High School
[2]Department of Human Factors and Behavioral Neurobiology, Embry-Riddle Aeronautical University
[#]Advisor

Author Note: We have no conflicts of interest to disclose. Brandon Dreslin is now affiliated with Embry-Riddle Aeronautical University. Correspondence concerning this article should be addressed to Brandon Dreslin, Department of Human Factors and Behavioral Neurobiology, Embry-Riddle Aeronautical University, 1 Aerospace Blvd, Daytona Beach, FL 32114, USA. Email: dreslinb@my.erau.edu

ABSTRACT

Today's teens communicate with their friends through many online social platforms and digital mediums. It might be believed that increasing levels of social connectedness through the internet must decrease feelings of loneliness among younger generations. Paradoxically, however, loneliness may be affecting more adolescents than ever before. This study investigates the role loneliness plays in adolescents' abilities to form and maintain online friendships. Three hypotheses were formed to gain insight into the research question. Self-reported answers to measures of social and emotional loneliness, as well as friendships, were provided by 56 American high school and college students 15-20 years of age through an online survey and a post-survey interview. A multiple regression analysis was conducted on the quantitative data and a content analysis was performed on the qualitative data obtained from data collection. Results from statistical testing and qualitative analysis indicate that (a) gender is not a significant predictor of loneliness, (b) education level is a significant predictor of loneliness, and (c) even though many participants felt less lonely while communicating with their online friends, no conclusions can be made on whether forming and maintaining online friendships circumvents loneliness. Several reasons may explain the inconclusive hypothesis. Regardless, multiple motivations exist for why adolescents form and/or maintain an online friendship. Overall, this research presents a unique perspective on how adolescents feel and function in the digital age.

Introduction

Loneliness can be described as "a painful emotional state created by the gap between desired and perceived social connection," and is constantly being identified as a cause for concern for children by adolescent psychologists (Lisita et al., 2020). Technology and the internet have only compounded the issue. In fact, many professionals and influencers have referred to this ongoing phenomenon as the "loneliness epidemic" (Sime & Collins, 2019; D'Avella, 2019). But the internet has provided people the opportunity to cure their loneliness through a novel idea: chat rooms. The idea is simple – people log in to a chat room where they meet and communicate with anyone who is also logged into the chat room. Formally known as friendship networking sites (FNSs) or social networking sites (SNSs), these chat rooms give anyone the ability to talk to strangers from all over the world. These websites are especially popular among teenagers and young adults (Mubarak et al., 2009). Certainly, then, a connection must exist between loneliness and online friendships among children. Previous research has focused on either loneliness among adolescents or how SNSs affect people; however, few studies have combined these two topics into one.

The purpose of this study was to investigate how loneliness and the usage of online communication impacts the formation and maintenance of online friendships among adolescents. The gap identified in the current body of research, in combination with the study's purpose, led to the formation of the following research question: does loneliness affect the formation and maintenance of online friendships among adolescents? Three hypotheses (H1-3) were developed to answer this research question.

H1: Gender predicts social and emotional loneliness.
H2: Education level predicts social and emotional loneliness.

H3: Forming and maintaining online friendships will thwart social and emotional loneliness (companionship hypothesis).

Literature Review

Motivations For Forming Online Friendships

Several factors motivate teenagers to seek, form, and maintain friendships in the online environment. One prevalent factor is shyness. In a recent study that surveyed 389 high school adolescents in a Swedish town, researchers determined that maintaining online friendships may be beneficial for shy adolescents (Zalk et al., 2014). The authors further state that online friendships may lead to a higher likelihood of forming conjoint and face-to-face (FtF) friendships among shy adolescents. Thus, online communication could not only make it easier for shy children to develop fruitful online friendships, but it could also help them develop meaningful relationships in the offline environment. Baker and Oswald (2010)—who emphasized the relationship between shyness and the usage of SNSs—concluded that Facebook usage for shy individuals was positively associated with satisfaction, importance, and closeness of Facebook friends, but not with non-Facebook friends. Moreover, shy Facebook users report that they feel closer to their Facebook friends, but more detached from their non-Facebook (oftentimes offline-exclusive) friends. The researchers suggest that if shy people communicate via social networking sites, they will experience a greater perceived amount of social support, which can allow them to blossom out of their shell of shyness.

Other motivations affect how and why adolescents form online friendships. Baker and Oswald (2010) briefly mention that non-Facebook users have a poorer perceived amount of social support, regardless of whether the participant was shy or not. A study of 987 Israeli adolescents discovered that they seek friendships in the online context because of a lack of social support in the offline environment. (Mesch & Talmud, 2006). The study also identifies another motivation for forming online friendships: interpersonal conflicts. The authors' analyses indicate that online friendship formation was a strategy employed by adolescents who reported having conflicts with parents or legal guardians. Perhaps most revealing is the fact that adolescents that form online friendships do not appear to be lonelier, but that they report relationship conflicts and utilize online communication in search of social support beyond their offline social circle. Peter et al. (2005) attributes the lack of social support to the social compensation motive, wherein people feel the need to compensate for the lack of attention given by others. They conclude that this motive fosters communication with online peers and allows adolescents to show their true selves online, thus underpinning the motivations for coping with shyness and seeking a beneficial support network.

Perceived Quality and Intimacy of Online Friendships

Contradicting findings exist in regards to whether an online environment stimulates a higher perceived quality relationship. For instance, Hong-Yee Chan et al. (2014) investigated whether the concept of 'virtual intimacy' was present in the youth of Hong Kong who maintain online friendships and are viewed as socially isolated and lacking in social skills. 357 youth participants between 12 through 30 years old were contacted and recruited through the internet. Results indicate that offline friendships have a significantly higher overall friendship quality than online friendships. However, online friendships possess a significantly higher level of intimacy than offline relationships. While offline friends possessed higher scores in various friendships quality domains such as network convergence and commitment, online friends demonstrated higher scores in the domains of breadth and depth. Akin to Leung and McBride-Chang (2013), the authors attribute their results to the anonymity of the online environment. In contrast to Leung and McBride-Chang, Hong-Yee Chan et al. believes that remaining anonymous is crucial to having a healthy online friendship because it encourages self-disclosure and lowers the risk of embarrassment and disappointment caused by the fear of being rejected. As such, it appears that the concept of 'virtual intimacy' does indeed exist in the online context.

Many studies concluded that virtual intimacy is significantly higher in offline settings. A study conducted through Hyve (a Dutch adolescent SNS) discovered that offline friendships had a perceived quality than online friendships. Mixed-mode friendships were rated similarly to offline friendships. Additionally, 'social attraction'—a key determinant in virtual intimacy—was highest in offline friendships, followed by mixed-mode, and finally by online friendships (Antheunis et al., 2012). An earlier Hong Kong-based study concurs with these findings, stating that Hong Kong adolescents rated the quality of their offline friendships as higher than that of their online friendships (Chan & Cheng, 2004). In this study, higher degrees of breadth, depth, code change, understanding,

interdependence, commitment, and network convergence were found in offline friendships than their online counterparts. A Germany-based study reinforces the Netherlands- and Hong Kong-based studies: analyses of adolescents' responses indicate that perceived quality and intimacy was significantly higher for offline contexts than mixed-mode or online contexts (Glüer & Lohaus, 2016). Diverging from previous conclusions, however, the researchers found that having an intimate online friendship can increase the code change and network convergence the same individuals' offline friends. Valkenburg and Peter (2007) disagree with this statement, divulging that for socially anxious and/or lonely children, communicating online appears to have a negative impact on the quality and intimacy of friendships, regardless of which context the friendship is categorized as.

Loneliness

Eric Moody's 2001 study on internet use and its relationship to loneliness is perhaps the most salient research conducted on the present study's topic. By surveying 166 undergraduate students enrolled in social psychology or introductory psychology classes at a small liberal arts university, Moody found that more offline friendships were associated with both lower social loneliness and lower emotional loneliness. In fact, high internet use was associated with decreased social loneliness. But the more participants relied on their online friends for communication, the greater their level of emotional loneliness. As he expected, the results indicate that individuals who spent more time online were "more likely to have higher rates of emotional loneliness and lower rates of social loneliness," which suggests that the impact of the internet on emotional well-being may be more complex than previously thought (Moody, 2001, p. 396). The correlation between high internet use and levels of social loneliness suggests that the internet can bolster a person's connection within the online social world, such as online friendships. Despite this, high internet usage also correlates with high emotional loneliness, which may contribute to emotional instability. In agreement with past research, he states the quality of online relationships in general are of a lower quality than FtF relationships. As such, Moody questions the importance of FtF social interactions for psychological health. By limiting social interaction to the internet, a person may be adversely affecting his or her well-being without their knowledge. Thus, more research must be conducted in order to gain more knowledge about the mediating role of loneliness on the formation of online friendships.

When discussing loneliness and the internet, the concept of finding one's 'true' or inner self (i.e., whether an individual feels that he or she could more easily share central aspects of identity with internet friends than with real-life friends and vice versa) becomes apparent. As a 'reactionary study' to Moody's groundbreaking research, McKenna et al. (2002) determined what role social anxiety and loneliness has on revealing the true self in an online environment. Results suggest that locating the 'true' or inner self on the internet is significantly more likely for those who experience higher levels of social anxiety and loneliness. In fact, the more people express facets of themselves on the internet not seen in the 'real-life' context, the more likely they are to "form strong attachments to those they meet on the internet" (McKenna et al., p. 24). Aligning with previous sources (e.g., Valkenburg et al., 2005; Mesch & Talmud, 2006), the authors state that those who have a more difficult time with traditional social interactions and who feel more isolated and lonely turn to the internet as a means of expressing facets of themselves that they are unable to express in their offline world.

Methods

This study was approved by the Pinellas County Schools Institutional Review Board. Two methods of data collection were employed: an online-exclusive questionnaire and a post-survey interview for participants who opted in to further discuss their experiences. Past research—including a few studies previously mentioned—primarily utilized either a paper or online questionnaire. A negligible number of studies employed interviews. Only two studies used a survey in combination with a post-survey interview. Thus, the mixed-methods approach to data collection employed by the current study ensures that sufficient data can be collected from participants. Moreover, the qualitative data obtained from the interview can be used to strengthen and corroborate the survey's results.

Sample

The online survey, hosted on SurveyMonkey, was distributed to 56 American adolescents between 15 and 20 years of age who currently have/have had experiences with both loneliness and forming/maintaining friendships. Although convenience and snowball sampling techniques were used for data collection, it is important to note that many

adolescents experience loneliness and/or online communication via technology at some point in their lives, so the non-probabilistic nature of these techniques is representative of the population. The 33-question survey consisted of five sections: (1) four questions about general demographic information, (2) 12 questions gauging social and emotional loneliness, (3) 13 questions regarding online friendships, (4) two questions about friendship quality, and (5) one question inquiring whether respondents would like to participate in the personal interview.

All participants lived in the continental United States. Survey results from participants who failed to meet the age requirement or who submitted an incomplete survey were discarded ex post facto. Data collection occurred during a period of three months between November 2020 and January 2021. If participants desired, they could contribute their personal anecdotes relating to loneliness and the formation/maintenance of online friendships through a post-survey interview.

Procedure

The online survey was distributed through SurveyMonkey's website link data collector. This link was shared to participants through word of mouth, Snapchat and Instagram, and direct messaging on these platforms. Respondents were prompted to read the informed consent form. They were also informed that their participation was voluntary and that, should they choose to withdraw from the study at any point, they could request their data be destroyed. Their decision to participate was kept in confidence and all answers remained confidential. Participants provided a digital signature to acknowledge their participation in the study. Finally, they were asked to answer the questions to the best of their ability. Participants completed the survey at their convenience.

Eleven participants contributed their personal anecdotes relating to loneliness and the formation/maintenance of online friendships through a 15- to 20-minute post-survey interview. These volunteers were contacted either through the email they provided in section one of the survey. Respondents chose between a recorded Zoom meeting or email communication to conduct the interview. Regardless of the medium, participants agreed to have their statements recorded, saved, and/or transcribed for future reference. During the interview, each participant was asked the following five questions:

1. How do you think loneliness has played a role in your everyday life?
2. In general, how do you cope with feelings of loneliness? When do you turn to your online friends for companionship?
3. Do you think your online friends make you less lonely? Why?
4. Do you feel more comfortable sharing personal problems with your in-person friends or your online friends?
5. What are your thoughts about friendships in general? Do they play an integral part of your life? Why do friendships matter to you? In your life, do online friendships carry the same importance as in-person friendships?

Measures

Social and Emotional Loneliness

12 questions[1], adapted from Version 3 of the UCLA Loneliness Scale (developed by Russell (1996)), gauged adolescent's perceived social and emotional loneliness. Possible response options were 1 (never), 2 (rarely), 3 (sometimes), and 4 (often). Four questions were reversed scored to account for the change of phrasing (negative to positive).

Current Number of Online Friends

One question prompted respondents to choose how many online friends they currently have according to three categories: (1) 0-5, (2) 6-10, or (3) 10 or more.

---

[1] 12 questions were used instead of the unabridged 20-question questionnaire. This was appropriate for gauging loneliness in the current study.

Motivations for Seeking Online Friendships

One question queried people to state their motivation(s) for forming online friends in one or two sentences.

Technological Mediums Used for Online Communication

Two questions asked participants to choose which mediums they interact with their online friends (social media, online forums, friendship networking sites, or a combination) and the method of communication (texting, phone/video calls, or a combination of both).

Frequency of Online Communication

Two questions assessed how long respondents communicated with their online friends. The first asked participants the frequency of communication by choosing from the following categories: once a week, a few times per week, daily, only when the participant wants to talk to them, or it depends on the friend. The second asked respondents to state the duration of their conversations with online friends by choosing from the following categories: 15 minutes to one hour, one hour or more, or responding throughout the day, whenever both parties get the chance to do so.

Topic Discussed During Online Communication

For one question, teenagers indicated what topics are discussed when communicating with online friends by checking all the checkboxes that applied. Categories included (1) school/work, daily life, life in general, (2) interests, hobbies, likes/dislikes, etc., (3) music, movies, video games, books, art, etc., (4) world events or politics, (5) stresses, personal problems, frustrations, etc., and/or (6) other (in which participants were asked to specify).

Perceived Quality of Friendships

One question allowed participants to rate the overall quality of their online friendships using a 1- (not good) to 10- (very good) point Likert scale. Additionally, participants were asked to list three qualities that constitute any good friendship. Finally, participants listed their three closest friends by first name only and specified whether each friend was offline-exclusive or online-exclusive.

Results

Survey

Demographics

Though the researcher attempted to obtain an even distribution of genders and educational cohorts, the limited scope of the study obviated equal distributions of participants among cohorts. More females ($n = 32$) completed the survey than did males ($n = 24$). 37 participants were high school students, while 19 were college students in their freshman or sophomore year. All participants were between 15 and 20 years old ($M = 17.42$).

Social and Emotional Loneliness

To test H1 and H2, a multiple regression analysis was conducted in IBM SPSS Statistics (Version 27) to see if gender and education level predicted social and emotional loneliness. The two independent variables were gender and education level. The dependent variable was social and emotional loneliness[2]. For gender, 'males' were coded as 1 and 'females' as 2. For education level, 'high school' was coded as 1 and 'college' as 2. No assumptions were violated prior to running the analysis. The omnibus test for the regression was significant, accounting for 14.2% of the variance, $F(2, 52) = 20.40$, $p = .034$, adjusted $R^2 = .142$. Gender was not a significant predictor of social and

---

[2] The UCLA Loneliness scale calculates social and emotional loneliness as one score; thus, a multivariate multiple regression analysis was inappropriate.

emotional loneliness. However, education level was a significant predictor of social and emotional loneliness, $p = .022$, $b = 2.27$, $t(53) = 4.65$.

Table 1 presents descriptive statistics for total scores on the UCLA Loneliness Scale (Version 3). A higher Average Loneliness (AL) score indicates a greater degree of loneliness (i.e., the person or cohort is lonelier than individuals or cohorts with lower total scores). AL was slightly higher among males (AL = 19.84, M = 20.40, SD = 7.44) than among females (AL = 19.17, M = 18.40, SD = 6.17). Although this suggests that, on average, more males felt lonelier than females, this small difference between scores may explain why gender was not a significant predictor of loneliness in the regression analysis. Additionally, more high school students felt lonelier (AL = 18.95, M = 18.90, SD = 7.20) than college students (AL = 7.20, M = 20.10, SD = 6.75). This confirms the analysis results indicating education level as a significant predictor of loneliness.

Table 1. Descriptive Statistics for Scores on the UCLA Loneliness Scale (Version 3)

Descriptive Statistics

Statistic	Males	Females	High School	College
n	24	32	37	19
Average Loneliness (AL)	19.84	19.17	18.95	7.20
M	20.40	18.40	18.90	20.10
SD	7.44	6.17	7.20	6.75
Range	7-32	10-32	7-32	8-31

Note: Higher AL scores indicate a higher degree of loneliness. Range indicates the range of total scores for individual participants. 7 suggests minimal loneliness, while 32 suggests severe loneliness.

Figure 1 displays individual answers to each of the 12 questions social and emotional loneliness questions (numbered 7 through 18 on the survey; see Appendix). Many participants felt in tune with people around them (i.e., they cooperate well and understand others) (Q7). Answers to Q8 were diverse, with many saying that they sometimes lack companionship. Participants never, rarely, or sometimes feel like they can turn to someone for help or advice (Q9). Many teenagers felt alone (Q10), sometimes left out (Q14), and isolated from others (Q16); yet interestingly, half of participants felt part of a friend group (Q11) and 83% felt close to people they know (Q12). Though 58% felt that some of their friendships were superficial (Q15), many believed that there were people who understood them (Q17) and that they could talk to (Q18). Preliminary analyses suggest that loneliness is more multi-faceted and complex than originally perceived. These results conflict with each other and do not provide a clear view of loneliness among adolescents, as they do not mirror the results of past studies that utilized this scale described in the literature review (e.g., Valkenburg, et al., 2005; Mesch & Talmud, 2006).
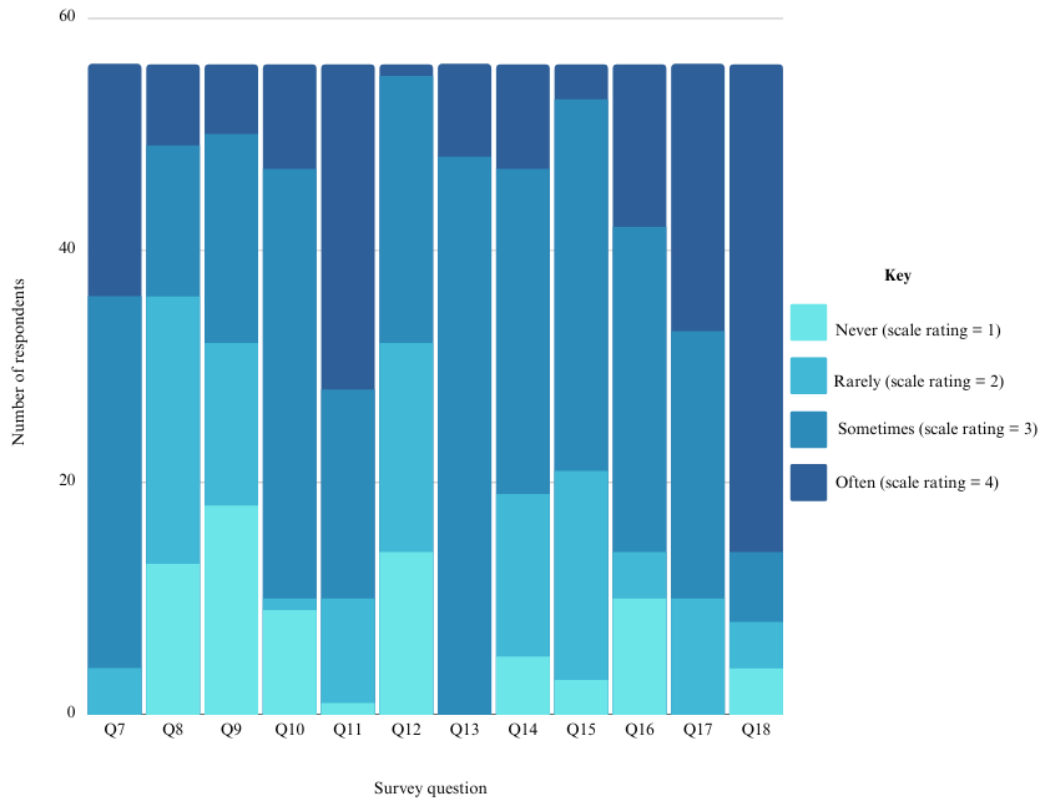
Figure 1. Aggregate Data from Participant Answers to UCLA Loneliness Scale (Version 3) Questions

Online Friendships and Loneliness

To determine whether the null should be rejected for H3, a content analysis was conducted for all the qualitative data provided by participants during the survey and interview. This analysis was appropriate because the researcher desired to extract common themes and sentiments from the data.

All participants must have formed and/or maintained at least one online friendship to participate in this study. At the time of survey distribution, 33 participants (58%) had zero to five friends, nine participants (17%) had six to 10 friends, and 14 participants (25%) had 10 or more friends ($M = 1.67$, $SD = 0.85$). Every participant interacted with their online friends through social media (e.g., Snapchat, Instagram, etc.), FNSs, or a combination of both. Most participants ($n = 38$) solely used social media as their communication medium of choice. Moreover, all participants had either a texting-only relationship with their online friends or a cross-medium relationship, which included communicating via text, phone calls, and video calls. No one had a phone/video call-only relationship. When queried about communication frequencies with online friends, half of the participants stated that it depends on the friend. The remaining half either interacted with their friends daily or a few times per week. Further, most respondents ($n = 38$) communicated with their online friends throughout the day, when both parties get a chance to do so. 18 respondents said that they interact with online friends either 15 minutes to one hour, or one hour or more. Again, however, time spent interacting depended on the friend. As such, both communication frequencies and time spent communicating can vary depending on which friend the person is talking to.

Most respondents ($n = 38$) felt less lonely when communicating with their online friends. The remaining respondents felt that their level of loneliness fluctuated depending on which friends they interact with. When asked if they felt closer to their in-person friends or online friends, 38 participants stated that they felt close to friends from both groups. 14 people did not feel closer and four believed that they were closer to their online friends. On a 1- to 10-point Likert scale measuring overall quality of online friendships, the mean rating was an 8, indicating a high degree of satisfaction.

These results appear to support the decision to reject the null. However, a more nuanced perspective will be introduced in later sections that may support retaining the null.

Discussion

Motivations For Forming Online Friendships

Though a multitude of compounding motivations exist to explain why adolescents form online friendships, the online questionnaire captured sentiments of similar motives from respondents: loneliness, boredom, the opportunity to meet new people, hindrances in forming FtF friendships, the anonymity of the internet (i.e., not being judged easily), and video games/online communities.

Extant literature outlines several rationales for why people form online friendships, but they evidently differ from the current study's results. Peter et al. (2005) attributes the formation of internet relationships to the social compensation motive; respondents from this study do not appear to indicate a need to compensate for the lack of attention given by others as a reason why they chose to obtain online friends. Additionally, shyness and social support motivations discovered by Zalk et al. (2014) and Baker and Oswald (2010) were not found to be a motivating factor. Interpersonal conflicts, as identified by Mesch and Talmud (2006), are not present as a motive in the current study.

Most participants indicated that their online friendships carried the same importance as their in-person friendships. In fact, one-third of people asserted that they feel close to both groups of friends. This aligns with the concept of 'virtual intimacy' established in previous research (e.g., Hong-Yee Chan et al., 2014). Though this study did not measure friendship quality domains (e.g., breadth and depth), one can predict that participants were more comfortable communicating personal details to online friends rather than offline friends because of the high satisfaction gained from possessing a virtual friendship. Further, respondent statements corroborate the idea that the inherent anonymity of the internet can produce healthier online friendships because it encourages more self-disclosure and lowers the risk of embarrassment and judgement, as found in both Hong-Yee Chan et al. (2014) and McBride-Chang (2013). According to one participant: "I feel much more comfortable sharing my personal problems with my online friends. One reason is that they are able to give an outside opinion on a situation they are not seeing in person." Another participant indirectly mentions the idea of self-disclosure for why their share more of their life to online friends, conveying that "most of my in-person friends don't know much about me, so I don't feel comfortable talking to them about certain things."

Interestingly, the results also conflict with previous research. For example, Chan and Cheng (2004) as well as Glüer and Lohaus (2016) found that Hong Kong and German adolescents (respectively) rated the quality of their online friendships worse than their offline friends. Antheunis et al. (2012) ascertained that social attraction was highest in offline friendships and lowest in online equivalents. This study contradicts these findings because participants found that they were socially attracted to their online friends to the same degree (or greater) as their offline friends.

Loneliness and the Mediating Role of Online Friendships

In alignment with previous research (e.g., McKenna et al., 2002; Valkenburg et al., 2005; Valkenburg & Peter, 2007), most respondents felt less lonely when communicating with their online friends. This suggests a verification of the companionship hypothesis. However, the participants who felt closer to their online friends were also the loneliest. This finding not only provides evidence to retain the null for H3, but also agrees with Moody's (2001) sentiments that the more people use the internet to communicate with others, the greater their levels of social and emotional loneliness. In fact, for one respondent, friends obtaining significant others has proven to increase her loneliness, which motivates her to seek new friends online: "if I ask a friend to hangout, or just talk, I am put on the back burner—'I can't right now, [significant other] wants to do this' or I will just be completely ignored." Another female respondent agrees that some online friends increase her loneliness, saying,

> "My first online friends actually made me lonelier in the beginning. Most of them weren't looking for real friendships, and none of them cared about me. I met several friends who I enjoyed talking to, only to find that they went offline and never came back. I was ghosted several times and almost gave up on online friendships as well."

The conflicting evidence for the companionship hypothesis means that no conclusions can be made. There may be methods to test this hypothesis through quantitative data instead of relying purely on qualitative analyses of qualitative data. However, such a mathematical approach is outside the scope of this study.

McKenna et al. (2002) mentions that the more people express themselves online, they are more likely to form strong attachments to those they meet on the internet. Respondents concur with this conclusion. These strong bonds appear to lend themselves to a feeling of less loneliness. One participant expresses the following:

> "The last person I met online was different. I met someone who really sparked my interest. We talked about everything under the moon. I soon realized that my new online friend truly cared about me. I wasn't lonely anymore after that night. I was able to share my worries, my dreams, and my life with him."

Another participant appears to have formed strong bonds with their online friends: "Now I will say when I see a message from one of my online friends, I get a smile on my face because I love talking to them. They give me another outlet that I desperately need. They give me an escape from my everyday life."

Limitations and Future Research

This study contained several limitations, all of which must be discussed. One limitation is the small sample size of only 56 adolescents. All previous studies exploring loneliness and virtual intimacy among adolescents who had online friends utilized samples of 100 or more participants. The lack of a larger sample for the current study may explain why some results conflicted with each other. Recruiting more participants for both the online questionnaire and the personal interview would have allowed for greater statistical power, and therefore more conclusions could have been drawn.

Furthermore, the limited number of studies focusing on this study's topic was a limitation, for there was no conclusive point of comparison. The work done by Moody (2001) and McKenna et al. (2002) were the only studies directly exploring adolescent loneliness in the digital epoch. However, some findings from each study conflicted the other, which ultimately led to a few notable findings being omitted. Additionally, the lack of modern research on this topic was a hindrance. Most studies were conducted in the beginning of the twenty-first century – a time when the impact of the internet was not known. Thus, the conclusions and implications are indisputably different than the present day. The lack of varied and modern research clearly hindered the ability to compare this study to past research.

This study presents numerous implications for future research. Conflicting results on the companionship hypothesis have made it clear that even though today's adolescents live in an age of technology everywhere, little is known about the long-term ramifications of loneliness and how they correlate to forming and maintaining an online friendship. This is the same conclusion that Moody (2001) reached through his work. Though two decades separate that study and this one, many questions remain the same. For example, will the 'loneliness epidemic' rage on, or will the formation of online friendships among all age groups qualm it? What happens to blossoming online friends who never meet in person? Will their friendship fade over time or will it grow stronger? What are the effects of dedicating one's time to online friendships on their in-person relationships? And, perhaps most importantly, how will forming online friendships in adolescence affect people as they grow older?

Conclusion

These queries certainly necessitate future investigations under greater detail to ascertain a better understanding on one facet of how the digital era affects younger generations, and most importantly, their friendships. When asked about the value and importance of friendships, one participant put it best:

> "Friendships can be the best or the worst thing that ever happens to you. My longest friendship is 20 years, while my shortest is 2 months. I have lost many friends in my life, but I have also gained many. Friendships will come and go, but you will continue to grow and become a better person as time passes, which is the most important part of life. Friendships matter to me because there is a reason you have met the people in your life. Maybe they will be in your life for a long time, or a short time, but you met them for a reason. One reason could be to dig you out of a rut a previous friend left you in, or to simply learn a new perspective. Most of my online friendships carry the same importance as my in-person friendships. I say most because some of my online friends I am still getting to know. There is one thing I would like to mention, for me when my online

friendships get to a certain point, I do not see them as "online" friends, I see them as real friends who are just as amazing, maybe even more so, than my real-life friends. I am very thankful for all the people I have met online. Isn't it crazy to think that if you weren't on a certain website or app at the same time as your online friends that you would have never met them? I couldn't imagine my life without these wonderful guys."

Acknowledgments

References

Antheunis, M. L., Valkenburg, P. M., & Peter, J. (2012). The quality of online, offline, and mixed-mode friendships among users of a social networking site. *Cyberpsychology, 6*(3), 1-11. https://doi.org/10.5817/CP2012-3-6

Baker, L. R., & Oswald, D. L. (2010). Shyness and online social network services. *Journal of Social and Personal Relationships, 27*, 873-889. https://doi.org/10.1177/0265407510375261

Chan, D. K. -S., & Cheng, G. (2004). A comparison of offline and online friendship qualities at different stages or relationship development. *Journal of Social and Personal Issues, 21*(3), 305-320. https://doi.org/10.1177/0265407504042834

D'Avella, M. [Matt D'Avella]. (2019, April 23). *The loneliness epidemic* [Video]. YouTube. https://www.youtube.com/watch?v=m3aIQuMWJCA

Glüer, M., & Lohaus, A. (2016). Participation in social network sites: Associations with the quality of offline and online friendships in German preadolescents and adolescents. *Cyberpsychology, 10*(2), 21-36. https://doi.org/10.5817/CP2016-2-2

Hong-Yee Chan, G., & Lo, T. W. (2014). Do friendship and intimacy in virtual communications exist? An investigation of online friendship and intimacy in the context of hidden youth in Hong Kong. *Revista de Cercetare Si Interventie Sociala, 47*, 117–136. Retrieved from https://www.researchgate.net/publication/286003607_Do_Friendship_and_Intimacy_in_Virtual_Communications_Exist_An_Investigation_of_Online_Friendship_and_Intimacy_in_the_Context_of_Hidden_Youth_in_Hong_Kong

Leung, A. N., & McBride-Chang, C. (2013). Game on? Online friendship, cyberbullying, and psychosocial adjustment in Hong Kong Chinese children. *Journal of Social & Clinical Psychology, 32*(2), 159-185. https://doi.org/10.1521/jscp.2013.32.2.159

Lisita, E., Benjamin, K.S., Chun, S. K., Skalisky, J., Hammond, L.E., & Mezulis, A.H. (2020). Loneliness among young adults during Covid-19 Pandemic: The mediational roles of social media use and social support seeking. *Journal of Social & Clinical Psychology, 39*(8), 708–726. https://doi.org/10.1521/jscp.2020.39.8.708

Periyakoil, V. J., & Quill, T. E. (2020). "The worst part is not the pain; it is the loneliness": Detecting and managing the silent epidemic of loneliness (FR477). *Journal of Pain & Symptom Management, 59*(2), 484. https://doi.org/10.1016/j.jpainsymman.2019.12.180

Sime, C., & Collins, S. (2019). Compassionate communities and collective memory: A conceptual framework to address the epidemic of loneliness. *British Journal of Community Nursing, 24*(12), 580-584. https://doi.org/10.12968/bjcn.2019.24.12.580

McKenna, K. Y. A., Green, A. S., & Gleason, M. E. J. (2002). Relationship formation on the internet: What's the big attraction? *Journal of Social Issues, 58*(1), 9-31. https://doi.org/10.1111/1540-4560.00246

McQuillan, S. (2020, February 1). *Ghosting: What it is, why it hurts, and what you can do about it*. Psycom. https://www.psycom.net/what-is-ghosting

Mesch, G. S., & Talmud, I. (2006). Online friendship formation, communication channels, and social closeness. *International Journal of Internet Science, 1*(1), 29-44. Retrieved from https://www.researchgate.net/profile/Gustavo_Mesch/publication/26495342_Online_Friendship_Formation _Communication_Channels_and_Social_Closeness/links/0c9605256d0f7a0ffa000000.pdf

Moody, E. (2001). Internet use and its relationship to loneliness. *CyberPsychology & Behavior, 4*(3), 393-401. https://doi.org/10.1089/109493101300210303

Mubarak, A. R., Rohde, A., & Pakulski, P. (2009). The social benefits of online chat rooms for university students: An explorative study. *Journal of Higher Education Policy and Management, 31*(2), 161-174. https://doi.org/10.1080/13600800802559310

Peter, J., Valkenburg, P. M., & Schouten, A. (2005). Developing a model of adolescent friendship formation on the internet. *CyberPsychology & Behavior, 8*(5), 423-430. https://doi.org/10.1089/cpb.2005.8.423

Valkenburg, P. M., & Peter, J. (2007). Preadolescents' and adolescents' online communication and their closeness to friends. *Developmental Psychology, 43*(2), 267-277. https://doi.org/10.1037/0012-1649.43.2.267

Valkenburg, P. M., Schouten, A. P., & Peter, J. (2005). Adolescent's identity experiments on the internet. *New Media and Society, 7*(3), 383-402. https://doi.org/10.1177/1461444805052282

Zalk, M. H. W., Zalk, N. V., Kerr, M., & Stattin, H. (2014). Influences between online-exclusive, conjoint and offline-exclusive friendship networks: The moderating role of shyness. *European Journal of Personality, 28*(2), 134-146. https://doi.org/10.1002/per.1895