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## There is More to Snapchat than Snapping: Examining Active and Passive Snapchat Use as Predictors of Anxiety in Adolescents

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THERE IS MORE TO SNAPCHAT THAN SNAPPING: EXAMINING ACTIVE AND  
PASSIVE SNAPCHAT USE AS PREDICTORS OF ANXIETY IN ADOLESCENTS

by

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Submitted in Partial Fulfillment  
of the requirements for the degree of  
Bachelor of Arts  
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## Abstract

Social media's adoption in society continues to increase, and past research has found significant relationships between social media use and anxiety in young adolescents. The current research focused solely on Snapchat, as it is currently one of the most popular platforms among adolescents; however, it is also one of the least researched. This research aimed to explore Active and Passive Snapchat Use as predictors of anxiety in adolescents over time. This study focused on what people are actually doing while using Snapchat rather than the amount of use. Adolescents ( $N = 105$ , 21.2% male and 78.8% female) from High Schools in Ontario, Canada in grade 9 to grade 12 completed an online survey, responding to questions about their anxiety levels and social media use, which included the developed Active and Passive Use measures. The same sample ( $N = 46$ , 15.6% male and 84.4% female) completed the survey again, 3 months later. It was hypothesized that participants who demonstrated higher frequencies of Active Snapchat Use at Time 1, would have decreased levels of anxiety at Time 2 (H1). It was also hypothesized that those who demonstrated higher frequencies of Passive Snapchat Use at Time 1, would have increased anxiety levels at Time 2 (H2). H1 and H2 were not supported, however, results indicated that higher frequencies of Active Snapchat Use at Time 1 predicted increased anxiety at Time 2. Results indicate the significance of different Snapchat-related behaviours on anxiety levels in adolescence. Study limitations and directions for future research are discussed.

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## Introduction

Over the years, the popularity and use of social media have increased substantially (Smith & Anderson, 2018). This rapid increase has given rise to emerging research focused on potential mental health related outcomes associated with increasing social media use on various platforms. Indeed, there are times when social media can be beneficial, including keeping us in touch with others or facilitating certain relationships. However, there are also negative correlates of increased use such as heightened depression and anxiety (Scott, Biello & Woods, 2019; Vaterlaus, Barnett, Roche & Young, 2016). Much of the existing social media research focuses mainly on more mature platforms such as Facebook, Twitter and Instagram. However, in recent years, the time-limited multimedia messaging application, Snapchat, has risen to the top of preferred social media sites among American adolescents (Clement, 2019). Yet, due to its more recent rise in popularity, limited research studies focus on Snapchat independently from the aforementioned social networks. In this study, I extend past social media research by utilizing a longitudinal design and focusing solely on Snapchat. The current research aims to investigate the relationship between Active (e.g., sending Snapchat messages to friends) and Passive (e.g., checking whereabouts of others on Snapchat maps) Snapchat Use as predictors of anxiety levels in adolescents.

According to a study conducted by Scott et al. (2019) which surveyed nearly 12 000 adolescents in the U.K., almost 21% of adolescents reported using social media for upwards of five hours daily. Additionally, researchers from the Hospital for Sick Children in Toronto found that in 2013, 11% of adolescents reported using social media for five or more hours a day and by 2017, this percentage had increased to 20%, almost doubling (Abi-Jaoude, Treurnicht Naylor, & Pignatiello, 2020). Based these findings, it is evident that social media use in adolescents

continues to increase and this highlights the importance of understanding its impacts on this age group. Furthermore, a study by Vannucci, Flannery and McCauley Ohannessian (2017) examined the relationship between amount of social media use and anxiety in emerging adults and found a significant positive correlation between time spent on social media and symptoms of anxiety. Another study by Pew Research Center (2019) found that over 70% of American adolescents between the ages of 13-17 years reported anxiety as a major problem in their lives. When taken together, all of these studies find increases in both social media use generally, and anxiety levels in adolescents. Some of these studies also find positive correlations between these two variables. However, by using cross-sectional designs, these past findings cannot provide support for the temporal ordering between social media use and anxiety symptoms over time. Although past correlational findings provide important information, longitudinal research would further these findings by being able to identify teens who are at higher risk for future anxiety before it worsens. The prevalence and increase of anxiety in young adolescents is extremely alarming and should not be ignored. Thus, longitudinal research is needed to examine if social media use indeed predicts heightened anxiety in adolescents over time.

Additionally, something that is not nearly as evident or researched in the literature as compared to frequency of social media use, is what exactly adolescents are engaging in when they are on social media sites, and how these different types of behaviours might affect their lives. One of the few studies on this topic conducted by Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante and Sigfusdottir (2019) tested active and passive social media use on Facebook, Instagram and Snapchat taken together. The researchers highlight the key characteristics of active use as involving chatting, sharing photos, or updating one's status, whereas passive use involves scrolling and looking at content shared by others. While controlling

for many variables including time spent on social media, the findings reveal that cross-sectionally, frequency of passive social media use was positively correlated with anxiety and frequency of active social media use was negatively correlated with anxiety. These findings are meaningful as they suggest that, firstly, social media use is directly associated with concerning mental health outcomes. They also emphasise that the focus of social media research should not always be about time spent online, but rather, the types of behaviours individuals are engaging in, while using social media.

Over the last decade, social media use has transformed drastically in accordance with the introduction of new platforms and progressively younger individuals in possession of their own cell phones. A study conducted at the University of Chicago found that between the years of 2015 and 2016 alone, Snapchat use in adolescence significantly increased from 41% to 75%. More recently, a 2019 Statista report found Snapchat to be the most preferred social media network by adolescents living in the United States. Consequently, this platform now surpasses the popularity of former favourites including Instagram, Twitter and Facebook (Clement, 2019). Many researchers have investigated the effects of Snapchat in various aspects of life. Correlations between the quality of relationships and frequency of Snapchat use have been examined quite thoroughly due to the unique communicative features of Snapchat including the platform's time-limited photos, videos and messages. A study by Vaterlaus et al. (2016) had young adults respond to questions about Snapchat and various interpersonal relationships including family, friends and romantic relationships. Participants in this study reported Snapchat as a tool with the ability to prompt challenges in their relationships but also as a communication network that enables enhanced interactions (Vaterlaus et al., 2016). This study is among the

many that examines Snapchat as solely a communication modality facilitating relationships differently.

Indeed, the findings related to communicative uses of Snapchat and the network's impacts on relationships are important. However, over the past few years, Snapchat updates have provided users with novel features that set it apart from that of other social networks. A few examples include "Snapchat Maps", a component that presents the geographical location of one's contacts on an animated map, "Snapchat Stories", which allow an individual to share a photo or video with all or a select number of their contacts for up to 24 hours, and "Snapchat Streaks", a feature where the application will track, record and display the number of consecutive days that a pair of individuals have been sending each other Snapchats. These are only a few of the site's many features and with these features come other settings and controls for each user to personally adjust. A study conducted by Phua, Jin and Kim (2017) assessed specific gratifications and how they are more strongly correlated to certain social media sites including Facebook, Twitter, Instagram and Snapchat. The researchers found that "passing time" and "improving social knowledge" were two gratifications that were most highly correlated with higher frequency of Snapchat use in comparison to other social media platforms. Although passing time might seem applicable to many social media sites, the gratification of "improving social knowledge" is more unique. The study found that when compared to Facebook, Twitter and Instagram, individuals report using Snapchat specifically, in order to improve their social knowledge. This particular finding is not explored much further in the Phua et al. (2017) article. Nevertheless, it has important implications which also relate to the current research. Firstly, on the surface many of the new features of Snapchat including being able to view the location of one's contacts as well as view their stories directly relate to social knowledge. More than simply

having a conversation with another individual, these features allow a user to passively uncover where a person is, what they are doing, and at times who they are with, without even asking that person themselves. These features taken together cannot be found on any other social media site. Thus, these new features and the greater extent to which Snapchat is associated with gaining social knowledge demonstrate the contrast between itself and other sites.

As noted, much of the existing research that focuses exclusively on Snapchat defines the social media site as a tool used solely for interpersonal communication. Phua et al. (2017) assessed numerous social media sites and associated gratifications, but differs, in that their findings demonstrate alternative and previously unexplored uses of Snapchat. Many of these uses, such as gaining social knowledge, serve to expand the definition of Snapchat beyond just a communication platform. Despite their unique findings, Phua et al. (2017) did not explore these results further and thus, do not uncover additional implications about Snapchat and social knowledge. Thorisdottir et al. (2019) found a link between active and passive social media use and anxiety. Similar to the Phua et al (2017) article, they did not expand on the specific behaviours that are tied with these important findings. Additionally, they examine social media active and passive uses through Facebook, Instagram and Snapchat as one variable and do not tease the applications apart. Thus, there are still gaps in the research as to what constitutes active and passive uses on each site, specifically Snapchat, independently of the others. Moreover, due to the rapid increase in popularity of Snapchat and decrease in popularity of other applications, it is important to uncover whether this one specific application can have similar consequences as social media use as a whole. The noted relationships between social media and anxiety as well as the growth and concern regarding anxiety are prevalent today's society. As such it is necessary to discover whether it is the amount of time people are spending on social media or

what they are doing online that might predict these relationships. Additionally, much of the past research focuses on older adolescents near or over the age of 18. The current research focuses on individuals in high school, as these are the adolescents who report Snapchat as their most preferred application, meaning they may be especially impacted by using this platform (Clement, 2019). The limitations and gaps in the existing research might be due to researchers' lack of information or knowledge regarding Snapchat and its new associated behaviours. Furthermore, this is an emerging field of research and therefore, it is not surprising that there is limited research on the subject. Nevertheless, due to the implications related to social media use, the current research expands on these limited findings by focusing on Snapchat uses independently of other networks.

In the current study, I aim to narrow the aforementioned gaps in the literature by using a longitudinal method to test whether Active and Passive Snapchat Use predicts anxiety levels in adolescent high school students. Students completed two surveys three months apart including questions about their Snapchat use and anxiety. It is hypothesized that more Active Use on Snapchat at Time 1 will significantly predict lower levels of anxiety at Time 2 (H1). It is also hypothesized that more Passive Use on Snapchat at Time 1 will significantly predict higher levels of anxiety in adolescents at Time 2 (H2).

## **Method**

### **Participants**

Participants were 105 high school students from Grand Erie District School Board in Brantford, Ontario. Participants at Time 1 range in age from 13 to 18 ( $M_{age} = 3.59$ ,  $SD = 1.26$ ). Participants consisted of 21.2% male and 78.8% female students. Due to the COVID-19 pandemic emerging and worsening, Survey 2 was stopped early and as such, only 46 of the 105

participants from Time 1 also completed the survey at Time 2. These participants ranged in age from 14 to 18 ( $M_{age} = 3.44$ ,  $SD = 1.38$ ). Participants consisted of 15.6% male and 84.4% female students.

## **Procedure**

In December 2019, researchers went to two different high schools to recruit students from grades 9 to 12. With permission from teachers, two researchers went into each approved classroom, explained the study to students and handed out consent forms. Participants were informed that the study consisted of three online surveys to be completed three months apart. The current study, however, focused only on Time 1 and Time 2 data. Participants were also informed that they would receive one \$10 online gift certificate for each survey completed, and an extra \$10 certificate if all three surveys were completed. This meant that if all surveys were completed, participants would receive a total of \$40 in gift certificates. Participants under 16 were asked to obtain parental consent and email this back to the researchers. Participants older than 16 were asked to sign a consent form and email this back to the researchers. Once consent was obtained, participants were provided with a link to complete the online survey. The survey took approximately 30 minutes to complete. The survey consisted of demographics, questions about social media, and questions about their personal life and relationships. To ensure participants remained anonymous when filling out the surveys, they were asked to create a participant ID. The participant ID which consisted of six letters where the first two letters were the initials of their first and last name, and the first four letters of their street name.

Participants were contacted again in early March 2020 to complete a second survey. This survey was identical to the first, however, participants were not asked demographic questions

again. This survey was closed early due to the emergence of the COVID-19 pandemic, which led to school closures and other daily life changes.

## **Measures**

### ***Snapchat Use***

The Snapchat Use measure was adapted from Frison and Eggermont's (2016) 'Multidimensional Scale of Facebook Use' (MSFU). Their scale consisted of three dimensions of Facebook use: active private, active public, and passive. The adapted version of this scale for the current research consists of two dimensions: Active Snapchat Use and Passive Snapchat Use.

Participants were asked to indicate how often they had engaged in 10 Snapchat related behaviours in the last 3 months on a 5-point Likert-type scale, with 1 = *never* to 5 = *very frequently*. Five items measured Active Snapchat Use and 5 items measured Passive Snapchat Use. A sample item that was measuring Active Snapchat Use is, "had a conversation with other people on Snapchat" and an example measuring Passive Snapchat Use is "checked your friends' Snapchat maps."

**Exploratory Factor Analysis.** Frison and Eggermont (2016) conducted an exploratory factor analysis for the MSFU and found that most items loaded to their hypothesised three separate factors. However, one item, unexpectedly loaded highly onto a different measure than anticipated. Due to this finding and because this measure is being adapted for a completely different platform, an exploratory factor analysis was conducted for the present study, to examine if the 10 items in the Snapchat Use measure loaded onto the 2 expected factors of Active and Passive Use. A principled component solution and varimax rotation was used in this factor analysis. The first factor accounted for 59.70% of total variance. All Active Snapchat Use items loaded onto this factor with a score of .76 - .94, except for "had your own Snapchat

maps turned on to public”, with a score of only .26. Due to its loading, this item was removed from the measure in analysis. Another sample Active Snapchat item is “sent someone a Snapchat”. When comparing these two items, it is evident that the removed statement is much less active, by definition, as the action does involve notifying anyone of this activity, nor does it include direct communication with another individual as the other items in the measure do (see Appendix I for complete Snapchat use scale). The Cronbach’s alpha for the new, 4-item Active Snapchat Use measure was .92, indicating a high degree of internal consistency.

A second factor accounted for 12.07% of total variance. All Passive Snapchat Use items loaded onto this factor with a score of .52-.83, except for “looked at your friends’ Snapchat stories”, with a score of only .24. Due to its low loading, this item was removed from the measure. By definition of Passive Use, which includes scrolling and looking at content shared by others, this item is much more passive than other items in this measure that involve behaviours such as looking at a friend’s story multiple times (see Appendix I for complete Snapchat Use scale). Although both items focus on viewing Snapchat stories, watching a person’s story multiple times seems more intentional and monitoring in nature, than generally looking at friends’ stories. The other items in this scale include behaviours which share this monitoring and purposeful foundation. The Cronbach’s alpha for the new, 4-item Passive Snapchat Use measure was .82, indicating a high degree of internal consistency.

### ***Anxiety***

The 12 item Brief Symptom Inventory by Derogatis and Melisaratos (1983) was used to assess anxiety and depression. For the current research, only the 6 items assessing anxiety were analysed. Participants were asked to indicate how much a given problem has distressed or bothered them during the past 7 days including today on a 5-point Likert-type scale, with 0 = *not*

*at all* and 4 = *extremely*. Higher scores indicated higher levels of anxiety. A sample item from this measure is “feeling so restless you couldn’t sit still”. The Cronbach’s Alpha for anxiety at time 2 was .94 indicating a high degree of internal consistency.

### ***Amount of Social Media Use***

Amount of social media use was used as a control variable in statistical analyses. The participants were asked how much time they usually spend on social media in a day. They had 8 options to choose from ranging from less than 10 minutes to more than 10 hours of daily social media use (all options can be found in Appendix II).

## **Results**

### **Descriptive Statistics**

Pearson’s correlations were conducted between all main variables at Time 1 ( $n = 105$ ) and anxiety at Time 2 ( $n = 46$ ). First, from the Time 1 data, Active Snapchat Use was significantly positively correlated with Passive Snapchat Use and amount of social media use. Passive Snapchat Use was also positively correlated with amount of social media use and anxiety at Time 1. Amount of social media use was positively correlated with anxiety levels at both Time 1 and Time 2. Time 1 correlations were also run with only the 46 participants that completed both Survey 1 and Survey 2 and patterns of significance did not change. Table 1 provides means, standard deviations and correlation results for all main variables in the current research at Time 1 and anxiety at Time 2.

Three separate paired samples *t*-tests were conducted to determine if anxiety scores, Active Snapchat Use, and Passive Snapchat Use were significantly different from Survey 1 to Survey 2. Anxiety scores at Time 1 did not significantly differ from anxiety scores at Time 2. Similarly, Active Snapchat Use scores did not differ significantly over time. However,

participants' Passive Snapchat Use scores at Time 1 were significantly higher than their Passive Snapchat Use scores at Time 2. Complete results from all three paired samples *t*-tests can be found in Table 2.

### **Hypothesis Testing**

A multiple regression was conducted predicting anxiety levels at Time 2 from Active Snapchat and Passive Snapchat Use at Time 1, while controlling for age, gender, average time spent on social media and anxiety at Time 1. Overall, the regression was significant,  $F(6, 38) = 11.49$ ,  $R^2 = .65$ . In line with H1, Active Snapchat Use at Time 1 was a significant predictor of anxiety levels at Time 2; however, in contrast to my prediction, results demonstrated that participants with higher Active Use scores at Time 1 demonstrated *higher* levels of anxiety at Time 2. Gender was also a significant predictor of anxiety levels at Time 2 such that females were more likely to demonstrate higher levels of anxiety at Time 2. Finally, H2 was not supported, in that Passive Snapchat Use at Time 1 was not a significant predictor of Anxiety at Time 2. Complete results of this multiple regression are outlined in Table 3.

### **Discussion**

The results of this study do not support H1 or H2, such that Active Snapchat Use at Time 1, did not predict decreased anxiety at Time 2, and Passive Snapchat Use at Time 1 did not predict increases, or any changes in anxiety at Time 2. However, contrary to H1, Active Snapchat Use predicted *increases* in anxiety at Time 2 even when controlling for overall amount of social media use. This finding extends past research including the Vanucci et al. (2017) study, which found a relationship between amount of average daily social media use and mental health concerns including anxiety. Although the current research supports these findings and suggested the same significant correlations between anxiety and amount of social media use at Time 1,

when analyzed longitudinally only Active Snapchat Use, and not overall amount of social media use, predicted increased anxiety. This suggests even further that social media research must be focused more on types of behaviours rather than amount of use.

The current research also found a significant correlation between Passive Snapchat Use at Time 1 and anxiety at Time 1. This also extends past findings including the Vaterlaus et al. (2016) study that examined Snapchat by defining it as a platform that is solely used for communication. Firstly, the development and use of the new Passive Snapchat Use scale (found in Appendix I) extends these findings as none of the items in this scale are related to communication-based behaviours. This highlights that Snapchat has a wide variety of uses that are unrelated to communication or chatting with others. Furthermore, the significant correlation found between this new Passive Snapchat Use scale and anxiety at Time 1, demonstrates that these alternative uses, which have been minimally researched in the past and do not involve communication, still relate to the mental health of adolescent Snapchat users. Thus, this correlational finding related to the Passive Snapchat Use scale still hold value, even though H2 was not supported, as it demonstrates the importance of including a wider variety of Snapchat behaviours in social media research.

The current research also extends findings from the Phua et al. (2017) study which explored associations between various social media platforms and different gratifications finding that individuals reported using Snapchat for the purpose of “improving social knowledge.” As noted, after the exploratory factor analysis, the remaining items in the current study’s Passive Snapchat Use scale were monitoring in nature rather than *passive* by definition. As such, the behaviours from this scale; such as, “checked your friend’s Snapchat maps” might reflect the gratification of improving social knowledge outlined in the Phua et al. (2017) research. Further

research should explore a potential relationship between the “improving social knowledge” gratification and various behaviours in the Passive Snapchat Use scale.

As mentioned, the Thorisdottir et al. (2019) research found a significant relationship between anxiety and Passive Use on multiple social media platforms measured together. Therefore, the current study extends this research as it found the same correlation, however with Passive *Snapchat* Use, demonstrating that Passive Use on only Snapchat, is still related to anxiety levels in adolescents, regardless of this type of use on other social media platforms. Thorisdottir et al. (2019) also found a significant relationship between Active social media Use and anxiety levels, whereas the current research did not find this same correlation at either time points. One potential reason for this difference is because the current research assessed Active Snapchat Use separately from other platforms, whereas the Thorisdottir et al. (2019) study assessed multiple platforms within one Active Use measure. Therefore, it is possible that Active Snapchat Use is not correlated with anxiety when it is assessed by itself, or separately from other platforms’ Active Uses. Although the current study does not support this finding, it still found a longitudinal relationship between Active Snapchat Use and increases in anxiety at Time 2. This finding was unexpected because no significant relationship was found at Time 1, and contrary to the Thorisdottir et al. (2019) finding, Active Snapchat Use predicted increases in anxiety rather than decreases. This unexpected finding might be related to one substantial limitation of this research; the mentioned COVID-19 pandemic.

This global pandemic was evolving and increasing in severity throughout data collection. Specifically, during the time Survey 2 was sent out, the pandemic was spreading much more rapidly, which resulted in school closures around Ontario, with “social distancing” and self-isolation policies becoming enforced by the federal government as well. Although I found no

changes in frequency of Active Snapchat Use across time, the pandemic and its impacts might have been related to a change in *how* exactly people were engaging in Active Snapchat Use during this time. For instance, via Active Snapchat Use, adolescents might have begun chatting with their friends about more serious topics related to the pandemic. New resources and information have emerged demonstrating potential negative mental health outcomes from living through a pandemic. For example, CAMH recently created a page on their website titled “Mental Health and the COVID-19 Pandemic” which includes frequently asked questions and answers. One question asks how to deal with friends who “can’t stop talking about COVID-19 and wants to process worst case scenarios.” The answer CAMH provided to this question involves trying to be aware that constantly listening to someone else’s anxieties can lead to feeling even more anxious. Thus, it is possible that individuals with higher Active Snapchat Use at Time 1, demonstrated increases in anxiety at Time 2 because, at the time of this second survey, individuals were communicating with their friends about the pandemic, or stressful topics related to the pandemic, which according to CAMH (2020) can lead to heightened anxiety. Thus, changes in what people were communicating about via Active Snapchat Use is a potential reason for the surprising finding that Active Snapchat Use at Time 1 predicted increases in anxiety at Time 2. Therefore, it is unknown whether Active Snapchat Use would have still predicted increases in anxiety at Time 2, if Time 2 was not taking place during COVID-19. However, this is still an important finding because it provides new information about how the impacts of social media can change due to extreme circumstances taking place in society.

The COVID-19 crisis may have also affected results related to Passive Snapchat Use. As noted, there was a correlation between Passive Snapchat Use and Anxiety at Time 1, but contrary to my hypothesis, Passive Snapchat Use at Time 1 was not a significant predictor of anxiety at

Time 2. Furthermore, there was a significant reduction in Passive Snapchat Use from Time 1 to Time 2. When assessing the specific items in this measure related to the circumstances of COVID-19, it makes sense that the frequency of engagement for many of these items would decrease during the time of Survey 2. For example, one item from this scale is “gone somewhere or avoid going somewhere after checking other people’s Snapchat maps”. Due to the government’s recommendation for people to engage in ‘social distancing’, which involves minimizing close physical contact with others, participants would not be going places as a result of their friends’ location. Further, individuals were also advised to stay home as much as possible during this time and as such, participants might assume their friends are always at home, thus checking Snapchat maps less frequently in general. Other items in this scale (found in Appendix I) similarly, might have less utility and benefit for Snapchat users during this time. Therefore, the COVID-19 pandemic and the rules or suggestions put in place by the government at the time of Survey 2, could potentially account for this significant decrease in Passive Snapchat Use frequency from Time 1 to Time 2. Thus, the current research should be replicated at a time where physical distancing measures and quarantine are not in place.

Despite the significant findings in the current research, there are a few methodological issues to take note of within this study. One methodological issue concerns the question about amount of social media use. First, this question was a self-report measure, and thus, participants might have been inaccurate or biased in their responses. Future research should use a more objective scale such as recording participants’ hours of “Screen Time” use in iPhone or Samsung settings. Additionally, this study asked for social media use in general despite its overall specific focus on Snapchat. Therefore, the results might have been more powerful if amount of Snapchat use was controlled for, rather than, or in addition to the amount of social media use generally.

Additionally, the Active and Passive Snapchat Use scales were developed for this study, thus, tests of reliability and validity were limited to this specific sample. Although internal consistency was tested and a high degree of internal consistency was found in both scales, additional tests of reliability and validity across a longer duration of time and among different samples of participants would be beneficial in demonstrating the reliability and validity of these measures.

There were also some research limitations that should be mentioned. First, the sample was quite small, due to unforeseen circumstances including the COVID-19 pandemic and teachers strike taking place during data collection. A larger sample of participants would have improved the statistical power to test these results. The sample also consisted of significantly more female participants than male participants. Thus, the results might largely reflect patterns for females more than it reflects these patterns for males. A sample with more equal proportions of males and females would provide more power to generalize the study's findings. Gender differences would be more powerful with a larger and more balanced sample of males and females.

Despite the mentioned limitations, the significant longitudinal results can be beneficial for therapists and other mental health-related workers in developing interventions and prevention strategies regarding social media and anxiety. The results are also useful for parents and teen Snapchat users, as the findings can elicit awareness and helpful conversations about potential consequences of engagement in certain behaviours. All of the mentioned benefits are especially useful for these groups and individuals during anxiety-provoking circumstances in the physical world, as they can prompt awareness about how individuals should be using or not using social media, to help rather than harm their mental health. Lastly, the findings are important for future

researchers examining impacts of social media as the current study provides direction for future assessment and significant findings during an unprecedented time.

In conclusion, my original hypotheses that Active Snapchat Use would predict decreases anxiety levels at Time 2 (H1), and that Passive Snapchat Use would predict increases anxiety levels at Time 2 (H2) were not supported. However, the current research findings provide valuable information about Snapchat and more specifically it identifies specific Snapchat behaviours that seem more closely related to improving social knowledge than communication. The current research extends past findings that only examine the amount of social media use as a correlate of anxiety and mental health outcomes by assessing specific behaviours and controlling for amount of time online. The unexpected finding of Active Snapchat Use as a significant predictor of increased anxiety scores provides interesting findings about social media changes during extreme circumstances. The overall findings provide direction for future research and ultimately suggest that even when studied alone and independently from other social media platforms, Snapchat use and its unique features are significant in the lives of adolescent high school students today.

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**Table 1.** *Correlations for Main Variables at Time 1*

Measure	M(SD)	Correlations						
		1	2	3	4	5	6	7
1. Age <sup>1</sup> (T1)	3.59(1.26)	-						
2. Gender (T1)	1.79(.41)	-.14	-					
3. Active Snapchat Use (T1)	3.62(1.34)	.14	-.01	-				
4. Passive Snapchat Use (T1)	2.48(1.07)	.16	.10	<b>.70**</b>	-			
5. Social Media Use <sup>2</sup> (T1)	5.27(1.69)	.05	-.14	<b>.33**</b>	<b>.34**</b>	-		
6. Anxiety (T1)	2.38(1.24)	.07	.16	.12	<b>.22*</b>	<b>.25*</b>	-	
7. Anxiety (T2)	2.44(1.32)	-.06	<b>.34*</b>	.23	.13	<b>.31*</b>	<b>.74**</b>	-

*Note.*  $N = 105$  for Time 1 (T1) data;  $N = 46$  for Time 2 (T2) data

\* $p < .05$ ; \*\* $p < .01$

<sup>1</sup> = Age was measured on a categorical scale from 1 – 6 where 1 = 13 years old and 6 = 18 years old.  $M = 3.59$  is approximately 15-16 years old.

<sup>2</sup> = Social Media Use was measured on a categorical scale from 1-8 where 1 = less than 10 minutes of daily social media use and 8 = more than 10 hours of daily social media use.  $M = 5.27$  is approximately 2-3 hours of daily social media use.

**Table 2.** *Two-Tailed Paired Samples t-test of Time 1 Data Compared to Time 2 Data*

Compared Measures	<i>df</i>	<i>t</i>	<i>p</i>
Anxiety (Time 1) – Anxiety (Time 2)	45	-.529	.599
Active Snapchat Use (Time 1) – Active Snapchat Use (Time 2)	45	1.628	.110
Passive Snapchat Use (Time 1) – Passive Snapchat Use (Time 2)	45	<b>2.099*</b>	.045

*Note.*  $N = 46$ ;  $*p < .05$

**Table 3.** Multiple Regression Analysis Predicting Longitudinal Changes in Anxiety

Predictor	Anxiety (Time 2)	
	<i>B</i>	<i>SE</i>
Age (Time 1)	.189	.103
Gender (Time 1)	<b>.278*</b>	.379
Active Snapchat Use (Time 1)	<b>.326*</b>	.136
Passive Snapchat Use (Time 1)	-.283	.207
Social Media Use (Time 1)	.186	.081
Anxiety (Time 1)	<b>.634**</b>	.110

*Note.*  $N = 46$ ; \* $p < .05$ ; \*\* $p < .01$

## Appendix I

### *Snapchat Use Questions*

#### **Time 1**

Please indicate how often you have participated in the following Snapchat related behaviours in the last 3 months

#### **Time 2**

Please indicate how often you have participated in the following Snapchat related behaviours in the last 3 months (since you completed our last survey)

#### **Time 1 and Time 2**

1 = Never 2 = Almost Never 3 = Sometimes 4 = Frequently 5 = Very Frequently

#### **Active Snapchat Use**

1. Sent someone a Snapchat
2. Had a conversation with other people on Snapchat
3. Posted a story on Snapchat
4. Had multiple Snapchat streaks with others

#### **Passive Snapchat Use**

5. Checked your friends' Snapchat maps
6. Checked who has seen your Snapchat story after posting one
7. Looked at your Snapchat friend's stories multiple times
8. Gone somewhere or avoid going somewhere after checking other people's Snapchat maps

## Appendix II

### *Amount of Social Media Use*

In the last 3 months, how much time, on average, did you spend on social media (e.g., Instagram, Snapchat, Facebook) in a day?

1. Less than 10 minutes
2. 10-30 minutes
3. 31-60 minutes
4. 1-2 hours
5. 3-5 hours
6. 5-10 hours
7. More than 10 hours

## Curriculum Vitae

Name: Nicole Orlan

Place and Year of Birth: Toronto, Canada, 1998

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Experience:

- Mentor to first-year undergraduate psychology students, January-April 2020
- Organizational Behaviour Research Assistant, Schulich School of Business, Toronto, Ontario: May 2019-Present
- Clinical/Education Intern, Multi-Health Systems, Toronto Ontario: May-August 2019
- Psychology Research Assistant, Huron University College, London, Ontario: January – April 2019
- Presenter at Healthy Behaviours in an Online World Conference at Huron University College, London Ontario: April 2019
- Presenter at Centre for Undergraduate Research Learning (CURL) Fall Exhibition at Huron University College, London, Ontario: November 2018

Awards:

- Deans Honour List
- Huron Achievement Award