

Psychological Repercussions of Location-Based Social Networks in Today's Youth

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Abstract

In the past decade, technology has rapidly progressed and replaced traditional social media platforms with highly advanced location-based social networks (LBSNs). Previous research has indicated a strong relationship between social media use and anxiety, however, there is little information about the potential psychological implications related to the use of LBSNs. Snapchat's Snap Map launched in June 2017, and since then has become a favorite feature among today's youth. This study utilized a qualitative research method to understand the behavior of adolescent users and their relationship with Snap Map, compared to users in different stages of development. After comparing data collected from four in-depth interviews and an online survey, the author analyzed these findings based on four social psychological theories: belongingness theory, social comparison theory, spatial-self, and the uses and gratification theory. Results indicate a strong relationship between the emergence of evolved social media platforms and specific stages of lifespan development. Because adolescent users are amid an impressionable stage of development, they are more susceptible to the emotional implications of using an LBSN feature such as Snap Map.

I. Introduction

Over the past decade, the capability of social media platforms has rapidly evolved due to technological advancements and the expansion of digital communication. Initially created with the intention of increasing direct contact among users, social media platforms today can communicate and manage social interactions, establishing a co-presence of physical and virtual space (Saker, 2016). These highly advanced social media platforms referred to as "location-based social networks" (LBSNs) not only allow the user to establish an identity through digital self-presentation, but also through identifying, sharing, and observing specific locations and their apparent meaning (Schwartz, 2014). In the past few years, LBSNs have become a part of daily life and have influenced researchers to examine the relationship between social media use and overall well-being of the user. As inquiry on this relationship expanded, it became clear that social media has the ability to increase anxiety, exclusion, and loneliness in users (Burke, 2010).

The emergence of LBSNs has exposed users with immediate locational information, making this relationship even stronger (Schwartz, 2014). Snapchat is a prime example of a popular LBSN that draws in more than 187 million daily users and is used the most by adolescents ages 13 to 18 years old (Smith,

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2018). This application was created in 2011 as a way for users to send photos or “snaps,” which disappear after a certain amount of time. Since its launch, Snapchat has rapidly evolved and now allows users to send messages and videos, create live stories, and engage in several other forms of communication (Vaynerchuk, 2016). In June of 2017, Snapchat introduced a feature called Snap Map, a virtual map that allows users to share and track their friends' locations in live time. Although past research has demonstrated has indicated a relationship between LBSNs and anxiety in users, there is little information about how Snapchat's LBSN feature, Snap Map, might contribute to anxiety in adolescent users (2016).

To understand both the nature of the user and the emotional implications of engaging in LBSNs, this study uses a research approach consisting of in-depth interviews and an online survey to examine whether or not checking Snapchat's Snap Map feature induces anxiety in adolescent users. This study also aims to understand the phenomenon of “The Fear of Missing Out” (FoMO), and how this concept correlates to checking Snap Map. Because adolescents have developed during an explosion of social media innovation, this study will also examine the implication of using LBSNs compared to traditional social media platforms, and how this relates to the various stages of lifespan development. This article first analyzes the evolution of social media networks and their relationships with the user, explicitly examining previous research conducted on the emotional implications of social media use. It then explores the concepts of FoMO and anxiety concerning social media use, building on the theories of belongingness, social comparison, and self-presentation. Next, the study examines the phenomenon of LBSNs, the theory of the spatial-self, and Snapchat's Snap Map, one of the most evolved features in the history of LBSNs. Finally, using these theoretical frameworks to understand results from in-depth interviews and an online survey, the study proposes that anxiety in adolescents is a direct implication of using an LBSN feature such as Snap Map.

II. Literature Review

Social Media Networks, Anxiety, and FoMO

Social media has become an essential part of modern-day life that has changed the way we communicate, interact, and share information (Walrave, 2016). Social networking sites (SNS) initially were created with the intention of increasing direct communication among users by “providing a platform for active communication between friends and more passive observation through aggregate streams of social news” (Burke, Marlow, & Lento, 2010, p. 1). Additionally, social media sites provide opportunities for users to express their ideal selves by establishing an identity and building on relationships by sharing content (Mebdizadeb, 2010). Although users can regulate what they want to reveal on various platforms, the rapid increase of information distribution in today's society has made it difficult to process content effectively (Petronio & Durham, 2008).

As technology increases, the media and social web have become more intertwined with personal life, providing even more opportunities for users to consume and share content (Walrave, 2016). Additionally, the variety of social media platforms serve multiple functions and have made it possible for individuals to keep track of both online and offline social activities of other people (Przybylski, 2013). While social media has provided many opportunities for social interaction, it has also contributed to information overload by providing “more options than can be perused given practical restrictions and limited time” (Przybylski, 2013, p. 1841). This dual nature of social media has been proven to cause a great amount of social anxiety and exclusion, often referred to as the “Fear of Missing Out,” or FoMO (Przybylski, 2013). Through constant direct communication and monitoring of content available on virtual social circles, the user is more susceptible to experiencing FoMO (Burke, 2010). As researchers continued to examine the individual factors impacting this complicated relationship, a common theme emerged: Online social networking could influence comparison between users and predict various mental health effects (Baker, 2016).

According to researchers, FoMO is defined as a “persuasive apprehension that others might be having rewarding experiences from which one is absent” (Przybylski, 2013 , p. 1841). Past research demonstrates how the more social media content users view, the more likely they were to relate their personal lives to what they were seeing or reading. The rise of technology has made it even easier for users to compare their lives to other individuals and experience anxiety, inadequacy, and loneliness (Abel, 2016).

Individuals with higher levels of FoMO also report having low self-esteem, find it difficult to make decisions, and have a more difficult time connecting with others (Przybylski, 2013). Building off Baumeister & Leary's belongingness theory (1995), recent research has also shown that when individuals were unable to view social media, they experienced short-term anxiety, in part because of a basic human desire to belong to the "in-group," whether it is physically or virtually (Abel, 2016).

These findings are further informed by research related to the social comparison theory, which suspects people decide their worth based on the way they compare themselves to others (Festinger, 1954). Because social media allows individuals to experience their friends' activities in real time it has become easier for individuals to compare themselves to other users (Abel, 2016). Such comparisons can lead to social exclusion and low self-esteem (Gerber, 2016).

Social media use and anxiety in adolescence

The adolescent stage of development is one of the most vulnerable stages of development, and research on the behavioral and cognitive factors of social anxiety and peer relationships in adolescence found that teens are more susceptible to developing social anxiety as a result of peer pressure (Erath, 2007). Concerning social media use, there are several online risks that young people confront, including compulsive behavior, impulsive decision-making, and jealousy (Antheunis, 2016).

Today's youth use social media to share experiences and interact with an online social network, however, this constant connection makes it almost impossible to avoid FoMO and other emotional implications that come from social media use (Cidem, 2017). According to a study on adolescent addiction to social media, 40% of respondents claimed that social media had increased their FoMO, and 83% claimed there was an overwhelming amount of information in their daily lives. Additionally, 8 out of 10 participants believed that people used social media to brag about what they are doing in attempts to make other users jealous (Cidem, 2017).

Because digital data is so shareable and can be viewed by large audiences, past studies have shown how adolescent users tend to construct a social media presence that doesn't always depict reality (Valkenburg, 2006). Researchers have found that in adolescent users, "lower levels of need satisfaction, general mood, and overall life satisfaction related to seeking out social media engagement only insofar as they related to higher levels of FoMO" (Przybylski, 2013, p. 1847). Specifically, students in high school who tended to check social media throughout the day reported having higher levels of FoMO and anxiety, compared to students who did not (Przybylski, 2013). These results suggest that identity can be easily reinforced and presented by adolescents through social media use. Through the emotional communication that takes place on social networking sites, adolescents are "not only staging their own identity but are co-constructors of each other's identity" (Larsen, 2016).

Location-Based Social Networks (LBSNs)

Location-based social networks, also known as LBSNs, can be defined as spaces that blend the physical and digital worlds while providing different forms of locative information (Saker, 2016). When comparing LBSNs to traditional SNS, social networking sites provide opportunities to create an identity through digital objects like photos, videos, and self-descriptions, while LBSNs can mimic social interactions in real time (Schwartz, 2014). This distinction contributes to the concept of the "spatial-self," a theoretical framework which refers to how users often use locative media to express identity. Saker (2016) found that users of Foursquare were aware that others could potentially view their location and developed ways to avoid these potentially high-tension situations by choosing whether or not they want to share their location.

Additional exploration of this relationship revealed how LBSNs like Foursquare have the potential to impact the user's digital and physical space in forming an identity (Schwartz, 2014). Users felt more significant when they were able to check in and share their location, however, when they were unable to do so, they began to worry about what other users might think (Saker, 2016). Research also suggests that platforms such as Foursquare contribute to anxiety and FoMO to an even greater significance because of how quickly locations are posted (Schwartz, 2014).

Snapchat

Snapchat is an LBSN that “allows users to send images, videos and text with a specified amount of time for the receiver to view the content before it becomes permanently inaccessible to recover” (Vaterlaus, 2016, p. 594). It was launched in 2011, as a way for users to send and share pictures and messages that disappeared after a certain amount of time (Bayer, 2015). It is unique because it offers more private communication compared to other SNS platforms, allowing the user to expect a greater level of self-exposure (Vaterlaus, 2016).

Additional research used focus groups and in-depth interviews to examine how Snapchat use impacted interpersonal relationships among teens, who reported it was popular because it allowed users to quickly connect with friends while providing social content. Snapchat was most popular among teens who felt the platform fulfilled “need gratification” (Vaterlaus, 2016). The uses and gratification theory has also been used to explain how the platform addresses various psychological and social needs, and found that young adults reported using Snapchat to stay in touch with friends and loved ones, but also led to increased jealousy in certain relational circumstances (Leung, 2013).

Snapchat's Snap Map feature

Snapchat recently launched a feature called “Snap Map,” which allows users to share and update their location on a live map (Constine, 2017). If the user does not want his or her location shared, location services can be turned off or set to “ghost mode,” which essentially makes the user invisible on the map. Unlike other social media, not only is the user able to see what his or her friends are doing, but also where and when they are doing these things. Past research has demonstrated how viewing social media updates might cause the user to feel less connected with their friends and could induce feelings of anxiety and FoMO (Burke, 2010). With this in mind, it would be predictable that a user who is viewing social media updates in the form of a live map would be even more susceptible to experiencing these feelings. Because adolescents are especially vulnerable at this point of development, one could predict that checking Snap Map would correlate to feelings of anxiety and low-self-esteem in users (Oberst, 2017).

Based on the theoretical understanding of the spatial-self, Snap Map makes it even easier for users to strengthen their identities and exhibit their physical experiences in real time. With this in mind, it is important to understand how the viewer is impacted by these updates if they are not in the same physical place as their friends. Researchers examining the roles of gratification with social media found that the need to belong, as well as receive recognition through self-presentation, were the main reasons why adolescents used social media (Leung, 2013). It would make sense that less-confident adolescent users, who are driven by the need to belong, might be more susceptible to feeling excluded or anxious after viewing the location of their friends on Snapchat's Snap Map.

Although social media has helped facilitate relationships and communication between users, it has also caused a great deal of negative emotional consequences when adolescents used these platforms in excess (Antheunis, 2016). This has created a paradox where on the one hand, these platforms can increase feelings of belonging and connecting, but on the other hand, they also have the ability to make adolescents aware of a wide range of information that is not always necessary beneficial (Oberst, 2017). Snapchat's Snap Map is a perfect example of this additional source of information, which provides users with a virtual map of where their friends are at all times. Although past research has examined the impact and repercussions of social media on adolescents, there is little information on how LBSNs in general impact might contribute to FoMO and anxiety in adolescence, and even less information in regards to the potential emotional implications of Snapchat's map feature. Unlike most SNS, where users can “optimize their self-presentation through their profiles” through descriptions, pictures, and content, it is impossible to optimize a location on Snap Map unless the user turns on “ghost mode” (Valkenburg, 2006). Past research has found social media platforms to increase anxiety induced by social comparison and self-presentation theories, however, there is limited data in regards to LBSN. Since LBSN have been found to induce anxiety in users, it is crucial to examine whether or not Snapchat's Snap Map feature intensifies anxiety in adolescents.

This study builds from previous research conducted on social media use and FoMO to examine the relationship between Snapchat's Snap Map and anxiety in adolescence. In order to discover the psychological implications of this LBSN feature, the study will ask the following questions:

RQ 1: How does Snapchat's Snap Map feature intensify anxiety in adolescence?

RQ 2: Does checking Snap Map increase FOMO in adolescence?

Snapchat User Demographics

In order to determine a target audience for this particular research, it is essential to understand the demographics and overall trends of the average Snapchat user. According to a *Statista* study conducted in 2017, significantly more American youth used and preferred Snapchat to other social media networks. Specifically, 22.1 million U.S. adolescents ages 12-17 used Snapchat, compared to 4.2 million who used Instagram and 1.4 million who used Facebook (Most popular social media, 2018). This significant gap between Snapchat use and other social media activity for teenagers is not as substantial for older age groups. Because this younger age group is more likely to choose Snapchat over other platforms, they are expected to be more susceptible to the potential emotional implications of using an LBSN.

III. Methods

The first segment of research was obtained through four in-depth interviews conducted with individuals between the ages of ages 15 and 18, both male and female. This method of research, involving intense individual interviews with a small group of respondents, was used to explore the subject's personal experience and emotional interaction with Snap Map and to explore their overall perspectives towards this LBSN feature. Due to the issue of these interviews and the primary age group of respondents, all names have been changed to protect the identities of the interviewees. The same set of questions was used for each interview, but the specific conversations, and any additional questions varied depending on each conversation. Each interview was recorded and transcribed.

Volunteers were selected through purposive sampling based on relevance to this specific research. All of the selected participants are social media users and considered to be part of the middle adolescence stage of lifespan development. The interviewees for this section of research included Carly, age 16; Kristin, age 17; Tom, age 15; and Jack, age 18. Each answered a total of 15 questions, and response length varied for each interview. Some example questions include: *What is your most used social media platform and why? What is your most used feature on Snapchat? Are you familiar with Snapchat's Snap Map Feature? What do you like about the Snap Map feature? What do you dislike about this feature? What is your motivation for checking Snap maps?* Other questions focused on the users' understanding of anxiety and their overall perceptions of Snap Maps.

The second segment of research involved an online survey administered to people between the ages of 22 and 30. Because Snap Map emerged when current millennials (ages 22-37) were past the point of adolescence, this survey serves as a comparison point with current teenagers, who past research suggests will see more anxiety when using Snapchat and other LSBNs. The online survey consisted of 15 questions that prompted both qualitative and quantitative answers. The target population was early-adulthood social media users, and the participants were obtained through convenience sampling, in which anyone between the ages of 22 and 30 could complete the survey. IRB permission was secured for the survey.

IV. Findings

After analyzing responses from the in-depth interviews and the online survey, several interesting findings emerged. The in-depth interviews with teens ages 15-18 showed unique patterns and perceptions associated with Snap Map, suggesting that these users are greatly affected by LSBNs compared to older users. Additionally, the findings from the online survey with respondents ages 22-30 supported the prediction that users in a more developed stage of life are less susceptible to experiencing anxiety from Snap Map. This section includes a detailed examination of each method to gain a better understanding of how exactly adolescent users are affected by Snapchat's Snap Map feature, compared to more mature users.

In-depth Interviews

Although the respondents varied in age and gender, each conveyed extreme concern towards Snap Map and appeared to be greatly impacted by this LBSN feature.

The respondents reported getting their first smartphone between the ages of 10 and 13 years old, which appeared to be the norm for most peers. Regarding their preferred social media platform, all teens identified Snapchat to be their platform of choice, followed by Instagram, Facebook, and Twitter. Each respondent reported using social daily, for up to four hours per day. When discussing why Snapchat was the most-used application, most talked about how easy it was to connect and stay active with other users. Tom, age 15, explained how he preferred Snapchat over other social media platforms because of “how easy it is to constantly check Snapchat and use it every minute of the day to communicate without much effort.” Kristin, age 17, expressed how it is “easier to maintain friendships and stay in touch with friends.” Another common point expressed was how easy it was to update Snapchat: “People are constantly updating what they are doing and feel the need to Snapchat everything” (Carly, age 16). In addition to these reasons, respondents also expressed that Snapchat was generally more entertaining compared to Instagram, and that it was easier to stay active without necessarily posting anything.

Most began using Snapchat between the ages of 11-13 and reported using it 2-4 hours per day. All four respondents stated having more than 100 Snapchat friends, but each had a unique perception of the nature of these friendships. For example, Tom expressed how although he has many Snapchat friends, he doesn't know most of them personally and only interacts with about 15 people regularly. For Kristin, however, Snapchat allows her to connect more spontaneously and personally with people she normally would not keep in touch with. Another common theme among respondents was their purpose of using Snapchat. The most common reasons were as followed: to make social plans, to avoid missing out, to check friends' locations, and to stay in the loop. Less common reasons included avoiding boredom and to communicate more efficiently.

All four respondents checked Snap Map daily, ranging from 1-2 times a day to 5-6 times a day, and all respondents had their location displayed. Positive statements toward Snap Maps included the ability to:

- *Decide who can and cannot see my location*
- *Locate people easily and see what is going on around me socially*
- *See where my friends are at any given moment*
- *See where and when people are when I am unsure*

Negative statements toward Snap Maps included:

- *It tells me when someone was last on Snapchat and 100 plus people (even the ones I do not know personally), can see my location*
- *People can locate me whenever and wherever*
- *It forces me to pay more attention to plans I make because friends will be able to see where I am (cannot get away with lying)*
- *It makes me want to check the map compulsively to see what other people are doing and if they are potentially excluding me*

In general, respondents conveyed that they were more likely to check Snap Map when they felt lonely, anxious, or if they were experiencing FoMO. While three respondents explained that they checked Snap Map to “stay in the loop” and to find their friends, Kristin offered an alternative motive:

The Snap Map feature shows who people are with and when, so if someone doesn't answer my text and I see that they are on their phone, or if they tell me they are alone, and then I see them with a group of people on the maps, it is extremely hurtful.

When asked about how they felt after checking Snap Map, each respondent had very similar answers. Most commonly, there was an increased feeling of exclusion, sadness, and low-self-esteem. These feelings especially were elicited when users saw two or more of their friends in the same location, even if they were included in the plans. Furthermore, respondents expressed that when they saw a group of friends together, they were more likely to think negatively about themselves and question why they were excluded. This suggests that when adolescent users feel lonely, they turn to Snap Map in hopes of feeling more connected even if doing so had the opposite effect. For example, Carly, who suffers from depression and anxiety, explained how checking Snap Map impacts her personally:

Checking Snap Maps almost never makes me feel secure or good. I get anxious if I see my friends are alone without me or doing something that I was not invited to, or even if I see a group of people I do not know that are together. It's a constant reminder that I am on the outside and it does not make me feel better.

The only scenario in which respondents reported positive feelings was when the user checked Snap Map while surrounded by friends or a large group of people. For 18-year-old Jack, when others surrounded him and he was able to visualize his location, he felt more social, confident, and included. An overwhelming pressure to be in a particular time and place, however, sometimes trumped these positive feelings.

All interviewees agreed that checking Snap Map caused them to experience FoMO, which could be induced by both positive and negative interactions with Snap Map. For example, Kristin told a story about a time when she was invited to hang out with friends, but was extremely tired and decided to stay home. She was happy that her friends included her and did not feel lonely, however, once she checked Snap Map and saw all of her friends together in one place, she began to doubt herself. This doubt accompanied anxiety and obsessive thoughts about what her friends might be doing. She expressed that she suddenly forgot why she decided to stay home in the first place and ended up joining her friends later that night.

Tom experienced FoMO in an entirely different way. Tom and his best friend, Mike, had plans to watch their high school's football game on a Friday night until Mike texted him saying he was feeling sick. Not wanting to attend the game alone, Tom ended up staying home instead. Feeling lonely and bored, he opened up Snap Map and saw that Mike was at their high school with a group of six other people. Tom described feeling betrayed and excluded. He regretted not going to the game and spent the night thinking about how much fun everyone was having and what he was missing out on. Not only did he experience FoMO, but he also began questioning why Mike lied to him and excluded him.

Although these examples are different in many ways, both individuals felt the urge to be somewhere else after they saw other people's location on Snap Map. Other responses from these interviews revealed that most of the time users checked Snap Map to *avoid* FoMO, but almost always end up experiencing it regardless of what they saw. While some respondents thought Snap Map was helpful, all agreed that checking Snap Map caused them to increase the degree of FoMO they felt before checking. Additionally, while not all respondents reported having a mental health condition, they each reported experiencing general symptoms of anxiety at some point in their life, especially after checking Snap Map. Additionally, those who did not find Snap Map helpful were more likely to report feeling excluded and left out by their friends. Regardless if the user had a positive or negative experience with Snap Map, they all experienced a fear of missing out after visibly seeing the locations of those around them.

In addition to feelings of FoMO, when asked how Snap Map impacted their peers, respondents expressed how many teenagers are "addicted" to this application and check it compulsively. As Jack put it:

I think people my age use Snapchat so much not just because they have FoMO, but because they are addicted to feeling as if they are in the know and like they belong to a social group, even if that means they might feel left out after checking Snap Map.

In addition to this, all respondents said social media affected them significantly and felt that social media contributes to anxiety.

Online Survey

The second part of this research involved an online survey generated for young adults between the ages of 22-30. The information collected from this survey facilitated a comparison between young-adult users and adolescent users. Together these findings emphasized a significant difference in answers and an overall shift in perspective towards Snap Map, which depended on the respondent's current stage of development.

Among those responding to the survey, 80% of respondents got their first smartphone between the ages of 14 and 16 and most reported using social media for 2-4 hours per day. For this age group, Instagram was the most popular social media platform, followed by Snapchat, Facebook, and Twitter. Daily Snapchat users reported spending between 1-2 hours on the application and used it mostly to keep in touch with friends or to avoid boredom. When comparing Snapchat to other social media platforms, respondents explained how there was less worry about sending personal information via Snapchat, since all conversations, photos, and videos disappear after a certain amount of time. The most used feature for respondents was the Snapchat group chat, followed by "Snap Story" updates and sending single Snapchats.

Most respondents were aware of Snap Map, and about 75% had their location on "ghost-mode." Most of these young adults reported not actively using or checking Snap Map, and those who did, checked it about 1-2 times a week and had 60-80 friends. Most positive feelings regarding Snapchat centered around the convenience of having a map connected to a phone. For example, many people mentioned how Snap Map was helpful if they lost their phone or if they were worried about the safety of a friend. As one respondent wrote:

I don't really use Snap Map that much, but I like that I can use it to see where my friends are especially if they forgot to answer my text or if I want to find them quicker and am too lazy to ask them.

Other respondents who were on ghost-mode did not like the fact that Snapchat operates as a "tracking device," blurring the concept of personal privacy. Concerning checking locations, those who did check their friend's location did it out of boredom or convenience to make plans. Those who did not check Snap Map expressed how they didn't feel the need to check their friends' location because they ultimately trusted their friends. In addition, 90% of users claimed that checking Snap Map had a minimal effect on their mood and daily life.

The final portion of this study revealed that users between the ages of 22 and 30 reported being hardly affected by Snap Map. While young adult participants acknowledged how checking Snap Map could potentially increase feelings of loneliness, exclusion, and anxiety, at the end of the day they simply did not care as much as younger Snapchat users. These participants were very aware of FoMO but felt that it had no direct relationship to checking Snap Map. Instead, participants expressed their awareness toward what they might see on Snap Map and prepared themselves for this before using the application. Those who suffered from anxiety and other mental health conditions tended not to check Snap Map as frequently as those without these conditions, because they were aware of the potentially triggering content. Overall, the majority of respondents believed that Snap Map did not contribute to anxiety any more than traditional social media platforms.

V. Discussion

This study has identified a difference in adolescents' emotional response to Snap Map, compared to older users. The most obvious comparison was the amount of time spent checking Snap Map, and also the impact Snap Map had on the user after checking. All adolescent participants reported checking Snap Map 1-2 times a day, while the 90% of young adults reported checking Snap Map 1-2 times a week. In terms of how users felt after checking Snap Map, three out of four adolescent users checked Snap Map to stay in the loop and to avoid exclusion, but also reported increased feelings of loneliness, anxiety, FoMO after checking the application. Young adult users checked Snap Map out of boredom or convenience and tended to feel

indifferent after checking the application. Despite these differences, both age groups believed that social media contributed to anxiety in users. See *Figure 2*.

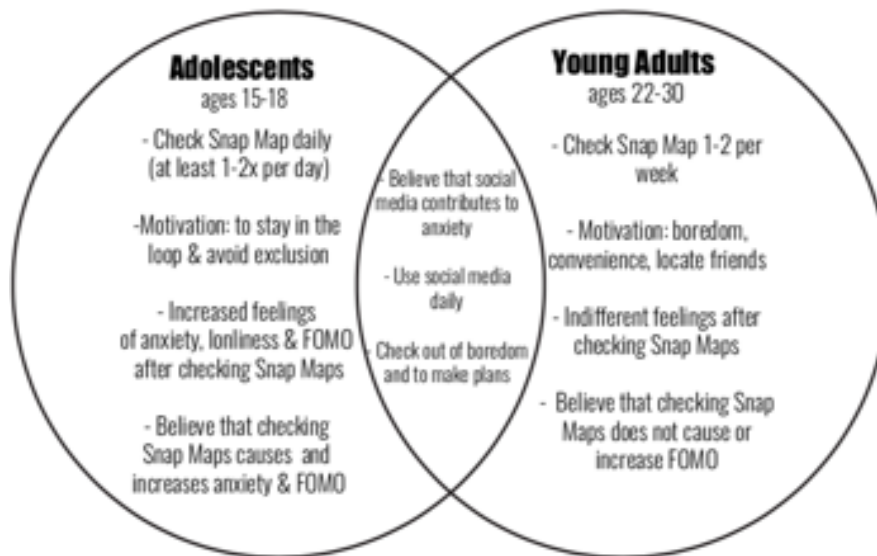


Figure 2. Critical comparisons between Snap Map use in adolescence and early adulthood.

The baseline survey conducted with young adults was a crucial step in understanding the results collected from the in-depth interviews with adolescents. In summary, the research findings support this study's hypothesis, which states that adolescents are more prone to develop severe emotional distress such as anxiety or FoMO, after checking Snapchat's Snap Map. Specifically:

- I. *Adolescents are more susceptible to the emotional implications of using Snap Map because their age and stage of development align with emerging technology trends in social media (Snap Map).*
- II. *Location-Based Social Networks (LBSNs) may cause significantly high levels of anxiety in adolescent users compared to traditional social media networks, due to the ability to mimic social interactions in a digital space and create a co-presence of physical and virtual reality (Saker, 2016).*

This study found common themes in adolescent social media behavior that are further explained by theory. For example, the belongingness theory states that it is our primary, human desire to belong to the "in-group," and also indicates that social exclusion causes anxiety because it signals and actual loss of belonging (Baumesiter & Leary, 1995). The adolescent respondents reported that they check Snap Map to see where their friends were to avoid exclusion, followed by an increased amount of anxiety. The belongingness theory suggests that adolescents are motivated to check Snap Map to find out what members of the group are doing at a given time and to fulfill their innate desire to belong. In addition, these users may fear missing out on events others find fulfilling (Przyblski, 2013). Snap Map allows users to view content constantly with minimal effort and to check the application to see what they potentially are missing out on. This understanding explains why adolescent users reported feeling "sad," "inadequate," and "isolated" after checking Snap Map, even if they were attempting to avoid these feelings in the first place.

According to the social comparison theory, individuals in uncertain situations evaluate their self-worth based on how they compare to others (Festinger, 1954). With this in mind, participants who were unsure of their friends' whereabouts or felt excluded (the uncertain situation), were compelled to check Snap Map and reported experiencing higher levels of anxiety and low-self esteem after doing so. This evaluation of self-worth translates to the participant checking Snap Map to confirm or deny their beliefs, and then experiencing negative emotional responses after making a comparison to their friends' location. Snap Map allows users to

actively engage with friends on a live map, but it can also be associated with increased feelings of jealousy and anger in users. Participants expressed how immediate access to locational information directly impacted their mood, especially when they saw something that confirmed their doubts. Something interesting to note is that even when participants were aware of the negative feelings that could arise after checking Snap Map, their desire to confirm or deny self-doubt exceeded concerns over these potential consequences.

The theory of the “spatial self,” where the individual can “document, archive and display” their everyday experience (Saker, 2106) also explains this study's findings. Participants relied on Snap Map to document their experiences and present themselves in a way that would appeal to other users. When participants were with a large group of friends, they tended to feel more confident and significant about their online presence; if they were alone, they tended to feel more insecure about how other users might perceive their location. According to this theoretical framework, the participants' self-presentation was based highly on their levels of self-awareness and maturity. This “spatial self” also explains why the majority of adolescent participants had their location visible, while the majority of older users were on ghost-mode. The adolescent participants chose to share their location on Snap Map in attempts of establishing and confirming their identity through physical awareness, while the older did not rely on Snap Map to optimize their self-presentation, and as a result, they were less inclined to make their location visible. Additionally, Snap Map's ability to provide instant locational information to users forms a virtual sense of reality that creates an unnatural link between real and digital space. Those who reported checking Snap Map over 1-2 times per day were constantly reinforced by this “virtual reality,” and became more reliant on the application.

V. Conclusion

The study aimed to understand adolescents' user behavior with evolved LBSNs, specifically asking whether or not Snapchat's Snap Map feature intensified anxiety and FoMO in adolescents. This study indicated the emergence of Snapchat's Snap Map feature is linked to current adolescent social media users, illustrating how the evolution of social media directly corresponds to the various stages of lifespan development. The results suggest that checking Snap Map provokes anxiety and FoMO in adolescent users. Adolescent users spent more time checking Snap Map and experienced severe emotional vulnerability after checking. Additionally, adolescents' top reason for checking Snap Map was to avoid social exclusion, stay in the loop, or confirm or deny any doubts they might have. Even if the participants had good intentions for checking Snap Map, most reported feeling anxious, lonely, or excluded afterward.

This revelation illuminates a paradox about the purpose of Snapchat and other LBSNs: Instead of fulfilling the adolescents' developmental need to belong, the increased use of Snap Map instead intensified the participants' sensitivity towards missing out on outwardly relevant events. Finally, this study conveys how adolescents are more likely to use Snap Map as a way to establish and confirm their identity through a digital presence, to seek reassurance and fulfill an underlying psychological need not met.

Future research should obtain additional data from a larger, globally diverse sample size. We live in a world where technology is continuously evolving and impacting the way we interact and communicate on a daily basis. The progression of social media platforms and specific LBSN features will continue to grow and correlate to various stages of psychological development. The more data collected about how individuals of various stages of development interact with different platforms of emerging social media, the more we will be able to predict future social media implications and prevent negative interactions with users.

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