ADDRESSING THE EFFECTS OF SOCIAL MEDIA USE ON ADOLESCENTS

by

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Introduction

Communication is humans' most basic desire and as technology advances, mobile phones and social media provide this by allowing people to connect and by giving a sense of belonging. As of January 2017, approximately 37% of the world's population was a part of at least one social network, with North America having the highest rate of 66% of the population having at least one social media account. As of 2016, Canadian internet users spend on average 107 minutes per day accessing social media accounts through their devices (The Statistics Portal, 2017). At 1.65 billion users worldwide as of 2016, Facebook is the most frequently used platform and especially popular among adolescents and young adults (Statista, 2016). While this has led to benefits in certain areas such as marketing through the use of social networks, these increases in use have also resulted in negative effects. "Technology has solved old economic problems by giving us new psychological problems" (Manson, 2016).

Born in the early 1990's, I am a millennial woman. Part of this identity is having had a childhood consisting of summers spent playing outside, having to wait for the landline to be free to speak with friends outside of school, and anytime spent at a computer being a great privilege and treat. In my adolescent years, I received my first mobile phone which I was to share with my younger brother, and only to be used for emergencies. We also got our first home computer which was shared by the whole family. In high school, I was able to get a better mobile phone which allowed for calling and texting with friends and I received my first personal laptop. Now at 28 years old, my mobile phone is with me nearly at all times and I am a part of four social media platforms. I used to use them all daily to communicate with friends and family, post pictures, and learn about things I am interested in such as music, fashion, travel, filming, and

actors. More recently, I found myself feeling the need to take breaks from use and I have not been very active on my online profiles. Recognizing the negative effect it has had on me, I am concerned for young individuals of today. I can appreciate the importance of awareness and guidance as exposure to technology is occurring at increasingly younger ages. With unlimited benefits and possibilities of social media, and yet great risks of harm, it has become essential to ensure unhealthy habits of use are prevented. Parents, teachers, and counsellors must take responsibility in ensuring they set good examples, create environments and relationships that are safe and nonjudgmental, and to recognize the risks and needs of our young people. I take part in this responsibility of addressing and helping to prevent the negative effects of social media on adolescents.

Initial social media use age is dropping and as of 2013, first time Facebook users were on average between the ages of 12 and 13 (Garcia-Jimenez, Lopez-de-Ayala-Lopez, & Catalina Garcia, 2013). Social media sites are especially attractive to adolescents, those between 10 years and 19 years, a time of cognitive, psychological, and biological development making them most vulnerable to negative effects such as the fear of missing out (FOMO) (Oberst, Wegmann, Stodt, Brand, & Chamarro, 2017). Between 2014 and 2015, it was found that 71% of adolescents reported that they use more than one form of social media and that 94% of adolescents who use these sites, do so daily from their mobile devices (The Office of Adolescent Health, 2016). According to a 2019 study, on average, teenagers are spending six to seven hours daily in front of a digital screen (McKenna, 2019). This group of social media users has young developing minds and are the most easily influenced. In general, technology and the use of social media have its potential risks and benefits to adolescent users and ultimately, it is based on how one uses them. It can be a source of communicating with peers, exploring learning opportunities, and

discovering of extra-curricular activities that benefit mental and physical health. It must also be considered, however, that being frequent users of social media, youth are at risk of all its negative effects when it is not used with awareness (The Office of Adolescent Health, 2016).

Key Terms:

Social media: "an electronic form of communication that provides a space for social engagement and interaction where users can both consume and create content" (Reid Chassiakos, Radesky, Christakis, Moreno, & Cross, 2016).

Social networking: any use of electronic forms of communication (Reid Chassiakos, Radesky, Christakis, Moreno, & Cross, 2016).

Fear of missing out (FOMO): "an uneasy and sometimes all-consuming feeling that you're missing out- that your peers are doing, in the know about, or in possession of more or something better than you" (JWT Marketing Communications, 2012).

Adolescence: the developmental period between 10 years and 19 years of age (Oberst, Wegmann, Stodt, Brand, & Chamarro, 2017).

Cognitive development: the construction of thought processes, including remembering, problem solving, and decision-making, from childhood through adolescence (Steinberg, 2011).

Social development: adolescents' development of a sense of self or identity as they become independent by building relationships with others outside of the family (Steinberg, 2011).

Brain function: patterns of brain activity (Steinberg, 2011).

Depression: feelings of sadness, loneliness, trouble concentrating, fatigue, irritability, and hopelessness (Boers, Afzali, Newton, & Conrod, 2019).

Anxiety: a feeling of worry, apprehension, nervousness, or unease, typically about an imminent event or something with an uncertain outcome (JWT Marketing Communications, 2012).

Sleep deprivation: suffering from a lack of sleep. For adolescents, this is receiving less than eight to ten hours per night (Duffy, 2019).

Mobile phone problematic use (MPPU): repetitive use of the mobile phone to engage in behaviour that is known to be unhealthy. It has been associated with behaviours that include an inability to regulate one's use of the mobile phone, resulting in consequences in daily life, including symptoms of dependence (Lopez-Fernandez, Honrubia-Serrano, Freixa-Blanxart, Gibson, 2013).

Texting while driving (TWD): "the act of sending, reading or writing a text messages or electronic message (including through social media platforms) using a handheld electronic telecommunications device to manually communicate with any person" (Berenbaum, Keller-Olaman, & Manson, 2015).

Smartphone addiction: when smartphone use begins to put a strain on an individual's personal and or professional life (Grush, 2015).

Mindful awareness: reflecting on the inner activity of the mind in the here and now, moment to moment (Siegel, 2007).

Chapter 1: Changes of Adolescence

Mobile phones and social media accounts are a symbol of growing up and independence. When a young individual finally saves up enough to purchase their first mobile phone or are gifted one from their parents, it can be expected that feelings of freedom and a desire for privacy are felt and embraced. At the same time, mobile phones and all the applications they have to offer, allow for communities to form and group identities to develop. While mobile phones have endless opportunity for activities, socialization, and interaction, when use becomes excessive, problems may arise. This is especially due to the fact that this is a time of biological, cognitive, and emotional development. Research has shown problematic use of mobile phones among adolescents and young adults that require attention and further exploration (Crone & Konij, 2018). It is helpful when parents and guardians understand the developmental changes which occur during adolescence and the important role they can play in helping to ensure that this young, vulnerable population is using their mobile phones with minimal risks and harms.

Developmental Changes of Adolescence

To better understand what adolescents are experiencing during this time of development and how to best communicate with them, it is essential to recognize and acknowledge the developmental changes that occur in these years. Along with the biological, hormonal, and physical changes of puberty, adolescence is a time of cognitive and social transition. According to Kuhn, (2009) adolescence is a time for more complex ways of thinking about the world and no longer only about what is right in front of a person, as in childhood. As the brain matures, behavioural, emotional, and cognitive changes occur (Kuhn, 2009). According to Aristotle's classic theories of human development, adolescence is "a period of an awakening of new, powerful, and pervasive abilities and talents" (Amsel, 2011). Likewise, Piagetian theory of

cognitive development states that adolescence is a time when new and powerful methods of reasoning formulate (Piaget, 1972). It is believed by both theories that these new abilities result in fundamental changes in how adolescents think, which forever transform the way in which they view themselves, others, and the world (Amsel, 2011).

Adolescents know more than children and can think in more advanced, efficient, and effective ways. Thinking also becomes more multidimensional allowing for example, for the understanding and use of sarcasm, metaphors, and expressions that have more than one meaning. An adolescent or adult is better able to understand than children, that a statement is communicated by a combination of what is said, how it is said, and the context in which it is said (Steinberg, 2011). Adolescents are better able to think about what is possible as oppose to being limited to only what is real, and are able to formulate abstract ideas. An example of an adolescent's development of thinking processes is their ability to use *deductive reasoning*. Deductive reasoning is the drawing of logically necessary conclusions from a general set of pieces of information. Instead, *inductive reasoning*, or conclusions made based on accumulated evidence, is used in everyday situations and by people of all ages (Steinberg, 2011).

In relation to the development of deductive reasoning, is the emergence of hypothetical thinking in adolescence. This involves seeing beyond what is directly observable and applying logical reasoning to anticipate what might be possible. Aristotle believed that the emergence of hypothetical thinking was evidence of an intelligent mind (Amsel, 2011). It is the ability to treat ideas as if they are true, without necessarily accepting them. This ability to think through hypothetical situations and outcomes, when done effectively, allows for an individual to be able to plan ahead, see possible future consequences of behaviour, and formulate alternative explanations of occurrences. Thinking hypothetically also allows the young individual to take

the perspective of others by enabling them to think through what another person might be feeling or thinking (Steinberg, 2005).

Another gain in cognitive ability, which emerges during adolescence, is *metacognition*, or the process of thinking about thinking. This involves monitoring one's own cognitive activity during the thinking process. An example is when an individual consciously uses a strategy for remembering something, such as the use of *Every Good Boy Deserves Fudge* to help remember the notes of the treble clef in music notation. Research shows that using these types of strategies can be a great aide to adolescents in problem-solving (Chalmers & Lawrence, 1993).

Adolescents are better able than children are to manage their thinking as well as, explain to others the processes they are using to think. When asked, adolescents can not only explain what they know, but also why knowing this information enables them to think differently and more effectively problem solve. A study found that adolescents are better able than children to understand that people do not always have complete control over their thinking processes and that it is not possible to think about nothing for long periods of time. It was found that adolescents had a better understanding that individuals have thoughts that are unwanted and that the thoughts one tries to avoid, eventually often return (Flavell, Green, & Flavell, 1998).

These new powerful tools of cognition can lead to difficulties for young adolescents as they process and adjust to the advancements in their thinking. Increased introspection, or thinking about one's own emotions for example, may lead to extreme self-absorption. Adolescent egocentrism may result, which involves the young individual having such a heightened sense of self-consciousness, that they imagine their behaviour is the focus of everyone's attention, or that they have an *imaginary audience*. An issue that may result from adolescent egocentrism is the *personal fable,* or the belief that one's experiences are unique and

that they are alone and no one can understand what they are going through. At this young age and as adjustments are still occurring, adolescents have cognitive limitations and for example, might believe that everyone will notice how they are dressed despite it being an event of 5000 other people or that no one could possibly understand what their break-up feels like (Steinberg, 2011). A study found that feelings of self-consciousness are generally more intensely felt by girls and peak around the age of 15, and then decrease as the individual's social confidence grows (Rankin, Lane, Gibbons, & Gerrard, 2004). Another study suggests that self-consciousness increases during early adolescence, coinciding with maturation of brain parts that process one's perceptions of what others might be thinking (Sebastian, Burnett, & Blakemore, 2008).

A more recent study (2017) examined 30 healthy adolescents' thoughts, emotions, and general experience of looking at themselves in a mirror. Findings indicate that the mirror was used as a way of knowing how they *really look* and how others *really see* them. Anxiety was reported as a result of not knowing how others saw them and it was found that they approached the mirror *to know*. Many participants shared the experience of concern about being the centre of others' observation and evaluation and researchers concluded that the concepts of an imaginary audience and self-consciousness were present. The study suggests that mirrors act as both a private and public space as the subject recognizes the reflected image as oneself, while simultaneously, represents what others observe from their perspectives (Sommerfeld, Bensimon, & Lutzman, 2017). Social media accounts provide a similar combination of both a private and public space for users. What is posted is a self-reflection, while simultaneously being observed and perceived by the online community.

Development of the Mind

Daniel J. Siegel stated that "the mind emerges from the activity of the brain whose structure and function are directly shaped by interpersonal experience" (Siegel, 1999). There are three foundational principles which build the foundation for the neurobiology of the human mind. The first is that the human mind emerges from patterns of energy and information within the brain and between brains. He has also defined the mind as "a process that regulates the flow of energy and information" (Siegel, 2007). Siegel believes that the human mind is both embodied and relational. It is embodied in that it functions as a flow of energy and information within the body and brain. It is relational in that it involves the flow of energy and information occurring between people.

This leads to the second foundational principle which states that the mind is created through the interaction of internal neurophysiological processes and interpersonal experiences (Siegel, 1999). Siegel provides an example of this flow and interaction. In his book, *The Mindful Brain*, he explains how he is shaping both his own mind, as the writer of the book, as well as, that of the reader's. The flow of energy and information might be changing in the writer's body and brain as they imagine what the reader's response might be and the reader is embodying this flow of energy and information as they absorb what they are reading (Siegel, 2007). Similarly, when someone posts something online, the minds of both the poster and those who view it are being shaped. The flow of energy and information are being embodied and absorbed by the bodies and brains of all involved. While the poster is deciding which photo and what words to go along, the flow throughout their brain and body changes as they wonder how those who see the post will respond. As the photo and words are being absorbed by others, their minds embody the flow of energy and information.

The third and final fundamental principle describes how the brain's structure and function during development depend on how experiences of the person shape the genetic maturation of their nervous system (Siegel, 1999). This is especially determined by relationships with others and therefore, the mind emerges, according to Siegel, from neural connections shaped by human connections. When the activity and structure of the connections between neurons are altered, brain processes are shaped by experience. These processes include self-awareness, memory, and emotion. The development of the brain is directly influenced by the patterns of an individual's relationships and emotional interactions. Emotion interconnects various systems within the mind as well as, between minds. Research has found an individual's ability to organize emotions is associated with how able the mind is to integrate experience and to adjust to future stressors. Optimal state regulation is reflected by emotion regulation that allows an individual's mind a flexibility to interact with the environment. The opposite would be emotion *dysregulation* which can be recognized as deficiencies in this capacity to allow flexible and organized responses that are adaptive to the internal and external environment. Emotion regulation is associated with how the mind becomes organized and integrated. In understanding how emotional experience impacts the mind, how the past continues to shape present experience and influence future behaviour can also be better understood. Humans continue to grow throughout life and the mind does not stop developing after childhood. Development continues into adolescence and long after that (Siegel, 1999).

Changes in Brain Structure and Function in Adolescence

During adolescence, the prefrontal cortex of the brain changes through *synaptic pruning* and *myelination*. While synaptic pruning refers to the process through which unnecessary connections between neurons are eliminated (Spear, 2010), myelination is the process through

which brain circuits are insulated with myelin (Steinberg, 2011). The prefrontal cortex is the region of the brain most responsible for sophisticated thinking abilities such as, thinking and planning ahead, recognizing risks and rewards, and controlling impulses. This region of the brain does not reach full structural maturation until one's mid-20's (Casey, Tottenham, Liston, & Durston, 2005). Synaptic pruning and myelination improve the efficiency of information processing, allowing such abilities to develop and advance (Casey et al., 2005).

Continued myelination of the prefrontal cortex throughout the adolescence period also leads to many advances in cognition and how the brain functions (Spear, 2010). The limbic system is an area of the brain that plays an important role in the processing of punishment and reward, social information, and how emotions are experienced. Connections between the limbic system and the prefrontal cortex result in improvements in one's ability to manage thoughts and feelings, and regulate emotions (Steinberg, 2008). The prefrontal cortex experiences two important changes which lead to advancement in the efficiency of information processing (Paus, 2009). One major change to brain function is that patterns of activation within the prefrontal cortex become more focused. The other important change is that the adolescent becomes more likely to use multiple parts of the brain simultaneously and coordinate activity between prefrontal regions and the limbic system as well as, other areas. The increased connectivity of different brain regions makes the simultaneous coordination possible and this all becomes especially important during difficult tasks. This is essential for tasks that require self-control, where the coordination of thinking and feeling is needed and any others that put a strain on the prefrontal cortex working alone (Steinberg, 2011).

Pattern changes in the levels of neurotransmitters of the limbic system also affect brain function in adolescence. Serotonin is a neurotransmitter which plays an important role in the

experience of different moods and dopamine is especially important in the brain circuits that regulate the experience of reward. These changes occur in many areas of the brain beginning around the time of puberty and are responsible for adolescents becoming more emotional, the increased likelihood of engaging in more reward and sensation seeking behaviours, and becoming more responsive to stress (Spear, 2010). Research has also shown that due to these changes, the young population becomes more vulnerable to mental health problems and the development of psychiatric disorders. Due to adolescents' need to seek higher levels of reward, there is an increased vulnerability to impulse-control disorders and substance abuse. Their vulnerability to depression, anxiety, and mood disorders are increased as a result of their higher response to stress and emotions such as sadness and anger (Paus, Keshavan, & Giedd, 2008). As the limbic system also plays an important role in the processing of social information, these changes have also been suggested to help in understanding why adolescents seem to be increasingly concerned with what their peers think during this time (Nelson, Leibenluft, McClure, & Pine, 2005). An increased sensitivity to others' emotions in adolescence has also been evidenced by the better ability to recognize subtle changes in others' facial expressions (Thomas, De Bellis, Graham, & LaBar, 2007).

While developments of the prefrontal cortex are ongoing into early adulthood, changes in the functioning of the limbic system occur earlier in adolescence. It has been suggested that this gap in timing of maturation between the two regions helps to explain the increase of risky behaviour between the childhood years and adolescence (Steinberg, 2009). Research suggests that a part of the brain changes in ways that increases the need to seek reward and stimulation before the part of the brain that regulates judgement, impulse control, and decision-making has fully matured (Steinberg, 2011). It is important to note that the relation between development

and maturation of the brain and psychological development is correlational and not one of cause and effect. The brain is very malleable and development is affected by biology as well as, experience (Kuhn, 2009). For example, research has shown that individuals with a genetic profile that predispositions them to develop depression, become depressed only if they experience a certain level of stress in their lives (Caspi et al., 2003). Adolescents' behaviour also affects their brain development (Steinberg, 2011).

The Adolescent Brain versus Social Media

Social media in all of its forms, while used by many, is most attractive to the younger population. It is essential then, to consider how brain development and function during this time is affected by social media use. The brain during adolescence experiences extensive structural and functional change in regions that affect aspects such as emotion regulation, impulse-control, and processing of reward and risk, many of which are involved in the consumption and processing of social media content. The lives of today's youth are influenced and saturated by media and no longer just for entertainment purposes. Today, social media enables users to communicate and share information and ideas in multiple ways through messaging, photos, and videos. As well, all forms are constantly available through mobile devices and have become an integrated aspect of adolescents' social lives (Konijn, Veldhuis, Plaisier, Spekman, & den Hamer, 2015). Much of social media content then, is being processed by still developing brains (Crone & Konij, 2018).

Adolescence is a transitional period where one's peers become more important and influential, while parental impact decreases. Those in this time of development have a strong need to fit in with peer groups and much attention is placed on those who are accepted and those who are rejected. Much of the social lives and feedback of peers of adolescents today take place

online through the various social media platforms. The neural systems that are associated with behaviours required for social media use, including social reward processing, emotion processing and regulation, and thinking about others' thoughts, are still underdeveloped and enduring important changes during this time. This has been found to contribute to sensitivity to online rejection, acceptance, peer influence, and emotional interactions (Meshi, Tamir, & Heekeren, 2015). As well, as past research has demonstrated that adolescents take more risks in the presence of peers and when peers encourage risk-taking, so it has been found for online peer influence (Veldhuis, Konijn, & Seidell, 2014). These findings further suggest there is a need to follow norms at this period of development (Van Hoorn, Crone, & Van Leijenhorst, 2017). Through the constant connection to smartphones and other mobile devices, adolescents monitor the statuses of their peers, update their own, and receive constant feedback which either accepts or rejects them. Communication and interaction also take place in other forms, often times, through idealized images (Konijn et al., 2015).

Adolescent Identity

Adolescence is also a time of exploration and discovery of identity. While important changes in identity take place during childhood, adolescents are far more self-conscious about these changes and feel them more intensely. Changes in identity during adolescence involve the first significant restructuring of the individual's sense of self and this is at a time when the young individual actually has the intellectual ability to appreciate the significance of such changes for the first time. Identity formation during adolescence entails an integration of individual and social perspectives concerning the self (Martin & Sokol, 2011). In adolescence, concerns about physical appearance often intensify and the young person's perception of their physical appearance becomes a major contributing factor to their overall sense of self. When an

adolescent processes their reflected image, it is associated with the general development of their sense of self and identity, and not only about the development of their body image (Sommerfeld et al., 2017).

New hypothetical thinking abilities also allow adolescents to become more able to imagine their possible selves as they envision different identities that they may assume (Markus & Nurius, 1986). At this time of development, there is also the ability and tendency to consider and evaluate the consequences of one's decisions and imagine what one's life might be like in their future. It is during adolescence that thoughts around who one will become and what they are really like are wondered about (Nurmi, 2004). For the first time, new social roles open up choices and decisions to make about careers, relationships, and futures. They begin to wonder about their place in society, what they want from their lives, what's most important to them, and the kind of person they would like to be. Identity development has been suggested as being more like a series of interconnected developments which all involve changes in how individuals view themselves in relation to others and to the society which they are a part of (Steinberg, 2011).

Today, social media accounts play an increasingly prevalent role in helping adolescents to create identities. Social media accounts, however, are not about who the person is, but rather who the person presents themselves as. Through postings of images, videos, and messages, a trend often develops and the individual is likely to only post things that make them look powerful, successful, fulfilled, trendy, social, and as having everything they could want. Their accounts are created not always to portray their identity as it is, but rather in a way in which they believe to be ideal and what they wish it to be (Tőrők-Ágoston, 2017). A (2017) study on Italian adolescents between 13 and 19 years of age found that only 25% of the participants' published posts, pictures, and videos expressed an aspect of their personality or who they are in everyday

life. Participants were asked to report on how their identity manifests online. For the majority, students felt that the messages, pictures, and videos they posted did not reflect or represent their values or character (Pisano, Mastropasqu, Cerniglia, Erriu, & Cimino, 2017).

As there is an increasing focus placed on physical appearance in adolescence, and social media is largely based on looks, it might be expected that the young users of today are experiencing a different type of pressure and added expectations to look a certain way. Some of the most popular social media platforms for adolescents (e.g., Facebook, Instagram, Snapchat, etc.) rely heavily on the approval of others' pictures, videos, and statuses through the numbers of likes, views, shares, and comments one receives. If an adolescent bases their sense of self, self-worth, and identity on these numbers, they will always have an endless supply of people to compare themselves to which means, there will always be someone who has received more in numbers. This type of thinking and behaviour has been associated with depression and anxiety. Pressure for one's online appearance to seem a certain way increases as well (Solstice RCT, 2017).

Carl E. Pickhardt, writer of *Surviving (Your Child's) Adolescence*, believes that the young people of today grow up in two worlds and, therefore, have two identities to manage; "offline, actual world of daily face-to-face interactions and practical tasks, and there is online, virtual world of electronically mediated connections with immense positive possibilities" (Pickhardt, 2014). While their in-person identity is more spontaneous and natural, an adolescent's internet identity is a much more carefully designed one. In the online world, young people are able to access an endless variety of ways to meet, communicate, entertain themselves, and gather information. This also presents an endless amount of ways to publicly post about one's identity and total freedom to portray and promote one's self in any way they wish to. This means that

every posted description of oneself, picture, or video "is an advertisement intended to define self, publicize personal image, enhance social standing, and attract attention," especially that of peers (Pickhardt, 2014). Pickhardt points out that this is all very new and the possible long term effects and risks have not been fully researched. Young people are using the online world to express and represent their changing and developing identities and exploration of possible selves. While in their offline identity, it is wondered, "What am I really like?" and "Who will I become?" (Steinberg, 2011), their online identity might take on the focus of "How do I want to be seen?" (Pickhardt, 2014). Establishing an internet identity is a new concept and the young developing minds of today have little to assist them in deciding on how to express themselves, and also how to protect themselves.

Parent-Adolescent Relationship

Often times, when thinking about parent-teenager relationships, all of the possible problems that can occur during this time tend to be the focus. Stress, conflict, and pain between teenagers and their parents might even be seen as the norm. Unlike advice books or blogs of infancy and childhood, for example, which tend to focus on normative development, help resources for parents of teenagers tend to emphasize problems (Steinberg, 2001). Maintaining a healthy relationship between adolescents and their parents can have its struggles and the more aware a parent is of possible conflict and difficulties, the more prepared they can be to prevent and resolve it. For one, it is important to be aware that parents believing that adolescence will be a difficult time might lead to them expecting their child to conform to this assumption, and as a result, affect their relationship with their child (Jacobs, Chin, & Shaver, 2005). When parents have the belief that they are going to experience difficulty with their child once adolescence is reached, what psychologists refer to as a *self-fulfilling prophecy,* may occur. This is the idea that

individuals' behaviour is influenced by others' expectations for them which in this case, is that the adolescent will behave in the way that their parents expect them to (Steinberg, 2011).

It is important to be aware of a social shift which occurs in adolescence. The influence of one's parents is taken over by peer influence as well as, the young person's own reasoning. While things were more often seen and believed to be absolute in childhood, they are now seen as relative. Adolescents might now see parents' values, rules, and beliefs as relative and no longer as facts. The brain development during this time allows adolescents to think in more complex and multidimensional ways, giving them the ability to recognize choices and make personal decisions. This is a main reason why conflict between parents and children increases during adolescence. Adolescents view less aspects of life as legitimate for their parents to regulate. They may now, for example, view what time they should be home by, as a personal choice to make and no longer for their parents to decide. During this time, it might even seem as though adolescents become very skeptical about nearly everything and constantly question their parents to a point that it causes arguments (Steinberg, 2011).

Many studies, however, indicate that on average, young people and their parents experience little emotional distance (Laursen & Collins, 2009) and instead, adolescents feel close to their parents, respect their judgement, and feel love and care from them (Steinberg, 2001). While conflict due to a generation gap might be expected, studies have found that teenagers and their parents share similar views and beliefs around core values such as religion, education, work, and what personality traits are desirable (Knafo & Schwartz, 2003). These factors shape one's central beliefs and because adolescents and their parents have these in common, more diversity is found within the young people population than between generations (Steinberg, 2011).

Minor generational gaps exist in terms of core values, which develop overtime beginning in early years; however, conflict is more likely to arise in matters of personal taste, such as in style of clothing or makeup, music preference, and leisure activity (Laursen & Collins, 2009). These types of preferences are often based on current trends and more likely to be influenced by sources outside of the family. Due to the fact that adolescents spend an increasingly amount of time with friends and peers participating in social activities involving discussion of taste in music and fashion, disagreements and differences in opinion between parents and their adolescent children can be expected (Steinberg, 2011). As well, while stereotypes suggest that adolescents and teenagers will rebel against their parents just for the sake of rebelling and resist all attempts to enforce rules, studies have found that this is rarely the case (Darling, Cumsille, & Martinez, 2007). Young people generally willingly accept parents' rules, unless they believe that the issue is personal rather than moral (Jackson, 2002). Adolescents will decide whether or not their parents have the right to make the rule before they follow it without discussion. For example, it would be more likely agreed that it is dangerous and not right to drink and drive, but having to keep an orderly bedroom might be considered a personal decision to make (Smetana & Villalobos, 2009).

Variation exists among adolescents' beliefs of the authority their parents have and those who see their parents as having more legitimate authority have fewer behaviour issues and relationships with less conflict (Darling et al., 2007). As more issues are recognized by adolescents and teenagers as a matter of personal choice and no longer legitimate for parents to regulate, conflict may increase. Parents might be seen as overly controlling if they attempt to regulate the things that their adolescent children view as personal issues. The effects of feeling psychologically controlled by parents can be harmful to adolescents' mental health, but when it

is agreed that an issue is a matter of safety, for example, versus a matter of personal choice, it will have a more positive impact (Hasebe, Nucci, & Nucci, 2004). This is one reason why communication continues to be essential during this time of development as parents and their adolescent children more often experience conflict over the definition of issues, rather than the details of it. Often the struggle is over deciding who has the authority to make the decision. It is helpful when parents are aware of this, and of the fact that their adolescent child's reasoning abilities are changing during this time. This realization will help parents to acknowledge that the way their children perceive rules and regulations are evolving (Steinberg, 2011).

Adolescence is a time of growth and development and when parents and guardians of adolescent children are aware and knowledgeable of such changes, they can better prepare for their children's needs during these years. It is important to understand the cognitive, emotional, and biological developments occurring in their children so that they can recognize as their abilities and behaviours change. In most recent times, parents will quickly learn that social media is most attractive to the younger population and use will likely begin in early adolescence. It is helpful for parents to consider how their child's brain development and function during this time is affected by social media use. The brain during adolescence experiences extensive structural and functional change in regions that affect aspects such as emotion regulation, impulse-control, and processing of reward and risk, many of which involved in the consumption and processing of social media content.

It is helpful to be aware that there is a gap in maturation timing of two main brain regions, and research suggests that this assists in the explanation of increased risky behaviour both online and offline during early adolescence. While changes in the functioning of the limbic system occur earlier in adolescence, prefrontal cortex developments are on-going into early

adulthood (Steinberg, 2009). As adolescence is also a time of exploration and discovery of identity, it is helpful for parents to allow their children a reasonable amount of freedom to explore their possible selves. With the advancement of technology and popularity of social media, however, their adolescent children are likely managing two identities: a more spontaneous and natural in-person identity, as well as, a carefully designed and idealized on-line identity (Pickhardt, 2014). While stereotypes might suggest that teenagers will rebel just for the sake of rebelling, it has been found that young people will generally accept parents' rules without argument unless they believe that the issue is a personal decision to make (Jackson, 2002). For all such reasons, it is essential that parents educate themselves and that a parent-child relationship with open communication is maintained throughout the adolescent years.

Chapter 2: Literature Review of the Effects of Social Media Use

Social Media and Adolescents

Adolescents find social media especially attractive and studies have found that young individuals can experience both positive and negative effects as a result. Social media can be defined as "an electronic form of communication that provides a space for social engagement and interaction where users can both consume and create content" (Reid Chassiakos, Radesky, Christakis, Moreno, & Cross, 2016). Adolescents' online engagements can be categorized into five distinct groups; communication (texting, messaging), photograph documentation, video calls and chats, pinboards, and gaming (O'Keeffe, 2016). Social media platforms are web-based virtual communities which allow an individual to develop and construct a public profile and allow for communication with others. While their popularity are growing among the entire population and becoming apparent in people's everyday lives, they have become especially popular among adolescents and young adults. A study with over 2,000 adolescent participants between the ages of 13 and 17 years found that 92% reported going online daily and almost 25% reported constant use of social media platforms (Lenhart, 2015). Another study involving participants in the age group of 18 to 24 years, evaluated the self reports of use of social media platforms Snapchat and Instagram. The study found that 78% of these participants used Snapchat, and 71% visited the platform several times a day. This study also reported that Instagram was used by 71% of participants, with 45% of them using it several times daily (Smith & Anderson, 2018).

A Complex Relationship

Most studies have tested the relationship between depression and anxiety disorders and excessive use of social networking and have concluded that this relationship is very complex as

it presents both positive and negative effects on the well-being of young users. The rewarding nature of positive aspects of social networking may lead to the overuse or maladaptive use which can lead to compulsive checking behaviour and excessive engagement of social networking forums and result in negative psychological consequences. There are studies that show that an association exists between time spent social networking and lower grade point averages in students, less social connection, lower self-esteem, and higher depression rates (Oberst et al., 2017). At the same time, however, time spent on social media networks overall, has not been found to be an exclusive factor in such problems or maladaptive use. Instead, specific vulnerabilities have been found to exist that help to explain the possible negative psychological effects of social networking sites. These vulnerability factors include younger age in the individuals using the social media networks, distortion of one's online profile, and pre-existing mental health issues, especially depression (Oberst et al., 2017). A (2015) study highlighted that the use of social networking sites is associated with low self-esteem and other psychosocial difficulties, but also with mental health problems such as anxiety, loneliness, and depression. The study concluded that Facebook seemed to be especially attractive to individuals suffering from loneliness and psychopathological symptoms because it provides positive feedback from the online community (Bhagat, 2015). This could become problematic because it could result in a more public self-presentation, poor social adaptation, and social anxiety. Past studies have therefore, found a reciprocal effect where online interactions are used to alleviate mental distress, while also increasing mental health issues such as depression. A possible explanation is that young individuals seek to make connections online to compensate for face-to-face difficulties forming relationships by using social networking as a way of emotion regulation. Those with pre-existing psychopathological symptoms may have the expectation that using social

networking systems will be a way to escape negative feelings and help them to experience pleasure and positive feelings, but by having these expectations, they put themselves at higher risk of maladaptive use (Oberst et al., 2017).

The 2017 study concluded that young individuals, with already existing mental health difficulties, are especially at risk of experiencing the negative effects of social media, despite the seemingly positive feedback it may seem to provide and that a phenomenon referred to as, the fear of missing out (FOMO), plays a role in the development of these negative consequences. The study demonstrated that FOMO was a mediator in the path between psychopathological symptoms and negative consequences of social media use through mobile devices, especially with depression having a direct effect on these consequences. Although there are positive effects to social networking even for young users, such as, increased self-esteem, connectedness, and the fulfillment of the need to belong, research has provided clear evidence that these behaviours have the potential to lead to negative psychological effects and harm the well-being of adolescents (Oberst et al., 2017).

The Fear of Missing Out

An area of research being studied in more recent times is the effects of FOMO on adolescents. FOMO is defined as the "uneasy and sometimes all-consuming feeling that you're missing out- that your peers are doing, in the know about, or in possession of more or something better than you" (JWT Marketing Communications, 2012). FOMO has also been found to be made up of irritability, anxiety, and feelings of inadequacy and the use of social media increases these feelings. As technology improves, social media gains in popularity, and access becomes simpler through personal devices, receiving information becomes more addictive. It becomes easier to compare one's lives to the lives of others through online postings and information

gathered through pictures, videos, and other forms many times, causing them to feel less satisfied with their own lives. Adolescents and pre-adolescents have constant access to what their friends are doing, saying, and buying and with that, all the pressure to fit in and not miss out (Abel, Buff, & Burr, 2016).

History of FOMO

The concept of FOMO has been present throughout history and recognized in all forms of communication and ways to access knowledge of others such as, through newspapers, pictures, and letters. The differences between the causes and forms of this fear and the anxieties connected to it, show how it has evolved and give insight into how it develops. It is difficult, however, to find reliable peer reviewed sources from long ago as the term was not recognized by researchers and examined scientifically until more recent times. Up until a few years ago, it was a term thrown around and only used casually (Upreti & Musalay, 2018).

A (2015) article which provides some insight into the history of FOMO, states "The fear of missing out is an old—actually an ancient—fear, being triggered by the newest form of communication: social media" (Sanz, 2015). The article suggests that this need to be in the know stems all the way back to humans' survival instincts in tribes and the constant need to be aware of new food sources and ensuring that one does not miss out on such opportunities. Later on, organized farming communities developed and being in the know was based on awareness of resources and information within the community. Throughout history and continuing today, systems of communication are used to keep connected and informed of important information, including potential dangers to one another (Sanz, 2015).

Today, this is done through television, newspapers, and social media. While it usually is not a matter of surviving anymore, there is a part of the brain that actually senses if one is being

left out or missing out and for many, social network accounts have become their community. To relieve stress, they find themselves constantly checking their Facebook and Instagram feeds to ensure they are not missing out on anything and instead, reach a hyper-vigilant state which is the complete opposite of being at peace. The 2015 article also gives some recommendations for those struggling with FOMO which include taking breaks from social media use and focusing more on the people around them, their environment, and on being in the here and now (Sanz, 2015).

Measuring and Assessing for FOMO

Abel, Buff, and Burr (2016) developed a way of measuring FOMO. The aim was to propose and validate a scale for measuring psychologically based FOMO. In previous research, FOMO had been associated with inadequacy, anxiety, irritability, and self-esteem. It is believed that an individual higher in feelings of inadequacy, higher in feelings of anxiety, higher in feelings of irritability, and lower in self-esteem will have a higher fear of missing out. The current study used four existing scales to measure FOMO. They included the Feelings of Inadequacy Scale, a shortened 6 item version of the State Trait Anxiety Inventory, the Irritability Questionnaire, and the Self-Esteem Scale (Abel et al., 2016).

The final survey had 10 items representing FOMO and all items were assessed using an 8-point Likert type scale from *never* to *always*. The scale contained three components (social interaction, sense of self, and social anxiety) which aimed to assess how individuals view themselves and their achievements, how they interact with others, and their level of anxiety in terms of their social media use. In addition to these items, how frequently participants view social media, self-report degree of fear of missing out, and urge to check social media were also asked along with the gender, age, GPA, and class year of each participant (Abel et al., 2016).

The final surveys were administered through email and social media platforms such as Facebook and LinkedIn. It was set up so that all who received the survey link were also encouraged to share it with others. Out of 232 individuals who participated, the responses of a total sample of 202 were analyzed. The sample comprised of mostly millennials (42% between ages of 20 and 21) and the majority was college students. Sixty-eight percent were females, 32% were males, and the majority (38%), were in their senior year of college (Abel et al., 2016).

Data Analysis & Results

The data was analyzed using the appropriate testing methods for this study design. Researchers used a factor analysis, reliability testing, frequency analysis, and ANOVA testing where the F ratio was calculated (Abel et al., 2016). For any already existing instruments used, the validity in quantitative research was established. This study had content validity where items measured the content they were meant to measure such as, the FOMO scale. Concurrent validity can be seen as results found correlate with other results such as, FOMO scores with GPA scores. Finally, there was construct validity as the scores found serve useful purposes such as in one's decision making behaviours (Creswell, 2014). All results and calculations were shown clearly in tables. The final factor analysis resulted in a 3-factor solution where a 71% total of the overall variance was explained. Component 1 explained 42% of variance, component 2 explained 15% of the variance, and component 3 explained 14% of the variance. The component matrix was also presented in a table and showed how the measures of the first five questions of the FOMO measuring survey, which were component 1, the measures of next three questions for component 2, and the last two questions for component 3. A reliability analysis was performed on the resulting three components. Another table showed that two factors met the level of acceptability which is Cronbach's alpha above .70 while the third was just below the desired level.

Components 1 and 3 had a Cronbach's alpha of .88 and .85 and component 2 at .69 (Abel et al., 2016).

FOMO scores were calculated by adding up the responses to the 10 scale items for each participant. FOMO scores ranged from 10-80. Using the midpoint total score of the FOMO scale, 45, the sample evaluated for this study tended to be lower in FOMO (low FOMO <= 45, n = 174; high FOMO > 45, n = 11). FOMO and socio-demographic characteristics were also evaluated and shown in a table. As the average total FOMO score for females was just slightly higher than that of males, there was no significant finding when gender and FOMO were evaluated. In regards to age, a significant drop is seen in overall FOMO after the age of 24, as younger participants reported higher levels of FOMO. In terms of a relationship between GPA and FOMO, there was no significant finding as most categories had similar levels of FOMO, but those with the lowest GPA were found to have the lowest FOMO scores. There was a significant finding in regards to class year, where juniors displayed the highest levels of FOMO, while the freshman expressed the lowest levels (Abel et al., 2016).

Questions asking about frequency of use, urge to use, and duration of each use on average of social media were also evaluated. Only 185 out of the 202 participants responded to the usage questions. A fairly even distribution was found in regards to frequency of checking social media with 25% reporting they check 1-4 times a day, 29% check 5-9 times a day, and 26% at 10-15 times a day. Ten percent reported checking 20-29 times a day and 7% check more than 30 times a day. Thirty-seven percent of participants indicated that each time they use a form of social media, it is for 5-9 minutes per time and 24% reported that they use it for less than 5 minutes each time. A table also showed the results in exploring the urge to check social media

on a 7-point Likert scale from *very weak* to *very strong* across four different situations (Abel et al., 2016).

The results present a significant difference between High FOMO (HFOMO) and Low FOMO (LFOMO) across three out of the four situations including *urge to check social media when with others or when in class*. No significant difference was found with *urge to check social media when you're alone*. A significant difference was found in the number of times that social media is checked during a day, with those higher in FOMO more frequently checking Facebook ($F=12.9$, $p= .000$), Twitter ($F=15.5$, $p= .000$), Instagram ($F=10.4$, $p= .001$), and MySpace ($F=12.6$, $p= .000$). There was also a significant finding when asked how often one feels they have missed out after viewing social media, with those higher in FOMO, more likely to reflect this ($\mu(HFOMO)=5.09$, $\mu(LFOMO)=2.97$, $F=17.89$, $p=.000$) (Abel et al., 2016). Reliability of the study was further confirmed as continued significant differences were found when the researchers refined the analysis of FOMO using binning and diving respondents based on total FOMO scores (Creswell, 2014). The researchers report internal consistency over different testing methods (Abel et al., 2016).

Study Discussion

The current study proposes and validates a measuring scale for FOMO. The researchers developed and tested a FOMO scale made up of the psychological elements which assess how individuals view themselves and their accomplishments, their interacting behaviours with others, and their level of anxiety around the use of different forms of social media. The study also evaluated how different levels of FOMO interact with and relate to one's use of social media. Researchers suggested that FOMO influences decision making and social media use behaviour. Findings suggest that those with higher levels of FOMO have an increased likelihood of

experiencing urges to check social media, especially Facebook, Instagram, and Twitter, in different situations. In terms of GPA score relations, those with low GPA score had low levels of FOMO. As all forms of social media continue to increase in popularity, a need to understand its relationship with FOMO also increases (Abel et al., 2016).

This relationship is important in developing a better understanding of how to successfully market to millennials as well as, a way of helping to understand decision-making of these individuals. Researchers of this study also discuss the effects of FOMO and social media on the purchasing of products and the marketing industry. FOMO has the power to influence decisions to buy products; products that are better or cost more than that of a friend because they do not want to miss out on having something better or risk missing out on feeling included. Social pressures and feelings of not fitting in may force people to make unconventional purchases and it may not always be consciously realized that it was from a fear of missing out. Staying in the know and feeling the need to buy, read, and watch everything everyone else is, can become very overwhelming and yet, many still continue to try to absorb as much of it all as they can. Social media in all its forms makes these pressures and needs more prevalent and accessible (Dembling, 2011). As connection to social media is now constant for so many, so is the ability to view the things individuals are missing out on which can cause feelings of dissatisfaction, anxiety, low self-esteem, and irritability. This constant connection also gives marketers continual access to consumers through technology and social media giving FOMO the potential to influence spending (Dykman, 2012).

FOMO and Depression

The relationship between depression symptoms and FOMO is an ongoing area of research. A study found that individuals with high levels of FOMO reported lowered general

mood and increased social media use (Przybylski, Murayama, Dehaan, Gladwell, 2013). As social media engagement increases, a loop of negative effects begins. Social media use triggers mild depression, then the more time that is spent engaging in social media networks, the more depressed the individual will feel. *Insecure striving* is the belief that one must compete for their place in the social world by avoiding mistakes and inferiority. For those who are suffering from depression, insecure striving relates highly to fears of missing or losing out. "People experiencing symptoms of depression may feel they are losing the competitions of social life such as competing for care, acceptance, and social support from others" (Gilbert, McEwan, Bellew, Mills, & Gale, 2009). A (2016) study of participants in the mean age of 21 years found that one's FOMO was significantly associated with more depressive symptoms, illustrating that those with a greater fear of missing out also reported greater depressive symptoms (Baker, Kreiger, & LeRoy, 2016).

Insecure striving includes comparing one self and feeling the need to compete and be accepted in the social media world in terms of appearance and body image. A (2018) study on preadolescents evaluated possible connections between preadolescents' time spent browsing social media platforms, preadolescents' appearance comparisons on social media, and depressive symptoms. In the preadolescent years, the use of social media begins and young individuals' ideas and perspectives on body image begin to develop. When these perspectives and comparisons are unhealthy, depressive symptoms may occur (Fardouly, Magson, Johnco, Oar, & Rapee, 2018). While concerns around body image (Gowers & Shore, 2001) and symptoms of depression (Maughan, Collishaw, & Stringaris, 2013) have been found to increase during the years of adolescence, in more recent years, and with the early influences of social media, these concerns become more prevalent in earlier life (McLaughlin, Belon, Smith, & Erickson, 2015).

Dissatisfaction of body image is an important predictor of eating disorders and depression and the combination can have negative effects on many aspects of adolescents' lives (Fardouly et al., 2018).

Other recent research suggests links between more time spent using social media with poorer body image (Fardouly & Vartanian, 2016) and more depressive symptoms experienced (McCrae, Gettings, & Purssell, 2017) in adolescents and young adults. The (2018) study suggests the importance of examining these links between social media use and mental health concerns in preadolescents because this helps to determine when interventions would be most appropriate and beneficial. It was concluded that participants with better mental health, represented by less depressive symptoms, had reported making fewer appearance comparisons on social media and were spending less time browsing social media. Research has found that appearance comparisons (Jones, 2001) as well as, mental health concerns such as depression (Gowers & Shore, 2001), may increase from preadolescence to adolescence. The use of social media also increases during this time of transition (Australian Communications and Media Authority, 2012). Research has suggested links between poor mental health and the comparing of one's appearance to others' based on what they observe through social media.

Facebook Depression and Envy

In further understanding the relationship between FOMO, depression, and making of comparisons, a phenomenon referred to by researchers as *Facebook depression* can assist. It describes how symptoms of depression may develop when using social networking sites such as Facebook, for extended periods of time. It is well-known that adolescents place much importance on the acceptance of and communication with their peers and in recent times, much of these needs are fulfilled through the online world (O'Keeffe & Clarke-Pearson, 2011). The

world of social media can become overwhelming, cruel, and lead to information that is difficult to accept or process, especially for young developing minds. It is important to understand, however, that sites such as, Facebook do not cause depression.

Tandock, Ferrucci, and Duffy (2015) conducted a study on 736 college students evaluating how long per day participants were spending on Facebook and asked that they complete an 8-item envy scale and depression assessment. It was found that on average, participants spent 2 hours per day using Facebook, and that Facebook itself did not seem to cause the young population to be depressed. Instead, some evidence was found that Facebook may even relieve some feelings of depression (Tandock, Ferrucci, & Duffy, 2015). What was concluded, however, is that "the more you use Facebook, the more you're likely to start slipping into the category of encouraging Facebook envy" (Grohl, 2018).

Social Comparing

The (2015) study further explains that the more an individual uses sites such as Facebook, the more likely they become to engage in certain behaviours that lead them towards observing and absorbing the personal information of others. This leads to them becoming increasingly prone to the comparison of themselves to others based off news, photos, profiles, and other postings, and experiencing what has been termed *Facebook envy* (Chou & Edge, 2012). It is believed that individuals have an innate need to socially compare themselves to others based on the qualities and abilities which they perceive as most important. There is a tendency to do this selectively on the basis of perceived similarity and therefore, often comparisons are made against friends and peers. Social media platforms make this type of comparing very accessible and as more time is spent using sites such as Facebook, the more likely social comparing is to occur and the more at risk one's mental well-being becomes

(Tandock et al., 2015). Past literature suggests that comparisons can be made in one of two directions and lead to different affective responses. Making upward social comparisons, or viewing oneself as inferior to others, has been associated with negative well-being outcomes including an increase in depressive symptoms, negative self-evaluation, and lowered self-esteem (Allan & Gilbert, 1995; Tesser, Millar, & Moore, 2000). On the contrary, seeing oneself as superior to others or making a downward social comparison, can lead to positive outcomes such as a decrease in anxiety, heightened self-esteem, and more positive self-evaluations (Allan & Gilbert, 1995; Amoroso & Walters, 1969; Wills, 1981). More recent research, however, has found that a more complex relationship exists between social comparisons, affective responses, and how mental well-being is affected. It has since been suggested that social comparisons of any kind or direction are more likely to lead to negative well-being outcomes and that any gains or positive feelings from social comparisons are temporary (White, Langer, Yariv, & Welch, 2006).

When an individual has been a part of the social media world for longer time frames, such as having a Facebook account for several years, they are more likely to perceive that others are happier than they are and that life is unfair (Chou & Edge, 2012). Once logged on, Facebook users are presented with an ongoing supply of information about others, current events, and ways of communication through messages, posts, and liking of one another's material. It therefore, becomes quite inevitable that users will begin to engage in social comparing, especially if longer periods of time are spent participating in such activities and frequently. Social comparisons may be based on the number of likes received for statuses or pictures or also more specific social comparisons may occur. For younger users, these can be based on relationship status or academic success. Social media platforms, such as Facebook, encourage self-disclosure and it

thus becomes likely that personal information will be revealed and discovered (Gross & Acquisti, 2005). The longer the hours spent and more frequently Facebook is accessed, the more likely information is to be revealed and discovered and therefore, the more likely comparisons are to be made.

As social comparisons begin and individuals become Facebook envious, negative feelings about themselves and their own lives increase and depressive symptoms may occur. Those with small social networks are more likely to become envious than those with a larger network of friends, for example. Individuals who are especially at risk of this are those who use such sites as Facebook exclusively or mostly to keep track of and follow the lives of others, rather than to share experiences, photos, and information about their own lives. These individuals are considered unhealthy Facebook users and more likely to experience feelings of envy which may lead them to an increase in depressive symptoms (Grohl, 2018). It is important that young social media users are made aware of the dangers of unhealthy social media use such as, for comparison of their lives to others and to become knowledgeable of the warning signs that they are beginning to experience the harms of Facebook envy and depression.

A (2014) double study on 180 undergraduate university students of ethnical diversity hypothesized that Facebook social comparisons would mediate the relationship between time using Facebook and depression symptomology. In Study 1, students were asked whether or not they compare themselves to others and it was investigated whether this mediated the association between Facebook usage and depression. In Study 2, the estimated mediation effect was further investigated using 154 out of the 180 participants from Study1. This portion was done through the use of daily diaries for participants to track and report what type of social comparison (upward, downward, non-directional) they were participating in. The double study also

investigated whether or not the three types of social comparisons served as mediators between the number of times participants viewed their Facebook accounts daily and depressive symptoms experienced (Steers, Wickham, & Acitelli, 2014).

To measure participants' tendency to socially compare themselves to others, the 11 item scale, the Iowa-Netherlands Comparison Orientation Measure (INCOM) (Gibbons & Buunk, 1999) was used. The depressive symptoms participants experienced were measured using the self-report method of 20 items known as the Center for Epidemiological Studies Depression Scale (CESD) which is meant to measure depression symptoms in normal populations. Higher scores represented more depression symptoms were present during that week (Radloff, 1977). Time spent on Facebook was assessed with one question which asked for the average time participants spent on Facebook daily based on seven choices between less than 5 minutes and 7 or more hours. The purpose of Study 2 was to gain a more accurate assessment of how much time participants spend on Facebook and what types of social comparisons they are likely to make during their use. Participants reported on the number of times they logged onto Facebook daily. To measure Facebook social comparison type (non-directional, downward, and upward), a six item questionnaire from the INCOM was adapted. Participants' experienced depressive symptoms were measured using five items from the CESD (Radloff, 1977).

Both studies support the research that people experience depressive symptoms after spending great deals of time on Facebook daily and this association is mediated by the likeliness of users to compare themselves to others. Results of Study 1 demonstrated that time spent using Facebook was positively related to depressive symptoms. Time on Facebook was also found to be positively related to non-directional comparisons. Results revealed that making Facebook social comparisons mediated the association between time spent on Facebook and depressive

symptoms, but for males only. Study 2 found that the link between amount of time participants spent on Facebook and the experience of depressive symptoms was mediated by all types of social comparisons. All three types of Facebook social comparisons were also found to mediate the association between the number of daily Facebook logins reported and the presence of depressive symptoms. This in part, was proven by the fact that engaging in downward social comparisons, which may have been a result of individual differences such as low self-esteem as a way to boost self-confidence, still resulted in participants feeling depressed. This is consistent with previous research (Buunk, Taylor, Dakof, Collins, & VanYperen, 1990). This means that participants who made any type of social comparisons on Facebook reported being more depressed on that day. This is supported by the result that non-directional social comparisons predicted depressive symptoms in both studies. This is also consistent with previous literature (White et al., 2006). The overall results of the double study revealed that individuals who spend more time on Facebook on a daily basis are more likely to compare themselves to others and in turn, reported greater daily depressive symptoms regardless of gender. This illustrates that the frequent logging onto and viewing of Facebook appears to have similar effects as spending great amounts of time using Facebook in that they both allow participants opportunity to instinctively compare themselves to their peers, which is related to the daily experience of depressive symptoms (Steers et al., 2014).

Furthermore, in 2018, the Happiness Research Institute conducted a study of 1,095 Facebook users where a treatment group was asked to not use Facebook for an entire week. At the end of the one week period, participants were assessed for happiness. Of those who had given up the use of Facebook, 88% reported feeling happy, in comparison to 81% of the control group. While the control group of this study was more likely to report feeling stressed, feeling

lonely, and having trouble concentrating by 55%, the treatment group reported feelings of enthusiasm, decisiveness, and felt that they wasted less time and were able to enjoy life more (Schoenwald, 2018). The study concluded that the negative feelings of the control group were most likely being caused by Facebook envy. To further investigate this, researchers assessed for envy in the Facebook users. It was found that 1 in 3 people envy how happy others seem based on what is seen on Facebook, 5 out of 10 people envy the positive experiences which others post on Facebook about, and 4 out of 10 people envy others' success as viewed on Facebook. "The main takeaway from this study is awareness of the negative aspects that social comparisons have, and how we should be mindful of how Facebook and social media affect how we evaluate our lives," (Schoenwald, 2018). Once again, it is suggested that the healthy use of social media platforms such as Facebook, does not involve depending on it to compare others' lives, happiness, and experiences to one's own. Instead, one should try to spend less time using social media and more on focusing on living their lives and finding their own happiness.

Most recently, the data of a longitudinal study that ran from September 2012 to September 2018 on 3,826 Montreal students between grades 7 and 11 was collected and analyzed (Boers, Afzali, Newton, & Conrod, 2019). Researchers of the study attempted to further understand the associations of various forms of screen time and adolescents' risk of depression. It was suggested that social media might be contributing to the rising rates of teenage suicide in North America. "Teen suicide rates are at their highest level since 2000" (Morris, 2019). Harvard Medical School researchers found that adolescents and the increase in social media use, depression, and anxiety are of particular concern when investigating the 30% rise in suicides between 2000 and 2016 (Mukherjee, 2019). Participants of the Montreal study were asked to complete surveys during class to assess their screen time behaviours and

symptoms of depression. Screen time included how much time daily they spent watching television, browsing social media, and playing video games. In the same survey, they were asked to measure their level of depressive symptoms using the Brief Symptoms Inventory. They were asked to indicate on a scale from *not at all* to *very much* the extent to which they experience seven known symptoms of depression including feelings of sadness, loneliness, and hopelessness (Boers et al., 2019). Depression symptoms were found, in general, to increase yearly. Researchers explained their conclusions that depressive symptoms were the results of young people comparing themselves to the images of others that they are unable to attain from social media platforms such as Instagram.

> We found an association between social media and depression in adolescence. Based on the upward social comparison, it may be that repeated exposure to idealized images lowers adolescents' self-esteem, triggers depression, and enhances depression over time. Furthermore, heavier users of social media with depression appear to be more negatively affected by their time spent on social media, potentially by the nature of information that they select. (Boers et al., 2019)

Social media was found to be most harmful in the associations discovered between increases in depressive symptoms and screen time. Researchers found that the effects of social media were much larger than the effects associated with the other types of digital screen time. Associations between high levels of social media use over four years and increased depression were clear. An association was also concluded that the severity of depression symptoms increase within that same year when students' social media use increased by as little as one hour more than their average time spent (Morris, 2019). Each one hour increase in the average amount of time students reported watching television within a given year was also found to be linked to the

worsening of depression symptoms that year. Researchers also found that students who used computers excessively over four years, were likely to experience increase in depression, but any more of an increase in use in that same year, was not associated with increased severity of depression. Conrod, a professor of psychiatry at the University of Montreal and leader of the study, suggested that when young individuals are active on sites such as Instagram, they are more likely to be exposed to images that promote upward social comparisons and in turn, feel badly about themselves. They are exposed to very idealized images of what the lives of youth are like and being presented through social media with images posted by their own peers, causing them to feel as though they do not measure up. The study also describes what they called *reinforcing spirals* which are the continuous exposure to stimuli that promote or reinforce young people's depression, which is why social media is particularly dangerous for already existing depression (McKenna, 2019).

Video-gaming and depressive symptoms did not seem to be significantly associated. The explanation for this was that gamers do not socially isolate themselves and instead feel happier after playing. It was found that 70% of young gamers play with others online or in person (McKenna, 2019). As well, it is suggested that young people are able to realize that what is happening while they are gaming is not real and takes place in a fantasy world due to the animated content and nature. Also, because of this realization and the fact that this content is not provided by users' own peers, it is believed to have less of an impact on young people's thoughts and beliefs towards social norms (McKenna, 2019).

While the Montreal study does not make conclusions of associations between screen time and increased suicides, it is noted that depression during adolescence has been found to be linked to teenagers self-harming and taking their own lives (Boers et al., 2019). Dr. Gignac of Montreal

Children's Hospital, stated that in his recent years at the hospital, he has seen an increase in emergency room visits related to teens having suicidal thoughts and behaviours. "I don't think that [social media] is the only reason, but it's one of the risk factors we should monitor," (McKenna, 2019). The study concludes by emphasizing the importance of regulating social media and television use in adolescents to help prevent the development of depression and to reduce the worsening of already present symptoms over time (Boers et al., 2019).

Distorted Perceptions of Social Media

In assisting to explain why negative outcomes such as depressive symptoms occur as a result of social comparisons, research illustrates that many times, what Facebook users are receiving, are distorted perceptions of their peers. Research has found that individuals often display their idealized or wished-for selves on social media accounts such as Facebook, through the use of different modes of identity representation such as the posting of photographs, messages, and status updates (Zhao, Grasmuck, & Martin, 2008). This suggests that many Facebook users may be only or mostly sharing news and information that is positive or that they feel enhances their image, while avoiding full disclosure of their struggles or negative aspects of their lives and selves. It's been suggested that this is done as a way to appear to others as more socially desirable (Steers et al., 2014).

People have also been found to underestimate the negative emotions of others based on what they see through social media postings. Those who are afflicted with emotional difficulties have been found to fail to recognize that others might be experiencing internal struggles and this may trigger more feelings of loneliness and isolation. Researchers have evaluated this likely occurs due to the tendency of social media users to publically portray themselves as being happier, more successful, and more content with their lives than they might actually be. It's been

suggested that the frequent viewing of these portrayals may increase other individuals' negative cognitions, in part, because individuals often believe that they are alone in experiencing negative emotions (Jordan et al., 2011). The combination of these distorted perceptions with Facebook social comparisons based upon essentially peers' highlight reels, have the potential to intensify negative emotions, and result in increased depressive symptoms (Steers et al., 2014).

FOMO and Mindfulness

Siegel (2007) believes that the way attention is paid in the present moment directly improves the functioning of one's body and brain, thoughts and feelings, and relationships with others. Being mindful can be defined as "bearing in mind or inclined to be aware" and this awareness harnesses social patterns in the brain enabling an individual to develop a relationship of harmony within one's own mind. Beginning in the mid-1980's, the Western world has paid a growing attention to mindfulness and adapted it into different dimensions of life, including children's experience in schools and that of clients' in therapy. The lives of many, especially those of young people, have become increasingly driven and saturated by technology that consumes their attention forcing them to constantly multitask. This has led many to be constantly *doing* and with no space or time to breathe and just *be.* For healthy development, young people need to self-reflect and experience direct, face-to-face interpersonal connection. Youth of today is instead accustomed to high levels of constant stimulus and the need to jump from one activity to another through technology, leaving little opportunity to attune with one another (Siegel, 2007).

In understanding how FOMO affects one's well-being, it is also important to gain some knowledge on how mindfulness is related. Mindfulness involves the self-regulation of attention and orientation towards one's experience. Studies have also shown mindful awareness to

improve an individual's capacity to regulate emotion and overcome emotion dysregulation. Relationships with others are improved as one's ability to recognize others' nonverbal emotional signals increases. Compassion and empathy grow as one learns to better understand the perspectives of others (Siegel, 2007). With practice, mindfulness becomes a technique which helps individuals to live in the moment and without judgement (Ehmke, 2019). Emotions become more regulated and stress levels decrease when adolescents are able to slow things down and take some time to notice details in what they are viewing through social media. With mindfulness also comes a self-awareness and self-reflection that can help prevent the negative effects of FOMO. Dr. Emanuele, a Child Mind Institute psychologist and mindfulness expert, suggests that if mindfulness "is applied to the social media experience itself, it can help kids manage the emotion generated by all that information about what your friends are doing" (Ehmke, 2019).

Mindfulness has been found to be significantly positively correlated with psychological well-being as it enhances one's in the moment experiences. Being mindful strengthens one's ability to disengage from thoughts and habits that are difficult to control and unhealthy behaviour patterns enhancing psychological well-being (Ramussen & Pidgeon, 2011). Previous research displays that mindfulness predicts more self-regulated behaviour and lower levels of social anxiety. As FOMO is anxiety-provoking and tends to increase impulsive use of social media forms, it would be expected that FOMO is associated with lower levels of mindfulness (Wang, XIN, Liu, Zang, & Liu, 2012). A study found that when controlling for time spent using social networks and age, FOMO was associated with being less mindfully attentive (Baker et al., 2016). Mindfulness is a form of awareness that has been found to have a direct influence on the growth

and activity of the parts of the brain which play an important role in relationships, emotional interactions and regulation, and one's reaction to stress (Siegel, 2007).

FOMO and Physical Symptoms

FOMO has the potential of leading to physical health issues. It is known that the forming and maintaining of social bonds helps to ensure the well-being and survival of humans (Baumeister & Leary, 1995) Perhaps this assists to explain why, as social monitoring theories suggest, that humans are able to identify any type of social threat and recognize to what degree they are being rejected or excluded by others. One's social monitoring system may be activated by FOMO then, as the feeling of missing out on what others are doing presents a threat to their social bonds. When an individual foresees being rejected and their social monitoring system is activated, the results can be physical effects, such as social pain (Eisenberger, Lieberman, & Williams, 2003). A distressing social situation, such as a high fear of missing out, may lead to psychological stress, psychosomatic issues, and present itself in physical symptoms including headaches, over or under sleeping, and general decrease in everyday activities (Kross, Berman, Mischel, Smith, & Wager, 2011). A (2016) study asked that participants identify which of 10 physical symptoms they experienced over a span of a week. These symptoms included shortness of breath, sore throat, and chest pain and were then summed up for each individual to summarize their overall reports with higher scores suggesting more negative physical symptoms were experienced . When controlling for time spent social networking, the study found that FOMO was significantly related with reports of negative physical symptoms (Baker et al., 2016).

Gender Differences

Research has found gender differences in the effects of social media on adolescents and mobile phone use. A (2017) study found that for males, depression did not seem to have an effect on negative consequences, while with the female participants, psychopathological symptoms were a significant predictor of negative consequences. This finding further supports the well-known fact that females have a higher rate of depression during adolescence than males. It's suggested that psychopathological symptoms in young females increase their involvement in the use of social media platforms leading them to higher risk of experiencing negative consequences (Oberst et al., 2017). Gender differences in mobile phone use have been found in other research. Female adolescents use mobile phones more to cope with feelings of anxiety, boredom, and loneliness and appear to have a higher degree of interactions through mobile phone use than males. Adolescent males have been found to use mobile phones more for means of coordination and entertainment and have a higher degree of fear of not being connected. Males also seem to experience more difficulty in lessening their use when it has become excessive (Santana-Vega, Gomez-Munoz, Feliciano-Garcia, 2019).

Research has also indicated gender differences in social comparison. Males tend to report lower self-esteem when engaging in upward social comparison with other males, while females did not when comparing with other females. Females did, however, report lowered self-esteem when making upward social comparisons with males. Males experienced lower self-esteem when upward social comparisons with women, in what were considered traditionally female-oriented topics, were made (Martinot, Redersdorff, Guimond, & Dif, 2002). It is suggested that females viewed themselves as subordinate to males and this resulted in the negative impact on their self-esteem and that females tend to protect their self-esteem when they

make upward social comparisons with other females by viewing them as similar to themselves (Martinot & Redersdorff , 2003).

Also, a study found that males were significantly more likely than females to use social networking sites for the purpose of dating (Raacke & Bonds-Raacke, 2008). If an evolutionary perspective is taken then, it is possible that the more time males spend using Facebook, the more likely they are to compare themselves to their peers, in means of competing with them, possibly for mates. They may feel, as a result, inadequate and lowered self-esteem when comparing. In the same study, time spent on Facebook did not predict the same conclusions for females and it was suggested that this might be due to the possibility that females are more likely to use social media sites, such as Facebook, as a way to maintain connections with friends or to bond with other females, as oppose to compete with them (Raacke & Bonds-Raacke, 2008).

A Lack of Privacy

The use of social media is increasing in all age groups, including the parents of adolescents, with 78% of adults between 30 and 49 years of age using social media by 2016 (O'Keefe, 2016). However, an important distinction exists in the common goal of adults' use of social media versus that of its younger users. While adults use these platforms to generally stay connected and up-to-date with their close friends, adolescents are not setting these limits to their online posts and activities. For adolescents, these platforms present a way to construct their individual social identities and allow them to use their profiles to express themselves in any way they wish to through interaction with others without the supervision of adults (O'Keefe, 2016).

While they might argue that this is for a means of privacy from their parents, these young users may not realize the lack of privacy they allow for the rest of the online world. Adolescents' understanding of privacy risks of social media use have been discovered to vary.

Some understand that once something is posted on social media or the internet in general, it is very difficult and in some cases, even impossible, for it to be removed (Guinta & John, 2018). While efforts are made by many social media platforms to protect users' privacy, risks of violations of one's privacy and the unwanted sharing of postings and information continue to exist (AAP Council on Communications and Media, 2016). According to a (2013) study, teenagers share more personal information on social media than they have in the past. The study found that participants between 14 and 17 years of age are more likely to share information such as their mobile phone number, school name, relationship status, and post pictures of themselves with more frequency than those between 12 and 13 years. The study also found that while many adolescents choose to enable their Facebook privacy settings, more than 60% of Twitter accounts belonging to teenagers are public profiles (Madden et al., 2013).

Privacy is also lost when social networking turns into erotic messaging or *sexting* and the exchange of nude or provocative images. Research suggests that 18% to 28% of adolescents use this type of electronic communication and those who do, are more likely to partake in sexual activity offline (Houck et al., 2014). A (2012) study on 948 high school students found that 76% of the participants who reported being propositioned to partake in sexting, also admitted to having had sexual intercourse. In this same study, 68% of girls reported being asked for sexts, while only 42% of boys were. The peak age of sexting behaviour is found to be around 16 and 17 years of age and tends to decline after age 18 (Temple et al., 2012). The University of Utah's Department of Psychology conducted a study on 606 adolescents between 14 and 18 years. The study found that 20% of the participants had ever sent a sexual image of themselves through their mobile phone. Nearly twice as many reported having received such an image and 25% of these participants admitted to forwarding this image to others. Over a third of the participants, who

reported having sent a sexually explicit image through their mobile phone, did so despite their beliefs of the possible consequences and legal severity of this type of behaviour. A third also stated that they did not concern themselves with the possible consequences of these actions and they did not view their behaviour as wrong (Strassberg, McKinnon, Sustaita, & Rullo, 2013).

Problematic Use of Mobile Phones

It has been suggested by many that mobile phone problematic use (MPPU) has an effect on an increasing number of adolescents and young adults. This young population seems to be most at risk, in part, due to the developmental stage these individuals are in and one of its main characteristics; poor impulse control. This population reports an increasing amount of time and attention towards the use of mobile devices whether it is for means of playing games, watching videos, listening to music, or email and other chat forms. Also, mobile phones are being increasingly used by young individuals as a device for management of emotions and for communicating and social status (Lopez-Fernandez, Honrubia-Serrano, Freixa-Blanxart, Gibson, 2013).

While MPPU within the adolescent population has become a popular topic of conversation in various media forms and increasingly researched, it has not been widely studied. A contributing reason for this is the fact that few instruments for the assessment of the potential addiction to mobile devices currently exist. As well, the most widely used scale, Mobile Phone Problem Use Scale (MPPUS), is used more so to study adults' behaviour (Lopez-Fernandez, et al., 2013). Still, from what has been gathered through the studies that do exist, adolescents are the most vulnerable group in the likelihood of the negative effects of mobile phone use (Gil, del-Valle, Oberst, & Chamarro, 2015; Przybylski et al., 2013).

A better understanding can be formulated through the process of gathering findings from various studies cross-culturally. There have been several studies conducted worldwide including in the United Kingdom, China, Spain, Italy, and Turkey. An estimated prevalence of MPPU in adolescents has been found to range between 5% and 33% (Martinotti, Villella, Di Thiene, & La Torre, 2011). This wide range is due to the various scales and adaptations of measurement tools being used and various concepts being applied. It is unclear which aspects of mobile phones are most commonly used by adolescents and which are most related to addictive behaviour. While there has been a rather rapid increase in research on this topic, MPPU still lacks a conceptual definition, behaviour models that explain the motivation which leads to this problematic use, and a determined set of diagnostic criteria (Lopez-Fernandez et al., 2013).

British Adolescents

The MPPUS results of just over 1000 British adolescents between the ages of 11 and 18 years were analyzed in a 2013 study. The questionnaire consisted of the three sections; socio-demographic data (age, gender, school location, family size), mobile phone use, and the MPPUS adapted for British adolescents. Concerning their mobile phone use, participants were asked to report if they had a mobile device, how old they were when they received their first mobile phone, what they use it for, and whether or not they use it on a regular basis. Problematic use was measured through symptoms such as tolerance, craving, escape from problems, and withdrawal. Measures of withdrawal symptoms seemed to be the most relevant indication of addictive use as adolescents of this study described experiencing negative emotions when their use of their mobile devices was limited or not possible. A prevalence of 10% problematic users was found among the student participants, the majority being between 11 and 14 years of age. Seventy percent of the group identified as problematic users reported using their mobile devices

mostly for communication, as oppose to the 19% which reported use mostly for entertainment. This group also reported using their devices for solving urgent issues and identified possible addiction, misuses, and health issues as main negative effects of MPPU. Wasting time and costs were also recognized as possible negative effects for this group of participants (Lopez-Fernandez et al., 2013).

Spanish Adolescents

Technology is being increasingly integrated into the daily life of Spanish households and being introduced to individuals at younger ages. Adolescents use mobile phones as multipurpose tools for self-expression, communication, entertainment, and endless information as well as, for means of appearance, status, and independence. Mobile phones occupy new purposes within homes and new forms of relationships may develop within families. The study suggests that the mobile phone is harmless if used properly and could even benefit a young individual's development. It offers a wide access to information and learning and allows possible monitoring by parents (Bartau-Rojas, Airbe-Barandiaran, & Oregui-González, 2018). It, however, becomes an issue and problematic when use becomes excessive as this is known to lead to feelings of irritation, insecurity, isolation, anxiety, depression, obsessive-compulsive tendencies, problems at school, and juvenile delinquency (Santana-Vega et al., 2019). Adolescents have been found to be most vulnerable to MPPU as they are introduced to this technology at earlier ages without any training or being made aware of the potential risks of excessive use (Berrios, Buxarrais, & Garcés, 2015).

A sample of 569 Spanish students between the ages of 12 and 19 years were analyzed for MPPU, FOMO, and communication with their parents (Santana-Vega et al., 2019). The study was based on past research findings that the misuse of mobile phones can have a

psychophysiological effect on adolescents, can lead to relational consequences, and has the potential to weaken personal relationships and communication with the young individual's direct environment (Seo, Park, Kim, & Park, 2016). In 2017, 83% of Spanish households had internet access (National Institute of Statistics, 2017). The main source of connection was through mobile phones with 97% of households having at least one (National Institute of Statistics, 2017).

The research shows an increase in MPPU among Spanish students. The study's findings were that 46% of students had *occasional problems* and 2% had *frequent problems* concerning MPPU. Participants who use their mobile phones for more than two hours each day, presented a greater likelihood of problematic use than those who used it for less than two hours daily. The more participants used their mobile phones, the greater their degree of FOMO. This fear of missing out on experiences of others' seems to act as a reinforcement for their need to use their mobile devices more in order to feel connected and to satisfy their psychological needs, which resulted in a higher degree of MPPU. The study also found that those participants who reported communicating more with friends were inclined to use their mobile devices problematically. Participants who reported having healthier quality of communication with their parents, seemed to spend less time using their mobile phones. It was found that students between the ages of 12 and 14 years, communicated more with their parents (Santana-Vega et al., 2019). It is suggested that this is a time of transition from childhood to adolescence where parents begin as influential to their children, but which influence quickly decreases as the child grows. The child begins to favour time and communication with friends and peers. Communication between parents and their children in adolescence is still important; however, and the mobile phone can be used as a

tool to maintain this communication and attachment, but only if its use is regulated (Bartau-Rojas et al., 2018).

American Adolescents

Technology trends and rates of adolescent cell phone use and ownership have also risen in North America. A study found that 45% of individuals aged between 12 and 17 years had their own cell phone (Lenhart, Maddenn, Hitlin, 2005) and a follow-up study revealed an increase to 78% of adolescents in this age range (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013) Today, it can be estimated that these numbers have continued to increase. Another study found that one in four adolescents use their cell phone as their primary source of online connection (Adams, Daly, & Williford, 2013). These trends have changed the way youth communicates and smart phones allow users to be constantly connected to the internet and able to access all forms of social media.

Adolescents and Sleep

This ability to be constantly connected at any time and any location has presented some clear consequences to the amount and quality of sleep the youth of today receives. Adolescents have been recognized as the most sleep-deprived population. While the average adolescent requires between 8 and 10 hours of sleep every night, many are only getting between 6 and 7 hours of sleep (Gavin, 2019). Adolescents are most likely to stay up late, oversleep for school, and fall asleep in their classes. A possible explanation for such sleep patterns to develop in this time of life, is a shift in the body's circadian rhythm, which is like an individual's internal biological clock. During this developmental stage, the brain hormone, melatonin, is released later at night for adolescents than for children and adults. The young individual's body commands them to stay up later and wake up later despite school and other activities' schedules

(Gavin, 2019). These changes occur during a busy time in life as many adolescents experience pressure to do well in school, participate and succeed in sports and other extracurricular activities, have jobs, and need to maintain friendships and relationships. As adolescents transition to and through high school and college, they are in a constant struggle to listen to their bodies' demands of staying up later and a social fear of missing out on anything occurring with their friends and peers (White, Buboltz, & Igou, 2011). The use of technology, especially mobile phones, makes it increasingly harder to fall asleep as many young individuals stay up late communicating, playing games, watching videos, and participating on different forms of social media (Gavin, 2019).

Sleep and Technology

Along with being most sleep-deprived, adolescents and youth also rely most heavily on technology and the combination has led to much attention to young peoples' sleep habits and mobile phone use behaviours and their consequences (White et al., 2011). It is known that sleep is crucially important to the growth and development of children and adolescents especially in areas such as, behavioural and emotional development and cognitive functioning (Li, Jin, Wu, Jiang, & Yan, 2007). Sleep deficiencies and changes in the quality of one's sleep have been found to be related to the development of behaviour issues which can interfere with one's learning. Connections have also been found in sleep quality and quantity and to have an impact on hormone release, activity of the cardiovascular system, and glucose regulation (Stockburger & Omar, 2013). As technology and social media use continue to expand, its effects on sleep and the relationships between the two become increasingly important to examine, especially concerning young populations.

Many young individuals have developed habits of using technology, especially smartphones, within an hour before falling asleep as well as, in bed. One study found that "almost all adolescents reported using one or more electronic device during the last hour before bedtime" (Hysing et al., 2015). These behaviours interfere with one's ability to fall asleep and stay asleep for the whole night. Cell phone use after sleep onset has been linked to increased fatigue (Van den Bulck, 2007) and different types of sleep disturbances (Munezawa, Kaneita, Osaki, Kanda, & Minowa, 2011). Another study conducted on college students found that those who use technology at high levels during time of sleep, were more likely to experience lower quality of sleep which in turn, led to an increase in anxious and depressive symptoms (Adams & Kisler, 2013). In further support, a study on students in the eighth grade who reported higher levels of mobile phone use at night, also were more likely to report higher levels of externalizing behaviour, lower self-esteem, and depression symptoms when surveyed the following year (Vernon, Modecki, & Barber, 2017).

Several possible contributing factors have been studied. One explored has been a connection between the common backlit display of many mobile technology devices and a disruption of circadian rhythms and release of melatonin. Artificial short-wavelength light is emitted from many forms of technology including televisions and smartphones (Wood, Rea, Plitnick, & Figueiro, 2013). Many adolescents use technology in hours of the evening and exposure to these lights during these times disrupt circadian rhythms affecting sleep and neurobehavioural activity. Long term, this may result in misalignment of the circadian timing system leading to sleep issues and symptoms of depression (Cajochen, Frey, Anders, Spati, & Bues, 2011). Another study suggested that the bright light of technological devices is impacting sleep by delaying the circadian rhythm when exposure occurs in the evening hours as well as,

causing an immediate activation response in the individual. This study also suggests that social media use may be directly affecting sleep by replacing it because of its consuming nature and stimulating content which increases psychophysiological arousal. The use of social media in bed overtime and in repetition, can also be conditioning the individual to associate their bed and bedroom with technology and social media use as oppose to rest and sleep (Hysing et al., 2015).

Mobile Phone Attachment

Another interesting, yet alarming finding was that college students have a *hyper vigilant* attachment to their cell phone as many tend to be immediately awaken by the sound of their phone in a way that is much like a mother is awoken by the sound of her baby crying. This is a possible explanation for the lack of quality sleep this young population is experiencing. It has been suggested that these individuals engage in habitual mobile phone use, often into late hours of the night, to the extent that they are attuned with their phone. They actually experience difficulty putting their phone down and turning off their own mobile use behaviours when it is time to go to sleep (White et al., 2011). It is suggested that, "Just as a mother develops an *ear* for her baby, perhaps college students have developed an *ear* for their cell phone" (White, Buboltz, & Igou, 2011). The study states, with some certainty that if one has developed an ear for certain stimuli, that the quality of their sleep is being negatively affected. The study also suggests that some young individuals become so obsessed and vigilant with their mobile phones due to their fear of missing anything important that may occur. They therefore, do not enter into a deep sleep and instead, always remain somewhat alert and ready. Such findings further illustrate that the young population may be so concerned with the possibility of missing out on a call, text, or social media posting, that they are willing to sacrifice the quality and amount of

sleep they get, their physical and emotional well-being, academic success, and other aspects of life (White et al., 2011).

Smartphone Addiction

Research illustrates that the prevalence of problematic cell phone use continues to rise and these behaviours are being compared to addiction behaviours, especially among young people. Professor Roberts, of Baylor University of Texas, suggests that a diagnosis process to determine if someone is addicted to their smartphone is much like the process a healthcare professional conducts when assessing for substance abuse (Hopper, 2016). He suggests that for some, the behaviours such as, excessively checking social media accounts, can actually be as addicting as alcohol and drugs. A dependence on cellphones can develop and present itself in similar ways to how some people respond to drugs. When time is spent apart from one's cellphone, for example, feelings of anxiety and panic may appear to be similar to withdrawal symptoms. Another alarming finding was that for some addicted smartphone users, cellphone use actually lifted their moods, at least at first. With time, however, these individuals found it took them an increasing amount of time using their phone to arrive at that same level of enjoyment than when they first started using a cellphone. This can be compared to raised tolerances of drugs and alcohol after excessive and continuous use (Grush, 2015). Roberts summarizes his notion through six signs; *salience, euphoria, tolerance, withdrawal symptoms, conflict,* and *relapse*. Roberts explained that these signs help to evaluate how often one looks at their smart phone, whether their phone is with them at all times, what is experienced when they are away from their phone, whether or not their phone use led to negative consequences and had an effect on everyday life, and if there has been any failed attempts to limit their smartphone use (Hopper, 2016). Simplified however, when smartphone use begins to put a strain on an

individual's personal and or professional life, it may be time to evaluate whether an addiction problem may be present and how to address it (Grush, 2015).

A (2013) study explored what makes cellphone use as gratifying as it does, especially for younger people. It is suggested that a factor that helps to determine a substance's capacity to become addictive is its ability to provide gratification (Carbonell, Oberst, & Beranuy, 2013). It is recognized that the stronger the positive reinforcement and the shorter the reaction time between consumption and physiological response, the greater the ability of a substance to become addictive. Cellphone use has the capacity to lead to many positive reinforcements and with quite immediate gratification. With young people in particular, cellphones are personal phones and play a significant role in socialization, a sense of identity and belonging, and independence. Cellphones mark a boundary between parents and their children and when a cellphone is gifted by a child's parents, it can be recognized as a sign of initiation into adolescence. Cellphone use leads to a sense of euphoria through the feelings of being valued and loved that come from sending and receiving messages and calls. A sense of identity and feelings of power may result simply from the purchase and ownership of a phone itself for a young individual. Cellphones have become a tool to build a social network and a new sense of collective identity through contact lists and use of social media platforms, music, and games for adolescents, in particular (Carbonell et al., 2013).

Other researchers suggest that there is confusion between habitual use of mobile phones and addictive behaviour. Some individuals may consider themselves mobile phone addicts because they do not leave their home without their phone, never turn it off even when they are sleeping, always expecting someone to contact them through it, and may be over-using it during times of their professional and social lives. Griffiths suggests that excessive use does not

necessarily mean addiction, but that there is a difference between healthy enthusiasm, or something that adds to your life, and addiction, which takes away from it (Griffiths, 2005). Griffiths (2013) suggests that there is difficulty in determining "the existence of a serious and persistent psychopathological addictive disorder related to mobile phone addiction." Research is not yet in a position to determine at what point mobile phone use can be identified as an addiction and longitudinal studies are needed as oppose to, only the evaluation of population survey data. For young users, what may be perceived as mobile phone addiction, may instead simply be a short period of time of development where there is a strong need for socialization, which most will eventually grow out of. The risk of harmful use or addiction is, however, potentially on the rise, as more mobile phones now include endless application options that offer much more than just standard communication including, social networking and gaming (Griffiths, 2013).

Distracted Driving

An indication of the impact mobile phones can have on an individual whether or not it can be classified as an addiction, especially for youth and adolescents, is the continuing issue of *distracted driving* due to phone use. Distracted driving refers to a driver's attention being temporarily diverted from the task of driving to an object, person, or task not related to driving. A particular concern has become the frequency of youth texting while driving. Texting while driving (TWD) is defined as "the act of sending, reading or writing a text messages or electronic message (including through social media platforms) using a handheld electronic telecommunications device to manually communicate with any person" (Berenbaum, Keller-Olaman, & Manson, 2015). A study found that drivers under the age of 25 were more likely than older drivers to read or send text messages or emails while driving (Tison, Chaudhary, &

Cosgrove, 2011). A Centre for Addiction and Mental Health study found that more than 33% of students in grades 10 to 12 report having texted while driving at least once in the past year and for students in grade 12, the number rose to 46% (Boak et al., 2014). It was found that as of 2016, 21% of teen aged drivers involved in fatal car accidents were distracted by their cell phones. It was also found that teenage drivers are four times more likely than adults to have car crashes or have near-crashes when talking or texting on a cell phone (U.S. Department of Transportation, 2018). TWD causes young drivers to spend 400% more time looking away from the road compared to when they were not texting (Hosking, Young, & Regan, 2006). Reed and Robbins (2008) found that reaction times of 17 to 24 year old drivers were 35% slower when a text message was being composed while driving compared to driving undistracted. These rates of phone use while driving among young drivers are concerning as they dramatically increase the risk of a car collision (Reed & Robbins, 2008).

In the attempt to address these concerns and limit harm and risk, in 2009, Ontario introduced a ban on hand-held devices while driving. This law prohibits drivers from talking, texting, typing, dialing, or emailing using hand-held cell phones as well as, other hand-held communications and entertainment devices (Ontario Ministry of Transportation, 2012). Failure to comply with this law at first, resulted in a $155.00 fine, but as part of the Keeping Ontario's Roads Safe Act and supporting revisions to the Highway Traffic Act, there was an increase in fines for distracted driving. A minimum of a $490 fine plus 3 demerit points is now administered upon failure to comply (Ontario Ministry of Transportation, 2014). Despite such attempts, it has been suggested that laws banning TWD are not effective in reducing the occurrence of distracted driving because they are challenging to enforce as catching drivers who are using their phones is difficult to detect (Farris, 2011).

As well, regardless of knowledge of the consequences and risk of distracted driving, many young drivers continue to participate in this behaviour (Cazzulino, Burke, Muller, Arbogast, & Upperman, 2014). In a (2015) study of Ontario residents between the ages of 16 and 24 years, over 90% of participants reported being aware of the Ontario law banning TWD and the risks and dangers involved with TWD. They claimed to know it was wrong and felt guilty for the behaviour and yet, nearly half of all participants reported reading and/or sending messages while driving (Berenbaum et al., 2015). It has been suggested that, "merely conveying the fact that distractors result in accidents will not appreciably reduce the risks when there are perceived benefits or incentives to use the distractors" (Peters & Peters, 2001). The reasons behind why drivers, especially young ones, who claim to be aware of the risks and consequences, continue to engage in phone use while driving must be investigated. More research into this area of study, such as the beliefs, attitudes, and motives behind this behaviour, are needed (Hallett, Lambert, & Regan, 2012). Furthermore, the possible psychological and environmental factors that may predict TWD, must be identified. As well, further inspection into whether or not the apparent need to continue phone use while driving is a sign of possible addictive behaviour, is required. Empirical data on psychological factors of TWD are limited, but it has become progressively clearer that there is a need for encouragement of boundaries and awareness in technology use especially among young drivers (Feldman, Greeson, Renna, & Robbins-Monteith, 2011).

Current State of Research and Limitations

There are limitations to the existing studies, as the effects of social media on the young population is a topic with many layers such as, including the different forms of social media and purposes for it. The authors of the 2019 Montreal study acknowledge such limitations, such as

not determining which types of social media and which genres of television intensify symptoms of depression (Boers et al., 2019). Dr. Bloomfield, psychiatrist at University College London in the United Kingdom also stated, "More research is needed to see whether there is a causal relationship between screen time and depression in young people. If there is, we need to know how this is happening and how to prevent depression in young people" (Angerer, 2019).

Conrod, leader of the 2019 Montreal study, is in strong support that much more research is needed on these topics. “Considering how much time young people and adults are spending in front of screens, there’s relatively little research on this topic” (Boers et al., 2019). She continues by explaining that considering the existing findings thus far in the area of study, the effects being recognized are not just about the amount of time being spent in front of a screen, but rather about what is being presented on that screen (Boers et al., 2019). Current research has been more focused on time spent as a measurement. While this has been important and insightful, a next step in studying this topic would be the determination and evaluation of the effects that different social media content have on its young users.

Chapter 3: Addressing the Risks and Harms of Social Media on Youth

Research thus far, has illustrated a picture depicting an increase in problematic mobile phone and social media use, with youth being most at risk of the negative effects. Studies have found links between high use of mobile phones and greater degrees of depression, anxiety, suicidal thoughts, (Santana-Vega et al., 2019) cognitive functioning, emotional development, sleep deprivation (Stockburger & Omar, 2013), and distracted driving (Hopper, 2016) with social media use being the connecting link of it all. Dr. Martin Gignac, chief of child and adolescent psychiatry at the Montreal's Children's hospital, has seen an increase in recent years, in emergency-room visits of teenagers exhibiting suicidal thoughts and behaviours. While he does not believe social media to be the sole reason for this increase, he believes it is a contributor which deserves much attention. He hopes for the school curriculum to expand universally in teaching children and adolescents healthy online behaviour (Boers et al., 2019). As well, parents can learn about the role they can play in helping their children during this time of development and recognize when professional help is needed (Carbonell et al., 2013).

Mutual Respect

Often times, adolescents and teenagers are thought of as and depicted as being rude, inconsiderate, and disrespectful. Dr. Martin Davidson, a registered psychotherapist, however, has found the adolescents he works with to be quite the opposite. He shares his awareness that adolescents likely interact differently with adults that are not their parents, but also that they will not likely place value on cooperating during therapeutic interactions (Edgette, 2006). Dr. Davidson explains he does not do anything complex to motivate such seemingly unusual behaviour, instead, "I demonstrate respect to adolescents before expecting to receive it in return" (Davidson, 2014). Davidson has no expectation of receiving any respect from an adolescent and

believes it must be earned. In the school environment, teachers can adopt this approach, and school-based programs can teach it to parents.

Adolescents experience significant social and cognitive changes, which often present themselves in what parents perceive as disrespectful behaviour. Such behaviours may include not complying with rules, not listening, refusal to complete chores, and participating in activities not approved of. Parents often respond to these signs of disrespect with what adolescents recognize as disrespectful behaviour of their own. Dr. Davidson suggests that in order to move out of this *stalemate over respect*, it may be helpful to gain an understanding of why young people act in these ways which are perceived as disrespectful. While there are many possible reasons to help explain, Davidson focuses on a young person's needs to gain a sense of identity and autonomy during this time of development as the root motivator for this type of behaviour. It is helpful for parents to recognize adolescence as a time of transitional development, meaning a time to explore and experiment with beliefs, values, career and educational paths, and approaches to relationships which may differ from those that have been passed down to them. Part of this process is evaluating, critiquing, and even rejecting what they have learned from their parents as they attempt to establish a unique identity (Erikson, 1963). This also marks a time in a young person's life to learn to master their environments and make important life decisions independently and in order to do this, a psychological separation and change in relationship with parents and caregivers must occur (Lamb, 1986). Any sense of autonomy at this age is very new and somewhat tenuous, and adolescents have a primal instinct to protect and defend against any perceived threats to their autonomy and are therefore, sensitive to indications that adults are asserting authority over them. They will react to the fear of not having freedom to express

themselves or to their sense of self-determination not being respected (Davidson, 2012; Lemma, 2010).

On the surface, this behaviour may be seen as a direct lack of respect towards parents and be especially hurtful since appreciation is what is deserved for all the hard work and sacrifices that went into raising them. When it is viewed from another perspective, however, perhaps parents can accept it as a part of the developmental process and become open to Davidson's theory on how to receive respect: "give and you shall receive" (Davidson, 2014). By attempting to impose values on adolescents, while parents may not be aware, they are directly challenging adolescents' evolving sense of autonomy. To navigate through adolescent defenses, parents must provide their adolescent with an opportunity to maintain their sense of self-determination and independence by first modelling and demonstrating respect to them before expecting it in return. Teachers can provide this in the classroom and parents can be educated on them through programs provided by the school system.

To demonstrate respect to adolescents:

1. Have no expectation of receiving respect from an adolescent until you can earn it.
2. Listen in an accepting, nonjudgmental manner.
3. Take adolescents' statements seriously.
4. Value their perspective.
5. Be interested in their experiences.
6. Treat them as equals.
7. Do not minimize their concerns or opinions because of their age.
8. Demonstrate and model values rather than imposing them.

When asked how they want to be treated by adults, adolescents will describe their desire to be treated with respect by evidence of the above attributes and once utilized, adolescents will often reciprocate (Bury, Raval, & Lyon, 2007; Davidson, 2012; Karver & Caporino, 2010). The adolescent may not reciprocate respect right away; however, and it is more likely, in fact, that they will test this new found respect and measure their parents' commitment and strength to this new attitude by behaving in more disrespectful ways, at first. It is important that parents remain consistent in their demonstrations of respect and have patience during this time. Davidson has also found parents to reject this notion completely due to the belief that they would be *giving in* or allowing the adolescent the power to dictate the relationship by making this first move. His view, however, is that the adult could have a much greater influence on, and develop a much stronger relationship with the adolescent, if it were accepted that respect must be earned by giving it first (Davidson, 2014).

The establishment of a strong relationship between parent and adolescent is associated with various positive effects, not only for the adolescent, but the parents, and family as a whole such as, an increase in responsiveness and empathy. Parents have the power to foster the development of a strong attachment relationship with their adolescent which sets the young person up for success throughout life across several aspects including peer relationships, intimacy, emotional functioning, physical health, and financial independence (Allen & Miga, 2010; Holland & Roisman, 2010; McWilliams & Bailey, 2010). When this perceived concession of power has such potential impact to make on one's child, Davidson wonders how a parent could even have to consider making a first move. Davidson firmly believes that parents must first demonstrate respect before expecting it in return and a new relationship grounded by

consideration and mutual respect is likely to build and grow over time (Davidson, 2014). This approach can also be adapted into the classroom by teachers.

Communicating with Youth

Parent-child communication remains very important throughout adolescence and once a relationship of mutual respect has been established, a parent is more able to stay connected with their child. It is the responsibility of parents, to create a home which is a common learning environment for adolescents to feel safe and comfortable to interact and communicate. School-based programs can be developed to educate parents on how to create the type of home environment which encourages healthy communication between themselves and their adolescent children. Young people are very aware of the energies of their environments and many report their homes feeling tense and stressful for varying reasons such as, parents not getting along. While some describe their homes as too loud, others too quiet and while some adolescents feel judged and under constant watch, others feel invisible (Duffy, 2019). "It is so very important, therefore, to create a vibe in your home that is warm, comfortable, and reasonably happy" (Duffy, 2019). It's important that with the constant emotional and psychologically draining experiences of adolescence, home is a space to hear one's thoughts, breathe, and give one's mind a break from it all. Dr. Duffy (2019) recommends setting common areas in the home as welcoming spaces to eat, work, connect, and laugh as family.

The American Academy of Pediatrics also recommends limiting screen time and encourages parents to ensure their children have non-electronic forms of education and leisure including books, newspapers, and board games. It is also encouraged that parents watch television with their children and that computers and televisions are kept in common areas of the home so children are less likely to isolate themselves. This also helps to encourage *screen-free*

zones through the home and it is recommended that there are no televisions, computers, mobile phones, or video games in adolescents' bedrooms (Stockburger & Omar, 2013). The goal is to find a balance so that a home is not too loud, nor feels lifeless and where more connecting than arguing takes place. The vibe of a home is one thing that parents and children tend to agree on and therefore, it is feels uncomfortable to the parent, it likely will for the children as well (Duffy, 2019).

There are also ways to more successfully get through to adolescents, keeping in mind the social and cognitive transition they are experiencing. School-based programs can provide parents with knowledge and research updates which they may not have the time or resources to access on their own. Parents can be educated on how new findings can be utilized into their relationships and interactions with their adolescent children. For example, research indicates that adolescents' sensitivity to others' emotions is heightened during this time as they become better at recognizing subtle changes in the facial expressions of others (Thomas et al., 2007). While this may present an increased attentiveness to others' emotions and improved social skills, research also indicates that adolescents are more easily distracted by expressions of emotion. One study illustrated that yelling at a teenager in an angry voice may not be a very effective way to get them to listen because they may be distracted by the angry emotion and not pay attention to the content of what the parent or teacher is saying (Wang, Huettel, & De Bellis, 2008). With this type of knowledge, teachers and parents can make appropriate adjustments to the way they speak to adolescents.

It is important to recognize that through communication, the need to use technology responsibly can be openly discussed both in the home and the classroom. Considering the potential psychological as well as, legal risks in connection to sexting, for example, it is the

obligation of parents and school administrators to understand this behaviour and make adolescents aware of the dangers (Strassberg et al., 2013). Dr. Duffy emphasizes the importance of speaking with young people, and beginning quite young, about relationships, sex, and sexuality. It's important for there to be openness despite the discomfort that is likely to be experienced from both sides. As difficult as it may be at times, he asks that parents restrain from judgement of themselves and their children and to make themselves fully available to talk and listen. His experience has taught him that it is best to initiate the discussion and ask open-ended questions, but then let the child lead the direction of it. He suggests parents also look for opportunities to have brief, but frequent discussions, for example while watching television with their children. By making these efforts, the discussions shared will be in children's heads when they come across difficult decisions to make. As well, should children feel the need to talk and seek counsel, the environment has been set for them to go to their parents. Parents are also likely to feel much more connected and worry less (Duffy, 2019). Programs provided by schools could assist parents in handling these types of uncomfortable topics as well as, provide some support to them during these times.

A qualitative research study evaluated the content and frequency of talk and text between adolescents and their parents (Fletcher, Benito-Gomez, & Blair, 2018). Adolescents preferred to text with parents when communication was more based on casual day-to-day material, but to call for more emotional conversation topics seemingly, for the purpose of emotion regulation. Hearing the voice of someone an adolescent trusts has been found to be associated with stress reduction in a way that communicating via text messages are not (Seltzer, Prososki, Ziegler, & Pollak, 2012). The study found that regardless of family structure, adolescents communicated more with their mothers than their fathers and this did not depend on conversation content either.

Adolescents preferred to communicate with mothers, but this pattern is also explained by mothers' tendency to be more accessible. Adolescents were found to communicate with fathers when mothers were unavailable or when content of communication was stereotypically masculine. In adolescence, parenting is more likely to be conducted through cell phone communication than through physical presence, but emotional connection remains important in these years. Mobile phone technology has the potential to provide young people with the support of their parents, despite the physical presence of their parents being less available (Fletcher et al., 2018). By providing this information to parents through programs provided by schools, both parents might be encouraged to make themselves more available to their adolescent children and it might provide some insight on how fathers could become more involved.

In the Montreal 2019 study, Conrod advised parents to help their adolescent children understand that a tendency exists to only post positive experiences and ideal images of oneself online and that this is expected to only worsen with advancement of filters and photo enhancement technology (Boers et al., 2019). It is important that both teachers and parents teach adolescent children to have an awareness of this and to also be aware of the thoughts and feelings that may result from the constant exposure to such content. It is becoming increasingly important that parents understand the signs of FOMO and that open communication exists to help prevent it and address it at first detection (Santana-Vega et al., 2019).

Dr. Duffy suggests that parents can help diffuse the power of FOMO. In his experience, he has found parents to try reasoning with their child through their FOMO with statements such as, "you really couldn't possibly be missing out on anything that important" (Duffy, 2019). While he understands why parents would find themselves inclined to use such tactics, he suggests a different approach and explains that FOMO is likely to be a highly emotional and

anxiety-provoking experience for young people and the reasoning method would provide little relief. He instead encourages parents to reflect on their own experiences with FOMO as a teenager, or even in present day and share their own experiences with their children. By doing this, parents are validating their children's feelings, and acknowledging their reality that they may be missing out on something of importance. He then suggests that parents can help their children understand their feelings of FOMO, work through these feelings, and find solutions. This understanding and realization that they are not alone in their experiences can ease some of their anxiety. Parents can help their children realize that while everyone misses out on things occasionally, things tend to work out the way they need to. Parents can give their children insight into the bigger picture of things and explore ways together to become more socially involved and ways to ease distraction and anxiety. Finally, he encourages parents to try such approaches, but to also remain aware that if things become more complex and persistent, professional assistance might be needed as the effects of FOMO can require therapy (Duffy, 2019). The development of school-based programs is needed to educate parents on FOMO, to ensure they understand it, and learn ways to effectively diffuse it.

Parental Influence

While connections have been found between high usage of mobile phones and higher degree of FOMO in adolescents, the mobile phone is a tool with ability to maintain attachment and communication, but this depends entirely on how it is used. The likelihood of the mobile phone having positive effects, for example, enhancing family relationships, increases when parents regulate the use of it (Santana-Vega et al., 2019). In one study, parental control over the time their children spent on social media was associated with healthier mental health including, in less depressive symptoms and increased life and self-image satisfaction. This relationship was

mediated by less time adolescents spent browsing social media and lower frequency of image comparisons being made. These findings encourage parents to be aware of and restrict the amount of time their adolescent children spend browsing social media (Fardouly et al., 2018).

Parents can learn how to have a positive impact on their adolescent children by modelling the healthy behaviour they wish for them to adopt. School-based programs can provide education on ways to do this. Before regulating their children's use of mobile phones and social media, they can first foster change by regulating their own screen time (Duffy, 2019). Screen time including social media use, has a contagious effect within families. Adolescents who excessively use technology have been found to perceive that their mothers and siblings also use them at excessive amounts illustrating the influence families can have on social media and technology use (Santana-Vega et al., 2019). With this knowledge, parents can model behaviour they want to encourage for their children and work to create home environments that promote healthy technology use. Dr. Duffy suggests taking beaks from screen time and social media as a family and looking for other activities to participate in together (Duffy, 2019).

These are also suggested as ways to increase good sleep hygiene in adolescents which can be taught by teachers and to parents. Electronic devices such as computers, televisions, and mobile phones exert negative influence on sleep (Hysing et al., 2015). Through his experience, Dr. Duffy has found that the majority of young people lack in consistent bed times and bedtime rituals which have led to not getting enough sleep. Sleep doctors recommend young people get 8 to 10 uninterrupted hours of sleep per night, yet very few get even close to this amount nightly. However, in order to receive even the minimum suggested hours, routine is required. Parents need to be educated on how counterproductive having screens in their children's rooms can be, especially at night, and adolescents must be educated on the effects of keeping their mobile

phones on their bedside at night to use as alarm clocks. Smartphones are the number one reason for teenagers not getting enough REM sleep, as the constant stimuli of notifications and illuminated screen keeps the brain aroused and stimulated, rather than resting it. Recent research suggests that for people of all ages, just knowing one's phone is activated, even on sleep mode, can be stimulating enough that it prevents sleep for hours. When one's mobile phone is by their bedside, the individual is likely to check it impulsively before falling asleep and when waking up in the middle of the night and parents have no knowledge of what their children could be doing (Duffy, 2019).

Ideally, parents are encouraged to model healthy habits around phone use beginning very early on in the child's life. One study suggests parents put their phones in baskets at night when children are at around 10 years of age, modelling that they do not go into bedrooms so that by the time children have their own mobile phones, this has become normalized in the home (Vernon et al., 2017). Of course, there are also ways to begin to encourage change in homes where unhealthy habits already exist. With this awareness, parents can begin to immediately encourage change in the home and help their adolescent children develop bed time routines, as they model and participate in them themselves. Dr. Duffy suggests buying alarm clocks, going to bed at a consistent time, and making it a new habit to not bring mobile phones into bedrooms (Duffy, 2019). Increased parental involvement and participation in change, such as setting bed times and limiting the use of electronic devices immediately before bed, have been associated with the decrease of sleeping issues in adolescents (Hysing et al., 2015).

The Power of Mindfulness

According to Siegel, mindfulness "is about waking up from a life on automatic, and being sensitive to novelty in our everyday experiences" (Siegel, 2007). As one becomes mindfully

aware, the flow of energy and information that makes up their mind, enters their conscious attention. Once this is achieved, an individual is able to appreciate the contents of their mind as well as, learn to regulate its flow. This means more than being aware, as it also refers to being aware of awareness. When an individual reflects on their own mental processes, it is a form of metacognition which involves thinking about thinking and is an ability that first develops during adolescence. Mindful awareness involves reflecting on the inner activity of the mind in the here and now, moment to moment (Siegel, 2007). Many use the different forms of social media on automatic and mindlessly without thinking what kind of an impact it could be having on them. If young people can be taught in schools and their homes how to be mindful in their use, they can awaken and learn to reflect on their minds and become more self-aware of what they are feeling and thinking during their use of social media (Ehmke, 2019).

Reflective skills and mindful awareness can be taught by teachers in schools as well as, to parents to practice with their children at home. It is important first, for teachers and parents to become familiar with mindful awareness before it is expected that students develop reflection and attunement within themselves. A professional *presence* is needed whether by teachers, parents, or therapists, which is a state of mind and reflection that allows for one's availability to receive whatever the other brings to the individual, to sense one's own contribution in the interaction, and to be aware of one's own awareness. This creates grounding for the students to become mindful and reflective. When a teacher is intentionally open and mindfully present, this creates an authenticity and encourages students to reflect (Siegel, 2007).

Teaching mindful awareness to adolescents promotes a reflective mind, emotion regulation, and empathetic relationships (Siegel, 2007). Dr. Emanuele recommends various mindfulness strategies that can be worked into school curriculums. One important healthy habit

to learn is self-check-ins (Ehmke, 2019). These can be used before, during, and after social media use. With how automatic and mindless the scrolling, posting, and liking of the many forms of social media can be, it is important to prioritize and become aware of the thoughts and feelings surrounding these behaviours. Activities can be incorporated where teachers or parents ask their students to ask themselves questions such as:

1. How am I doing right now?
2. How is this app making me feel?
3. How did seeing the picture make me feel?
4. Has my mood changed in any way and do I notice any patterns?

It is important that students are made aware that it is okay to notice oneself feeling negative emotions. Part of learning mindfulness is learning not to judge how one is feeling, but to simply acknowledge the emotions. Acknowledging feelings of envy or sadness can have a positive effect of helping to alleviate the negative feelings as the emotions are processed without becoming too overwhelming. Through these processes and questions, patterns can be recognized, such as something consistently contributing to negative thoughts and feelings. Mindfulness strategies help to identify what the common factor is and encourages the young individual to ask them self why and what can be done to help. Stopping to notice and acknowledge such thoughts and feelings is important in helping to increase confidence and self-esteem both online and offline (Ehmke, 2019).

Learning mindful awareness also gives young people a reality check. It may become habit to use social media when one is feeling sad or bored. When these feelings are experienced, it is sometimes believed that projecting something different to others, or receiving compliments from the online world will alleviate these feelings and symptoms of FOMO. However, it is often

found that while there may be some satisfaction in this, one is more likely to soon find themselves feeling worse. It is important that students know they are not alone in experiencing these feelings (Ehmke, 2019). It may be helpful to share and reflect on these experiences as a class led by the teacher. Students can be invited to share their reasons for social media use, and their feelings before, during, and after. As students share their experiences, commonalities can be recognized and students will be validated not only by teachers, but also by one another. More reliable ways to improve mood and process emotions can be discussed as a class (Ehmke, 2019).

Dr. Emanuele recommends participation in an experiment to see how much time is actually spent on social media platforms. He encourages students to pay attention and track when they are on them, what they are actually doing during that time, and what they are thinking and feeling in that time. Part of this is creating a record a how one has been feeling, and in a way in which can be revisited afterwards. Through gathering data on how one uses technology and how they are affected by use, patterns can be recognized and healthier habits can be developed. It can be very surprising and a powerful reality check to become aware of how much time is actually spent using social media (Ehmke, 2019). Ways to track use times and behaviours can be discussed as a class as well as, signs which indicate when it is time to do a self-check-in and take a break. This can be given as a homework assignment to students and may involve parents' and teachers' participation as well.

Being able to take a break and recognizing when one is needed is a skill in itself that comes with mindful awareness. Taking occasional breaks from social media is a healthy habit to learn, especially for younger users. It gives the time and space to stop, breathe, and reflect. It also allows for connection with the offline world and time to practice mindful awareness while actually doing things. Spending time with friends and family in person, playing sports, doing

yoga, going for walks in nature, have all been found to be effective stress relievers and help to encourage sense of self and confidence in ways that mindlessly scrolling through social media news feeds could not (Ehmke, 2019). In practicing mindful awareness during offline activities, one learns to recognize how they feel in the moment and can discover what they really enjoy doing. Learning mindfulness heightens one's ability to approach the here and now with curiosity, openness, acceptance, and love. Becoming aware of awareness sharpens one's focus on the present, allowing the individual to feel their feet hit the ground during a walk, for example and invites them to engage with themselves as well as, others making more authentic connections and experiencing the enrichment of being alive (Siegel, 2007).

Mobile Phone Addiction Awareness

As mobile phone addiction becomes an issue for young people, it can be helpful to incorporate awareness, detection, and prevention programs into the school system. Health professionals have found mobile phone addiction to appear very similar to and can be diagnosed much like substance abuse (Hopper, 2016). Guidelines can be taught to teachers to be aware of as well as, parents and students. A check list can be made into a class activity and collaboratively, questions can be discussed. There are six signs according to addiction studies to look for in oneself or in someone else:

1. Salience. Is your mobile phone your constant companion? Is it the last thing you look at before bed? Is it the first thing you look at when you awake?
2. Euphoria. Do you turn to your mobile phone when you're bored or in awkward social situations? Would you rather spend time with your mobile phone than your friends or family members?
3. Tolerance. Do you find you are using your phone more and more each day?

4. Withdrawal Symptoms. Do you find yourself in a panic when you can't find your phone?
5. Conflict. Has your mobile phone caused trouble in your life? With school performance? With relationships? Friends? The cause of a car accident?
6. Relapse. Have you ever tried to stop or cut-back on your mobile phone use but failed?

If the answer is "yes" to most of the list, the individual may be addicted to their mobile phone and it is time to address it. This is a powerful process to experience and can be very overwhelming to a young person. As a class, or as a family, remedies can be explored. New rules can be decided such as, one's mobile phone is to be kept in the backseat when driving. Phone-free zones and times can be discussed. A helpful method has been to formulate contracts with conditions to decrease mobile phone use which are then signed. Penalties for breaking contract rules are also decided. When done collaboratively and in a safe, comfortable, and nonjudgmental environment of the home or classroom, it can be less overwhelming and students can feel supported by one another. If this type of environment does not exist, it may be more beneficial to do such activities independently or as homework and in a way in which allows the young person to approach the teacher or a parent privately for support (Hopper, 2016).

Parents, teachers, and counsellors have a responsibility to the youth of today to set healthy examples of mobile phone and social media use. Rather than facing the psychological effects after the fact, it is helpful to explore preventative measures of teaching adolescents to embrace the benefits of technology, while also having an awareness of the dangers. It is also essential that they encourage open and honest communication with the young population about what thoughts and feelings arise from their use of social media. Parents can always make the effort to do some of their own research on how to best communicate with their adolescent children and create warm, comfortable home environments for them. The development of

school-based programs aimed at both students and parents, however, allow for the education of preventative steps beginning at young ages, perhaps even before children become a part of the social media world. When healthy social media use is part of the curriculum and parents are encouraged to be involved, adolescents can learn early and feel supported with whatever their thoughts and feelings may be.

Chapter 4: Future Research and Concluding Thoughts

Current State of Research and Future

The effects of social media on youth, while a popular topic of study in recent years, is still new and in its very early stages. Boers, a researcher of the 2019 study on Montreal students compares the effects of screen time on youth today, to smoking in the 1970's; the very negative effects are still fairly unknown and not widely studied. By further studying the effects of social media on youth, pediatricians, and mental health care providers can learn to more effectively prevent, understand, and treat depression and other psychological issues in this young population (McKenna, 2019). It must also be further studied how parents and home environment influence use and what can be done to encourage positive changes in social media and technology usage. Finally, the role of teachers and classroom influence can be further examined, as this is where much of adolescents' time is spent. It would be very beneficial if the incorporation of preventative as well as, awareness and rehabilitative measures were explored and instilled into the school system.

Researchers of the Montreal study concluded that "To our knowledge, the present study is the first to present a developmental analysis of variations in depression and various types of screen time" (Boers et al., 2019). There are also limitations to this study as well as, other already existing research as it is a topic with many layers such as, different forms of social media and purposes for it. It is still to be determined and examined which types of social media and which genres of television intensify symptoms of depression (Boers et al., 2019). It has been suggested that it must be determined whether or not a causal relationship exists between screen time and depression in young people (Angerer, 2019). Considering the existing findings thus far in the area of study, the effects being recognized are not just about the amount of time being spent in

front of a screen, but rather about what is being presented on that screen. This must be further researched (Boers et al., 2019).

Due to the endless ways that social media and mobile phones have come to influence and affect us, research on this topic can be expanded to many different paths which could not have all been fully covered in the current paper. Cyber bullying, for example, has become a very serious and prevalent issue amongst young technology users and has resulted in many negative effects. The influence of social media on body image of both male and female young users deserves attention of researchers as well. It may be helpful to ask questions such as; How young is too young to become a part of the online world? Should there be some controls put into place? Who is best suited to have authority over these controls? How do we ensure our young users are safe from the possible risks and harms of social media? We are left with many questions still to be explored.

Concluding Thoughts

Social media sites are used by all, but are especially attractive to the young population. Adolescence is a time of cognitive, psychological, and biological development making these individuals most vulnerable to negative effects such as FOMO (Oberst et al., 2017). Excessive social media use has been linked to a lack of privacy and perception distortion which have been found to lead to depression and anxiety symptoms. Mobile phone addiction has been compared to substance abuse and found to result in sleep deprivation and distracted driving. Initial social media exposure and age of use has dropped as technology makes it increasingly more available to all. First time Facebook users were on average between the ages of 12 and 13 years as of 2013 (Garcia-Jimenez et al., 2013). Yet, most studies evaluate the effects of technology on the

general population and very little research has involved participants under the age of college students (Anderson, Steen, & Stavropoulos, 2016).

As mobile phones and social media use of young people rises, parents, teachers, and counsellors have become increasingly concerned with possible negative consequences of excessive and maladaptive use. It is their responsibility to help prevent the unhealthy use of technology in the young population through open communication and by setting good examples. The development of school-based programs directed towards students and parents, with the purpose of teaching and promoting well-adapted use of mobile phones and all its possible applications, require further exploration (Carbonell et al., 2013). It is essential that time and resources are devoted to developing ways of intervention and rehabilitation of the youth of today. More thoroughly researched and tested interventions of how unhealthy habits can be prevented and how already existing problem behaviour can be reversed are needed.

Rather than only teaching the young population to use social media less, we can also encourage them to use it more mindfully and with intention. We can encourage them to follow people who inspire them and motivate them, and to use the various platforms to connect with experts to learn more about areas of interest. As we teach young people to explore and develop their true real-life identities, we can help them to also achieve this through their online personalities. Finally, as much as we encourage authentic, genuine connections in the offline world and in face-to-face interactions, we can also promote this with online relations. After all, communication is humans' most basic desire and it is provided by mobile phones and social media by allowing people to connect and by giving a sense of belonging. We just have to make sure that we do not use it in a way that disconnects us from ourselves and the offline world.

References

Abel, J. P., Buff, C. L., & Burr, S. A. (2016). Social media and the fear of missing out: Scale development and Assessment. *Journal of Business & Economics Research, 14*(1), 33-45.

Adams, S. K., Daly, J. F., Williford, D. N. (2013). Adolescent sleep and cellular phone use: Recent trends and implications for research.

Adams, S. K., & Kisler, T. S. (2013). Sleep quality as a mediator between technology-related sleep quality, depression, and anxiety. *Cyberpsychology, Behavior, and Social Networking*. *16*(1), 25–30. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4089837/#b30-hsi-6-2013-099

Allan, S., & Gilbert, P. (1995). A social comparison scale: Psychometric properties and relationship to psychopathology. *Personality and Individual Differences, 19*, 293–299.

Allen, J. P., & Miga, E. M. (2010). Attachment in adolescence: A move to the level of emotion relation. *Journal of Social and Personal Relationships, 27*, 181–190.

American Academy of Pediatrics (AAP) Council on Communications and Media. (2016). Media use in school-aged children and adolescents. *Pediatrics*, *138*(5). doi:10.1542/peds.2016.2592

Amoroso, D. M., & Walters, R. H. (1969). Effects of anxiety and socially mediated anxiety reduction on paired-associate learning. *Journal of Personality and Social Psychology, 11*, 388–396.

Amsel, E. (2011). Hypothetical thinking in adolescence: Its nature, development, and applications. *Adolescent Vulnerabilities and Opportunities*. doi:10.1017/CBO9781139042819.007

Anderson, E. L., Steen, E., & Stavropoulos, V. (2016). Internet use and problematic internet use: A systematic review of longitudinal research trends in adolescence and emergent adulthood. *International Journal of Adolescence and Youth, 3843,* 1-25. https://www.tandfonline.com/doi/full/10.1080/02673843.2016.1227716

Angerer, D. (2019). Increasing social media use tied to rise in teens' depressive symptoms, study shows. *KCC News*. https://www.kcci.com/article/increasing-social-media-use-tied-to-rise-in-teens-depressive-symptoms-study-says-1/28401245

Australian Communications and Media Authority. (2012). *Like, post, share: Young Australians' experience of social medi*a. https://www.acma.gov.au/-/media/mediacomms/Report/pdf/

Baker, Z. G., Krieger, H., & LeRoy, A. S. (2016). Fear of missing out: Relationships with depression, mindfulness, and physical symptoms. *Translational Issues in Psychological Science, 2*(3), 275-282. http://dx.doi.org.proxy.cityu.edu/10.1037/tps0000075

Bartau-Rojas, I., Aierbe-Barandiaran, A., & Oregui-González, E. (2018). Parental mediation of the Internet use of primary students: Beliefs, strategies and difficulties. *Media Education Research Journal, 54,* 71-79. https://doi-org.proxy.cityu.edu/10.3916/C54-2018-07

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*. *117*(3),497-529. https://www.ncbi.nlm.nih.gov/pubmed/7777651

Berenbaum, E., Keller-Olaman, S., & Manson, H. (2015). Texting while driving behaviour among Ontario youth and young adults. *Public Health Ontario*. https://www.publichealthontario.ca/-/media/documents/texting-while-driving-technical.pdf?la=en

Berrios, L., Buxarrais, M. R., & Garcés, M. S. (2015). ICT use and parental mediation perceived by Chilean children. *Comunicar, 45,* 161-168. https://doi-org.proxy.cityu.edu/10.3916/C45-2015-17

Bhagat, S. (2015). Is Facebook a planet of lonely individuals? A review of literature. *The International Journal of Indian Psychology*, *3*, 5–9.

Boak, A., Hamilton, H. A., Adlaf, E. M., Beitchman, J., Wolfe, D., & Mann, R. E. (2014). The mental health and well-being of Ontario students 1991-2013. *Center for Addiction and Mental Health*. http://www.camh.ca/en/research/news_and_publications/ontario-student-drug-useand-healthsurvey

Boers, E., Afzali, M. H., Newton, N., & Conrod, P. (2019). Association of screen time and depression in adolescence. *JAMA Pediatrics*. https://jamanetwork.com/journals/jamapediatrics/article-abstract/2737909

Bury, C., Raval, H., & Lyon, L. (2007). Young people's experiences of individual psychoanalytic psychotherapy. *Psychology and Psychotherapy: Theory, Research and Practice, 80*, 79–96.

Buunk, B. P., Taylor, S. E., Dakof, G. A., Collins, R. L., & VanYperen, N. W. (1990). The affective consequences of social comparison: Either direction has its ups and downs. *Journal of Personality & Social Psychology, 59,* 1238–1249.

Cajochen, C., Frey, S., Anders, D., Bues, M., Pross, A., Mager, R., Wirz-Justice, A., & Stefani, O. (2011). Evening exposure to a light-emitting diodes (LED)-backlit computer screen affects circadian physiology and cognitive performance. *Journal of Applied Physiology*. *110*(5),1432–1438. doi: 10.1152/japplphysiol.00165.2011

Carbonell, X., Oberst, U., & Beranuy, M. (2013). The cell phone in the twenty-first century: A risk for addiction or a necessary tool? *Principles of Addiction: Comprehensive Addictive Behaviors and Disorders*, *1*(1), 901–909. https://www.academia.edu/18675144/The_cell_phone_in_the_twenty-first_century_A_risk_for_addiction_or_a_necessary_tool?email_work_card=view-paper

Casey, B. J., Tottenham, N., Liston, C., & Durston, S. (2005). Imaging the developing brain: What have we learned about cognitive development? *Trends in Cognitive Science,* 9, 104–110.

Caspi, A., Sugden, K., Moffitt, T., Taylor, A., Craig, I., & Harrington, H. (2003). Influence of life stress on depression: Moderation by a polymorphism in the 5-HHT gene. *Science, 301*, 386–389.

Cazzulino, F., Burke, R., V., Muller, V., Arbogast, H., & Upperman, J., S. (2014). Cell phones and young drivers: A systematic review regarding the association between psychological factors and prevention. *Traffic Inj Prev*. *15*(3), 234-242.

Chalmers, D., & Lawrence, J. (1993). Investigating the effects of planning aids on adults' and adolescents' organization of a complex task. *International Journal of Behavioural Development, 16,* 191–214.

Chou, H. G., & Edge, N. (2012). “They are happier and having better lives than I am”: The impact of using Facebook on perceptions of others' lives. *Cyberpsychology, Behavior, and Social Networking*, *15*(2). https://doi.org/10.1089/cyber.2011.0324

Creswell, J. W. (2014). *Research Design* (4th ed.). Thousand Oaks, CA: Sage Publications.

Crone, E. A., & Konijn, E. A. (2018). Media use and brain development during adolescence. *Nature Communications* (9). https://www.nature.com/articles/s41467-018-03126-x

Darling, N., Cumsille, P., & Martinez, M. L. (2007). Adolescents as active agents in the socialization process: Legitimacy of parental authority an obligation to obey as predictors of obedience. *Journal of Adolescence, 30,* 297–311.

Davidson, M. (2012). You have to have the relationship: A youth perspective on psychotherapy and the development of a therapeutic relationship. Unpublished dissertation, Simon Fraser University, Burnaby, British Columbia, Canada.

Davidson, M. (2014). Stalemate: Examining the adversarial nature of the relationship between parents and adolescents in the struggle for respect. *The Journal of the BC Psychological Association* , *3*(3), 10–12.

Dembling, S. (2011). Fear of missing out: Why we say yes when we'd rather say no. *Psychology Today*. http://psychologytoday.com/blog/the-introverts-corner/201110/fear-missing-out-why-we-say-yeswhen-wed-rather-say-no

Duffy, J. (2019). *Parenting the new teen in the age of anxiety*. Coral Gables, FL: Mango Publishing Group.

Dykman, A. (2012). The fear of missing out. *Forbes.* http://www.forbes.com/sites/moneybuilder/2012/03/21/the-fear-of-missing-out/

Edgette, J. S. (2006). Adolescent therapy that really works: Helping kids who never asked for help in the first place. New York, NY: W. W. Norton & Company, Inc.

Ehmke, R. (2019). Managing social media stress with mindfulness. *Child Mind Institute*, https://childmind.org/article/social-media-stress-mindfulness/

Eisenberger, N. I., Lieberman, M. D., & Williams, K. D. (2003). Does rejection hurt? An FMRI study of social exclusion. *Science, 302*(5643) 290-292. doi:10.1126/science.1089134

Erikson, E. H. (1963). Childhood and society (2nd Edition). New York, NY: W. W. Norton & Company, Inc.

Fardouly, J., Magson, N. R., Johnco, C. J., Oar, E. L., & Rapee, R. M. (2018). Parental control of the time preadolescents spend on social media: Links with preadolescents' social media appearance comparisons and mental health. *Journal of Youth and Adolescence, 47*(7), 1456-1468. https://doi.org/10.1007/s10964-018-0870-1

Fardouly, J., & Vartanian, L. R. (2016). Social media and body image concerns: Current research and future directions. *Current Opinion in Psychology*, *9*, 1–5. https://doi.org/10.1016/j.copsyc.2015.09.005.

Farris, A. (2011). LOL? Texting while driving is no laughing matter: Proposing a coordinated response to curb this dangerous activity. *J Law Policy*, *36*, 233-259. http://openscholarship.wustl.edu/cgi/viewcontent.cgi?article=1048&context=law_journal_law_policy

Feldman, G., Greeson, J., Renna, M., & Robbins-Monteith, K. (2011). Mindfulness predicts less texting while driving among young adults: Examining attention-and emotion-regulation motives as potential mediators. *Pers Indiv Differ*. *51*(7), 856-861. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3199141/

Flavell, J., Green, F., & Flavell, E. (1998). The mind has a mind of its own: Developing knowledge about mental uncontrollability. *Cognitive Development, 13*, 127–138.

Fletcher, A. C., Benito-Gomez, M., & Blair, B. L. (2018). Adolescent cell phone communications with mothers and fathers: Content, patterns, and preferences. *Journal of Child and Family Studies, 27*, 2125–2137. https://search-proquest-com.proxy.cityu.edu/education/docview/2015539304/fulltextPDF/

Garcia-Jimenez, A., Lopez-de-Ayala-Lopez, M., & Catalina Garcia, B. (2013). The influence of social networks on the adolescents' online practices. *Communicar, 41,* 195-204.

Gavin, M. L. (2019). How much sleep do I need? https://kidshealth.org/en/teens/how-much-sleep.html

Gibbons, F., & Buunk, B. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal of Personality and Social Psychology, 76,* 129 –142.

Gilbert, P., McEwan, K., Bellew, R., Mills, A., & Gale, C. (2009). Psychology and Psychotherapy: Theory, research and practice.

Gil, F., Del-Valle, G., Oberst, U., & Chamarro, A. (2015). Nuevas tecnologías. ¿Nuevas patologías? El smartphone y el fear of missing out. *Aloma, 33*(2), 77-83. https://bit.ly/2Bxhpck

Gowers, S. G., & Shore, A. (2001). Development of weight and shape concerns in the etiology of eating disorders. *The British Journal of Psychiatry, 179*(3), 236–242. https://doi.org/10.1192/bjp.179.3.236.

Griffiths, M. D. (2005). A components model of addiction within a biopsychosocial framework. *Journal of Substance Use, 10,* 191–197. https://www.academia.edu/429550/Griffiths_M.D._2005_._A_components_model_of_addiction_within_a_biopsychosocial_framework._Journal_of_Substance_Use_10_191-197

Griffiths, M. D. (2013). Adolescent mobile phone addiction: A cause for concern? *Education and Health, 31*(3), 76–78. https://www.researchgate.net/publication/282184540_Adolescent_mobile_phone_addiction_A_cause_for_concern

Grohl, J. M. (2018). The psychology of Facebook depression: Avoid social comparisons & envy. https://psychcentral.com/blog/the-psychology-of-facebook-depression-avoid-social-comparisons-envy/

Gross, R., & Acquisti, A. (2005). Information revelation and privacy in online social networks. *Proceedings of the 12th Annual Workshop on Privacy in the Electronic Society*. New York: ACM Press.

Grush, A. (2015). New study claims smartphone addiction is similar to drug addiction. *Android Authority*. https://www.androidauthority.com/smartphone-addiction-drug-

Gunita, M., R., & John, R., M. (2018). Social media and adolescent health. *Pediatric Nursing*. *44* (1), 196-201. http://proxy.cityu.edu/login?url=https://search-proquest-com.proxy.cityu.edu/docview/2096475619?accountid=1230.

Hallett, C., Lambert, A., & Regan, M., A. (2012). Text messaging amongst New Zealand drivers: Prevalence and risk perception. *Transp Res Part F Traffic Psychol Behav*. *15*(3):261-271.

Hasebe, Y., Nucci, L., & Nucci, M. S. (2004). Parental control of the personal domain and adolescent symptoms of psychopathology: A cross-national study in the United States and Japan. *Child Development, 75*, 815–828.

Holland, A. S., & Roisman, G. I. (2010). Adult attachment security and young adults' dating relationships over time: Self-reported, observational, and physiological evidence. *Developmental Psychology, 46*, 552–557.

Hopper, D. (2016). James Roberts, Baylor University – Is Cell Phone Addiction Real? *The Academic Minute*. https://academicminute.org/2016/09/james-roberts-baylor-university-is-cell-phone-addiction-real/

Hosking, S., Young, K., & Regan, M. (2006). The effects of text messaging on young novice driver performance. *Monash University Accident Research Centre*. http://www.distraction.gov/downloads/pdfs/effects-of-text-messaging.pdf

Houck, C.D., Barker, D., Rizzo, C., Hancock, E., Norton, A., & Brown, L.,K. (2014). Sexting and sexual behavior in at-risk adolescents. *Pediatrics, 133*(2), 276-282. doi:10.1542/peds.2013-1157

Hysing, M., Pallesen, S., Stormark, K., M., Jakobsen, R., Lundervold, A., J., & Sivertsen, B. (2015). Sleep and use of electronic devices in adolescence: Results from a large population-based study. *BMJ Journals, 5* (1). http://dx.doi.org/10.1136/bmjopen-2014-006748.

Jackson, C. (2002). Perceived legitimacy of parental authority and tobacco and alcohol use during early adolescence. *Journal of Adolescent Health, 31*, 425–432.

Jacobs, J. E., Chin, C. S., & Shaver, K. (2005). Longitudinal links between perceptions of adolescence and the social beliefs of adolescents: Are parents' stereotypes related to beliefs held about and by their children? *Journal of Youth and Adolescence, 34*, 61–72.

Jones, D. C. (2001). Social comparison and body image: Attractiveness comparisons to models and peers among adolescent girls and boys. *Sex Roles, 45*(9). https://doi.org/10.1023/a:1014815725852.

Jordan, A. H., Monin, B., Dweck, C. S., Lovett, B. J., John, O. P., & Gross, J. J. (2011). Misery has more company than people think: Underestimating the prevalence of others' negative emotions. *Personality and Social Psychology Bulletin, 37,* 120–135.

JWT Marketing Communication. (2012). Fear of Missing Out. Retrieved from JWT Intelligence.

Karver, M. S., & Caporino, N. (2010). The use of empirically supported strategies for building a therapeutic relationship with an adolescent with oppositional-defiant disorder. *Cognitive and Behavioral Practice, 17*, 222–232.

Knafo, A., & Schwartz, S. H. (2003). Parenting and adolescents' accuracy in perceiving parental values. *Child Development, 74*, 595–611.

Konijn, E. A., Veldhuis, J., Plaisie, X. S., Spekman, M., & den Hamer, A. H. (2015). *The Handbook of Psychology of Communication Technology*. Hoboken, NJ: Wiley-Blackwell.

Kross, E., Berman, M. G., Mischel, W., Smith, E. E., & Wager, T. D. (2011). Social rejection shares somatosensory representations with physical pain. *Proceedings of the National Academy of Sciences, 108* (15) 6270-6275. https://doi.org/10.1073/pnas.1102693108.

Kuhn, D. (2009). Adolescent thinking. *Handbook of Adolescent Psychology*, *1*(3), 152–186.

Lamb, D. (1986). Psychotherapy with adolescent girls (2nd Edition). New York, NY:Plenum

Laursen, B., & Collins, W. A. (2009). Parent-child relationships during adolescence. *Handbook of Adolescent Psychology*, *2*(3), 3–42.

Lemma, A. (2010). The power of relationship: A study of key working as an intervention with traumatized young people. *Journal of Social Work Practice, 24*, 409–427.

Lenhart, A. (2015). Teens, social media & technology overview 2015. http://www.pewinternet.org/2015/04 /09/teens-social-media-technology2015/

Lenhart, A., Maddenn, M., Hitlin, P. (2005). Teens and technology: Youth are leading the transition to a fully wired and mobile nation.

Li, S., Jin, X., Wu, S., Jiang, F., & Yan, C. (2007). The impact of media use on sleep patterns and sleep disorders among school-aged children in China. *Sleep: Journal of Sleep and Sleep Disorders Research, 30*(3), 361-367.

Lopez-Fernandez, O., Honrubia-Serrano, L., Freixa-Blanxart, M., & Gibson,W. (2013). Prevalence of problematic mobile phone use in British adolescents. *Cyberpsychology, Behavior, and Social Networking, 17*(2). doi:10.1089/cyber.2012.0260

Madden, M., Lenhart, A., Cortesi, S., Gasser, U., Duggan, M., Smith, A., & Beaton, M. (2013). Teens, social media, and privacy. http://www.pewinternet.org/2013/05/21/teens-social-mediaand-privacy/

Madden, M., Lenhart, A., Duggan, M., Cortesi, S., Gasser, U. (2013). Teens and technology. 2013. *Pew Internet & American Life Project, 6,* 99–103.

Manson, M. (2016). *The Subtle Art of Not Giving a FUCK*. New York, NY: Harper Collins.

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologists, 41,* 954-969.

Martin, J., & Sokol, B. (2011). Generalized others and imaginary audiences: A neo-meadian approach to adolescent egocentrism. *New Ideas in Psychology, 29*, 364–375.

Martinot, D., & Redersdorff, S. (2003). Impact of comparisons with out-group members on women's self-esteem: Role of the stereotypical connotation of the performance context. *International Journal of Psychology, 38,* 348–358.

Martinot, D., Redersdorff, S., Guimond, S., & Dif, S. (2002). Ingroup versus outgroup comparisons and self-esteem: The role of group status and ingroup identification. *Personality and Social Psychology Bulletin, 28*, 1586–1600.

Martinotti, G., Villella, C., Di Thiene, T., & La Torre, G. (2011). Problematic mobile phone use in adolescence: A cross-sectional study. *Journal of Public Health, 19*(6). doi:10.1007/s10389-011-0422-6.

Maughan, B., Collishaw, S., & Stringaris, A. (2013). Depression in childhood and adolescence. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *22*(1), 35–40. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3565713/

McCrae, N., Gettings, S., & Purssell, E. (2017). Social media and depressive symptoms in childhood and adolescence: a systematic review. *Adolescent Research Review*, *2*(4), 315–330. https://doi.org/10.1007/s40894-017-0053-4.

McKenna, K. (2019) Social media, but not video games, linked to depression in teens, according to Montreal study. http://www.atinitonews.com/2019/07/social-media-but-not-video-games-linked-to-depression-in-teens-according-to-montreal-study/

McLaughlin, E. A., Belon, K. E., Smith, J. E., & Erickson, S. J. (2015). Mothers' and daughters' beliefs about factors affecting preadolescent girls' body satisfaction. *Body Image, 13*, 9–17. https://doi.org/10.1016/j.bodyim.2014.11.002.

McWilliams, L. A., & Bailey, S. J. (2010). Associations between adult attachment ratings and health conditions: Evidence from the National Comorbidity Survey replication. *Health Psychology, 29*, 446–453.

Meshi, D., Tamir, D. I., & Heekeren, H. R. (2015). The emerging neuroscience of social media. *Trends in Cognitive Science*, *19*, 771–782.

Morris, C. (2019). Teens who spend more time on social media have increased depression: Study. https://fortune.com/2019/07/15/social-media-teen-depression/

Mukherjee, S. (2019). The kids are not all right: Brainstorm health. https://fortune.com/2019/06/18/teen-suicides-brainstorm-health/

Munezawa, T., Kaneita, Y., Osaki, Y., & Kanda, H. (2011). The association between use of mobile phones after lights out and sleep disturbances among Japanese adolescents: A nationwide cross-sectional survey. *Sleep, 34*(8):1013-20. doi: 10.5665/SLEEP.1152.

National Institute of Statistics. (2017). Survey on equipment and use of information and communication technologies in homes. https://bit.ly/2EHPCtF

Nelson, E., Leibenluft, E., McClure, E., & Pine, D. (2005). The social re-orientation of adolescence: A neuroscience perspective on the process and its relation to psychopathology. *Psychological Medicine, 35,* 163–174.

Nurmi, J. (2004). Socialization and self- development: Channeling, selection, adjustment, and reflection. *Handbook of Adolescent Psychology*. New York: Wiley.

Oberst, U., Wagmann, E., Stodt, B., Brand, M., & Chamarro, A. (2017). Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out. *Journal of Adolescence, 55,* 51-60. http://dx.doi.org.proxy.cityu.edu/10.1016/j.adolescence.2016.12.008

O'Keeffe, G.S. (2016). Social media: Challenges and concerns for families. *Pediatric Clinics of North America, 63*(5), 841-849. doi:10.1016/ j.pcl.2016.06.009

O'Keeffe, G. S., & Clarke-Pearson, K. (2011). The impact of social media on children, adolescents, and families. *American Academy of Pediatrics, 127*(4). https://pediatrics.aappublications.org/content/127/4/800

Ontario. Ministry of Transportation. (2012). Distracted driving. Toronto. http://www.mto.gov.on.ca/english/safety/distracted-driving/index.shtml

Ontario. Ministry of Transportation. (2014). Improving road safety in Ontario: province introducing new legislation to keep roads safe. http://news.ontario.ca/mto/en/2014/03/improving-road-safety-in-ontario.html

Paus, T., Keshavan, B., & Gieddd, J. (2008). Why do so many psychiatric disorders emerge during adolescence? *Nature Reviews Neuroscience, 9*, 947–957.

Paus, T. (2009). Brain development. *Handbook of Adolescent Psychology, 1*(3), 95–115.

Peters, G., A., & Peters, B., J. (2001). The distracted driver. *J R Soc Promot Health*, *121*(1), 23-28.

Piaget J. (1972). Intellectual evolution from adolescence to adulthood. *Human Development, 15*, 1–12.

Pickhardt, C. E. (2014). Adolescence and internet identity: How does an online presence affect the development of adolescent identity? *Psychology Today*. https://www.psychologytoday.com/us/blog/surviving-your-childs-adolescence/201405/adolescence-and-internet-identity

Pisano, L., Mastropasqua, I., Cerniglia, L., Cimino, S., & Erriu, M. (2017). Adolescents' online and offline identity: A study on self-representation. *The European Proceedings of Social & Behavioural Sciences, 5*. https://www.researchgate.net/publication/316740679_Adolescents'_Online_And_Offline_Identity_A_Study_On_Self-Representation

Przybylski, A.K., Murayama, K., DeHaan, C.R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computer in Human Behavior, 29*(4), 1841-1848. https://doi-org.proxy.cityu.edu/10.1016/jxhb.2013.02.014

Raacke, J., & Bonds-Raacke, J. (2008). MySpace and Facebook: Applying the uses and gratifications theory to exploring friend-networking sites. *CyberPsychology & Behavior, 11*, 169–174.

Radloff, L. (1977). Center for Epidemiologic Studies Depression Scale. *Applied Psychological Measurement, 1*, 385–401.

Rankin, J., Lane, D., Gibbons, F., & Gerrard, M. (2004). Self-consciousness: Longitudinal age changes and gender differences in two cohorts. *Journal of Research on Adolescence, 14*, 1–21.

Rasmussen, M. K., & Pidgeon, A. M. (2011). The direct and indirect benefits of dispositional mindfulness on self-esteem and social anxiety. *Anxiety, Stress, and Coping, 24*(2) 227-233.

Reid Chassiakos, Y., Radesky, J., Christakis, D., Moreno, M., & Cross, C. (2016). Children and adolescents and digital media. *Pediatrics 138*(5). doi:10.1542/ peds.2016.2593

Reed, N., & Robbins, R. (2008). The effect of text messaging on driver behavior: A simulator study. *UK: Transport Research Laboratory*. http://www.racfoundation.org/assets/rac_foundation/content/downloadables/texting%20whilst%20dri ving%20-%20trl%20-%20180908%20-%20report.pdf

Santana-Vega, L. E., Gómez-Muñoz, A., & Feliciano-García, L. (2019). Scholarly journals adolescents problematic mobile phone use, fear of missing out and family communication. *Department of Teaching and Educational Research at the University of La Laguna, 27*(59), 39-47. http://dx.doi.org.proxy.cityu.edu/10.3916/C59-2019-04

Sanz, A. (2015). What's the psychology behind the fear of missing out? http://www.slate.com/blogs/quora/2015/09/30/fomo_what_s_the_psychology_ behind_ the_fear_of_missing_out.html

Schoenwald, C. (2018). New study suggests giving up Facebook will make you happier. https://psychcentral.com/blog/new-study-suggests-giving-up-facebook-will-make-you-happier/

Sebastian, C., Burnett, S., & Blakemore, S. (2008). Development of the self-concept in adolescence. *Trends in Cognitive Science, 12*, 441–446.

Seltzer, L. J., Prososki, A. R., Ziegler, T. E., & Pollak, S. D. (2012). Instant messages vs. speech: Hormones and why we still need to hear each other. *Evolution and Human Behavior, 33*, 42–45. https://doi.org/10.1016/j.evolhumbehav.2011.05.004.

Seo, D.G., Park, Y., Kim, M.K., & Park, J. (2016). Mobile phone dependency and its impacts on adolescents' social and academic behaviours. *Computers in Human Behaviors*, *63*, 282-292. https://doi-org.proxy.cityu.edu/10.1016/jxhb.2016.05.026

Siegel, D. J. (1999). *The developing mind: How relationships and the brain interact to shape who we are*. New York, NY: The Guilford Press.

Siegel, D. J. (2007). *The mindful brain: Reflection and attunement in the cultivation of well-being*. New York, NY: W.W. Norton & Company, Inc.

Smetana, J., & Villalobos, M. (2009). Social cognitive development in adolescence. *Handbook of Adolescent Psychology*, *1*(3), 187–228.

Smith, A., & Anderson, M. (2018). Social media use in 2018. http://www.pewinternet.org/2018/03/01/ social-media-use-in-2018/

Solstice RTC. (2017, April 18). Self-identity in teens: Social media is getting in the way. https://solsticertc.com/self-identity-in-teens-social-media/.

Sommerfeld, E., Bensimon, M., & Lutzman, M. (2017). Minding the gaps: The adolescent's experience in front of the mirror. *Current Psychology, 36*(1), 76–83. doi: http://dx.doi.org.proxy.cityu.edu/10.1007/s12144-015-9386-y

Spear, L. (2010). The Behavioural Neuroscience of Adolescence. New York, NY: Norton.

Statista. (2016). The Statistics Portal. www.statista.com.

Steers, M. N., Wickham, R. E., & Acitelli, L. K. (2014). Seeing everyone else's highlight reels: How Facebook usage is linked to depressive symptoms. *Journal of Social and Clinical Psychology, 33*(8),701-731. doi: 10.1521/jscp.2014.33.8.701

Steinberg, L. (2001). We know some things: Adolescent-parent relationships in retrospect and prospect. *Journal of Research on Adolescence*, *11*, 1–19.

Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences, 9*, 69–74.

Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review, 28*, 78–106.

Steinberg, L. (2009). Should the science of adolescent brain development inform public policy? *American Psychologist*, *64*, 739–750.

Steinberg, L. (2011). *Adolescence* (9th ed.). New York, NY: McGraw-Hill.

Stockburger, S., J., & Omar, H., A. (2013). Internet addiction, media use, and difficulties associated with sleeping in adolescents. *International Journal of Child and Adolescent Health, 6 (4)*, 459-463.

Strassberg, D., S., McKinnon, R., K., Sustaita, M., A., & Rullo, J. (2013). Sexting by high school students: An exploratory and descriptive study. *Archives of Sexual Behaviour, 42*(1), 15-21. https://link.springer.com/article/10.1007%2Fs10508-012-9969-8.

Tandoc, E.C., Ferrucci, P. & Duffy, M. (2015). Facebook use, envy, and depression among college students: Is facebooking depressing? *Computers in Human Behavior, 43*, 139-146. https://doi.org/10.1016/j.chb.2014.10.053

Temple, J., R., Paul, J., A., van den Berg, P., Donna Le, V., McElhany, A., & Temple, V., D. (2012). Teen sexting and its association with sexual behaviors. *JAMA Pediatrics*, *166*(9), 828-833. doi:10.1001/archpediatrics.2012.835

Tesser, A., Millar, M., & Moore, J. (2000). Some affective consequences of social comparison and reflection processes: The pain and pleasure of being close. In E. T. Higgins & A. W. Kruglanski (Eds.), Motivational science: Social and personality perspectives (60–75). New York: Psychology Press.

The Office of Adolescent Health (2016). February 2016: Teens' social media use: How they connect & what it means for health. https://www.hhs.gov/ash/oah/news/e-updates/february-2016-teens-social-media- use/index.html

The Statistics Portal (2017, January). Social networking in Canada - Statistics & Facts. https://www.statista.com/topics/2729/social-networking-in-canada/

Thomas, L. A., De Bellis, M. D., Graham, R., & LaBar, K. S. (2007). Development of emotional facial recognition in late childhood and adolescence. *Developmental Science, 10*, 547–558.

Tison, J., Chaudhary, N., & Cosgrove, L. (2011). National phone survey on distracted driving attitudes and behaviors. *National Highway Traffic Safety Administration*.

AppData/Local/Packages/Microsoft.MicrosoftEdge_8wekyb3d8bb we/TempState/Downloads/811555 (1).pdf

Tőrők-Ágoston, R. (2017). Education and social media. *Journal of Media Research*, *10*(2), 166–183. DOI:10.24193/jmr.28.12

Upreti, A., & Musalay, P. (2018). Fear of missing out, mobile phone dependency and entrapment in undergraduate students. *Applied Psychology Readings*, 39-56. https://link.springer.com/chapter/10.1007%2F978-981-10-8034-0_3

U.S Deparment of Transportation. (2018, March). Teen distracted driver data. https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812504

Van den Bulck, J. (2007). Adolescent use of mobile phones for calling and for sending text messages after lights out: Results from a prospective cohort study with a one-year follow-up. *Sleep*, *30*(9). https://lirias.kuleuven.be/handle/123456789/183475

Van Hoorn, J. A., Crone, E. A., & Van Leijenhorst, L. A. (2017). Hanging out with the right crowd: Peer influence on risk-taking behavior in adolescence. *Journal of Research on Adolescence*, *27*, 189–200. https://onlinelibrary.wiley.com/doi/abs/10.1111/jora.12265

Veldhuis, J., Konijn, E. A., & Seidell, J. C. (2012). Weight information labels on media models reduce body dissatisfaction in adolescent girls. *Adolescent Health*, *50*, 600–606.

Vernon, L., Modecki, K., L., & Barber, B., L. (2017). Mobile phones in the bedroom: Trajectories of sleep habits and subsequent adolescent psychosocial development. *Child Development*, *89*(1), 66-77. https://doi.org/10.1111/cdev.12836

Wang, L., Huettel, S., & De Bellis, M. D. (2008). Neural substrates for processing task-irrelevant sad images in adolescents. *Developmental Science*, *11*, 23–32.

Wang, Y., Zin, T., Liu, X., Zhang, Y., & Lu, H. (2012). Mindfulness can reduce automatic responding: Evidences from Stroop task and prospective memory task. *Acta Psychologica Sinica*, *44*(9), 1180-1188. doi:10.3724/SP.J.1041.2012.01180

White, A. G., Buboltz, W., & Igou, F. (2011). Mobile phone use and sleep quality and length in college students. *International Journal of Humanities and Social Science*, *1*(18), 51–58.

White, J., Langer, E., Yariv, L., & Welch, J.I.V. (2006). Frequent social comparisons and destructive emotions and behaviors: The dark side of social comparisons. *Journal of Adult Development, 13,* 36–44.

Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90,* 245–271.

Wood, B., Rea, M., S., Plitnick, B., & Figueiro, M., G. (2013). Light level and duration of exposure determine the impact of self-luminous tablets on melatonin suppression. *Applied Ergonomics, 44,* 237–240. https://www.gwern.net/docs/melatonin/2012-wood.pdf

Zhao, S., Grasmuck, S., & Martin, J. (2008). Identity construction on Facebook: Digital empowerment in anchored relationships. *Computers in Human Behavior*, *24*(5), 1816-1836. https://researchingacademicliteracies.wordpress.com/2014/05/10/zhao-s-grasmuck-s-martin-j-2008-identity-construction-on-facebook-digital-empowerment-in-anchored-relationships/