

**AN EXPLORATION OF FACEBOOK USE: PASSION, PATHOLOGY,
AND WELL-BEING**

by

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ABSTRACT

Facebook is an online platform that has captured the attention of millions of users around the world. Despite evidence of the association between Facebook use and positive psychosocial functioning (Pempek, Yermolayeva, & Calvert, 2009), researchers have found that Facebook use is reaching pathological levels for some users (Andreassen, Torsheim, Brunborg, & Pallesen, 2012). This potential for pathology and negative outcomes may be best explained by an individual's motivations for using the website (Ross, Orr, Sisic, Arsenault, Simmering, & Orr, 2009). Using the motivational theory known as the Dualistic Model of Passion (the DMP) (Vallerand et al., 2003), the present study aimed to explore whether a pattern of pathological Facebook use (PFU) mediated the relationship between a user's passion for Facebook and well-being outcomes. According to the DMP, an activity that is "good" for one individual can be "bad" for another depending on one of two types of passion the individual can develop for the activity (Vallerand, 2012). People with an obsessive passion are said to experience an uncontrollable urge to partake in an activity that they find enjoyable. Alternatively, when a person takes part in an activity in a harmonious way, they freely choose to do so of their own volition. A sample of 437 participants recruited through online advertisements completed a digital questionnaire package. Results suggested that the more frequently a Facebook user reported engaging in Facebook behaviors per day, such as posting pictures and statuses, and reading other peoples' Facebook walls, the higher their reported levels of PFU. An examination of gender suggested men and women did not significantly differ in their levels of PFU. As expected, obsessive passion predicted higher PFU scores. In addition, the relationship between both obsessive and

harmonious passion and well-being outcomes was mediated by PFU. Unexpected findings for harmonious passion would suggest that the types of behaviors people are engaging in on Facebook may be more meaningful in predicting outcomes than a user's motivations for using the platform. Implications for this and other findings will be discussed.

Keywords: Facebook, behavioural addiction, passion, well-being.

DEDICATION

This dissertation is dedicated to my family on Cape Breton Island. Without the love, support, and encouragement of my parents, siblings and their spouses, and nieces and nephews, I can confidently say I would not be making this achievement.

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Chapter 1: Introduction

The purpose of the present dissertation was to investigate whether motivations for using Facebook could predict which users are at risk of using Facebook in a pathological manner, which, in turn, could predict the various outcomes its users have been found to experience.

Media psychology (also referred to as Cyberpsychology) is a relatively new field established to meet a growing need for research regarding society's increasing dependence on technology such as computers and the internet, cellular phones and texting, and online video gaming. Researchers and clinicians alike are beginning to recognize that various forms of pathological technology use (PTU) (Gentile, Coyne & Bricolo, 2013) have become a significant concern worthy of empirical attention. According to these researchers, PTU can be defined as the use of a technological device or application in such a way that the activity becomes dysfunctional, harming the individual's social, occupational, family, school, and psychological functioning (Gentile et al., 2013). Thus, the critical dimension that divides pathological from non-pathological feelings and behaviours is whether they are dysfunctional. This distinction is in direct contrast to the use of illegal substances, for example, given that these technologies are not in themselves bad or good in the way that some substances have the potential to be physically harmful. Instead, the problem is attributed to the manner in which the technology is used and its subsequent effects on various aspects of life. Early on, researchers debated the existence of PTU; however, a recent analysis of the international literature (Gentile et al., 2013) has found robust evidence for its existence. Results support its reliability of measurement, convergent validity, and comorbidity with other

significant pathologies. This evidence holds up even when considering that there is still no universally agreed upon definition, method of measurement, or theoretical framework for conceptualizing PTU as a construct.

Founded in the United States in 2004, Facebook is a recent development in this technological world that appears to have taken hold of the social lives of many in its relatively short lifespan. Facebook's impact is demonstrated in part by its more than 1.75 billion monthly active users (Facebook Statistics, 2017). The platform began as a way for college students to interact, share pictures, and spread the word about social events and parties; it has since evolved into much more. In addition to fulfilling its original purpose, Facebook has become, among other things, a platform for social and political revolutions (Youmans & York, 2012), a marketing tool for both small and large-scale businesses (Lipsman, Mudd, Rich, & Bruich, 2012), an avenue for people to connect with family and friends, and a place for almost all aspects of its users' daily lives (both positive and negative) to play out.

Given Facebook's meteoric rise in popularity, it has garnered significant research attention. As a result, researchers are beginning to understand that Facebook is not necessarily just a benign way to pass the time. For many users, use of the website can be associated with both positive and negative outcomes in terms of real-world socio-emotional functioning. As an example of Facebook's potential positive influence, larger Facebook networks have been associated with higher perceived social support (Manago, Taylor, & Greenfield, 2012). On the other hand, Facebook use has also been associated with negative outcomes, such as some users' belief that their Facebook "friends" are happier and have better lives than they do. This pattern was particularly found to be the

case the longer an individual used the website (Chou & Edge, 2012). Findings from more recent work suggests there is an association between social comparison and various negative psychosocial outcomes of Facebook use (Vogel, Rose, Okdie, Eckles, & Franz, 2015). While it is likely that the majority of individuals use Facebook in a positive and healthy manner, the growing popularity of Facebook and Facebook-related literature has also meant a growing realization that some users appear to be at risk of demonstrating a pathological pattern of use. Pathological Facebook use (PFU), similar to PTU, is the use of Facebook to such a degree that it is associated with dysfunction in the user's daily life (i.e., social, occupational, family, school, and psychological functioning). Andreassen, Torsheim, Brunborg, and Pallesen (2012) developed the Bergen Facebook Addiction Scale (BFAS) to fulfill what these researchers thought was a need for a psychometrically sound procedure for assessing a possible pathology, given that use of Facebook continues to increase rapidly. However, and not surprisingly, while the BFAS was found to have acceptable psychometric properties, this line of research has met with some criticism. Some have claimed that an examination of Facebook in isolation is too narrow a focus and that pathological use of social networking sites would be a more suitable conceptualization (Griffiths, 2012). In any event, further research is necessary; not only to bolster the evidence for the existence of PFU, but also to aid in establishing which factors may put an individual user at risk for developing this pattern of use.

Recent published reviews of the existing PTU literature have highlighted several gaps in the foundation of research into the effects of our growing reliance on technology. For example, one summary called for an examination of the best way to categorize and measure PTU, and also on factors that may predict these types of pathologies (Gentile et

al., 2013). A second summary focusing on Facebook use specifically (as opposed to general technology use) suggested that much of the Facebook literature has focused on a “psychologically healthy” population; thus, there is sufficient scope to explore in more detail the potentially negative impact of Facebook use (Andreassen et al., 2012).

In line with calls for further research, some have begun to examine the pathological use of technology and its various applications in more detail. For example, women may be more at risk of PFU than men (Andreassen et al., 2012; Thompson & Lougheed, 2012). Additional research that examined the relationship between internet use and well-being in college students. This research concluded that it is not merely the use of the internet that can be associated with either positive or negative consequences, but instead it may be the way the activity has been internalized (Seguin-Levesque, Laliberte, Pelletier, Blanchard, & Vallerand, 2003). Thus, the authors called for research into people’s motivations for using the internet to further distinguish those who experience positive or negative outcomes.

Despite growing awareness of the potential influence motivations could have on technology use, to date, very few researchers have attempted to apply motivational theories to the understanding of PTU or, more specifically, PFU. Conclusions from the few studies that do exist suggest that a continued focus on motivations for technology use is key. Ross, Orr, Sisic, Arsenault, Simmering, and Orr (2009) concluded that people’s motivation for using websites, such as Facebook, can have an important bearing on online activities, and can do so independently of the broader personality structures that have received much of the empirical focus to date (Ross et al., 2009; Wise, Alhabash, & Park, 2010; Carpenter, Green, & LaFlam, 2011). They suggested that this focus is

important because motives may be more easily addressed than personality factors when trying to alter the way someone spends time online and, therefore, may have more relevant implications for treatment or clinical interventions.

In terms of what we know so far regarding the motivation behind various forms of general PTU, a motivational theory known as the Dualistic Model of Passion (DMP; Vallerand et al., 2003) has been applied to understand the pathological use of video games (Wang & Chu, 2007). This model has even shed some light on the understanding of other behavioral addictions (as opposed to substance addictions), such as pathological gambling (Ratelle, Vallerand, Mageau, Rousseau, & Provencher, 2004). One study, to date, has successfully applied the DMP to Facebook use (Orosz, Vallerand, Bóthe, Tóth-Király, & Paskuj, 2016), the results of which will be discussed in the literature review. Given the results of this study, along with evidence supporting the DMP in the conceptualization of these other non-substance related pathologies, it may provide a useful framework in the social media context. Thus, using the DMP as a framework, the current dissertation proposes a model whereby obsessive passion for Facebook will predict pathological Facebook use which, in turn, will predict negative well-being outcomes.

In the following sections, research that conceptualizes behavioral addictions (also referred to as non-substance-related addictions) as being comparable to substance addictions will be outlined. It is this research that has opened the door for PTU to be conceptualized in a similar fashion. The existing Facebook literature then will be discussed, including evidence for Facebook's unique association with the well-being of its users, as well as the limited research on PFU, gender and PFU, and prevalence of

PFU. A review of the historical underpinnings of the DMP will come next, including research on the relationship between this motivational theory and other activities that have the potential for pathology, such as gambling and online gaming. A discussion of the DMP and its relationship with indices of well-being also will be included. Finally, a brief description of the proposed model and study will be provided.

Chapter 2: Literature Review

Definitional Issues

Before providing a literature review and discussion of pathological Facebook use, it is important to provide a note concerning definitional issues. As stated previously, debates continue to exist regarding the best way to conceptualize and define all forms of PTU. Most claim to model their conceptualization of this issue on the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders' definition of addictive behavior (DSM-5; American Psychological Association, 2013). Thus, it would not be inappropriate for researchers to use the term 'addiction' when referring to this area of study. However, given the controversy regarding the use of this term currently as it applies to non-substance related behaviors, the term Pathological Facebook Use (PFU), as opposed to Facebook Addiction, will be used when referring to behavior that would meet addiction criteria. In addition, although the conceptualization and measurement of PFU is based on addiction terms and criteria (i.e., salience, relapse, withdrawal, etc.), for the purposes of the present research, PFU will be conceptualized as existing on a continuum such that greater or more frequent PFU leads to greater socio-emotional dysfunction, as opposed to a clinical cut-off that would be used to conceptualize and measure other pathologies in the DSM-5. No matter what the label, the underlying

construct is essentially the same and, as such, any researchers who makes use of these same criteria as the foundation of their research are furthering the understanding of behavioral addictions, whether they use the term addiction or not. Finally, although the term addiction will not be used when referring to the pathological use of Facebook, the term will be used at times when referencing some of the background literature that will be discussed below, to provide a foundation for the early conceptualization of PTU and PFU to date.

Behavioral Addiction

Behavioral addiction has been defined in the literature as pathological involvement in a non-substance-related activity that exposes persons to mood-altering stimuli that produce pleasure or relieve pain (Thombs & Osborne, 2013). It is thought to have three primary features: 1) Presence of aberrant psychological responses when exposed to specific environmental cues; 2) Continued involvement in the behavior despite experiencing negative consequences; and 3) A perceived inability to reduce engagement in the activity (perceived loss of control) (Thombs & Osborne, 2013).

Recently, an evolutionary perspective has been used to understand non-substance related addictions (Thombs & Osborn, 2013). According to this perspective, neural networks, like other aspects of the human body, have evolved such that humans can survive best in an environment (Thombs & Osborn, 2013). During a time when human lifespans were much shorter, neural networks are thought to have evolved to adapt to short-term survival and to increase the likelihood of reproduction. Natural selection is thought to have fostered development of pleasure centers to reinforce those behaviors most necessary to achieve these goals (i.e., food and sex). However, with increases in the

easy accessibility of modern pleasures, the original design of the brain is causing complications for some individuals. Behaviors such as gambling, eating, and sex have been found to activate the same reward circuitry in the brain as do commonly-used drugs (Thombs & Osborn, 2013); therefore, from an evolutionary point of view, humans are all vulnerable to a wide variety of activities that stimulate the brain's pleasure center. This evolutionary perspective on the development of various forms of addiction is the main argument for expanding the concept of addiction to allow the inclusion of other non-substance-related activities.

Although the term addiction has been used to describe pathological patterns of behavior associated with activities such as sex, shopping, exercise, and more recently technology use, pathological gambling is the first behavioral addiction to be officially recognized and added to the DSM-5. Up until recently, the fourth edition of the DSM (DSM-IV-TR) classified pathological gambling as one of the impulse-control disorders not elsewhere classified. However, with the release of the DSM-5, this conceptualization has changed. More specifically, there have been several major changes to what had been referred to as the Substance-related disorders section of the DSM-IV-TR. First, this section is now being referred to as Substance-Related and Addictive Disorders. This new classification is very important for the field of behavioral addiction. It means that the door is now open for other activities (i.e., shopping, eating, sex, social networking) also to be added to future versions of the DSM, pending sufficient empirical evidence to support their inclusion.

Second among the changes is to the terms *abuse* and *dependence*; in the DSM-5, these terms are no longer used. Instead, when referring to specific substances, the term

Substance Use Disorder is used for separate classes of drugs which are rated on a severity continuum ranging from mild to severe. Third, and most importantly in this instance, the category of substance-related and addictive disorders now includes one behavioral or non-substance-related disorder: Gambling. The inclusion of this activity is a major change in the addictions field and comes after many years of research and debate. However, although pathological gambling is now recognized as an addiction, a stronger research base is needed in order for other non-substance-related disorders to be considered as having a similar potential of reaching pathological levels. Several behaviors have been receiving significant empirical attention, one being technology use.

Background of Pathological Technology Use Research

For almost two decades, researchers have been attempting to determine whether pathological internet use (PIU) should be considered a diagnosable disorder and whether pathological use can be validly measured. Even after two decades of research, however, debate continues to exist regarding the best way to conceptualize and define PIU, what association it can have with users' well-being, and what factors may predict its development. Researchers appear to use slightly different terminology to refer to the same general issue (i.e., "internet addiction", "compulsive internet use", "problematic internet use", etc.); however, as stated previously, most claim to model their conceptualization of PIU on the DSM conceptualization of addictive behavior (although as noted above, the DSM-5 does not specifically use the term addiction). For example, PIU has been defined as a compulsive-impulsive spectrum disorder that involves offline and/or online computer usage that includes the following components: 1) excessive use, often associated with a loss of sense of time or a neglect of basic drives; 2) withdrawal,

including feelings of anger, tension, and/or depression when the computer is inaccessible; 3) tolerance, including the need for better computer equipment, more software, or more hours of use; and 4) negative repercussions, including arguments, lying, poor achievement, social isolation, and fatigue (Young & de Abreu, 2010).

In a landmark study, Young (1996) first proposed that PIU was a very real phenomenon and attempted to define and measure the construct. Young suggested that PIU would be most similar to pathological gambling because neither PIU nor pathological gambling necessarily had the associated physical symptoms of addiction to chemical substances and/or alcohol. However, Young acknowledged that both pathological gamblers and pathological internet users were still capable of displaying addiction-like symptoms. Based on this conceptualization, Young's early formulations of this new pathology defined PIU as "an impulse control disorder which does not involve an intoxicant" (pp. 238) and she developed a questionnaire based on modified criteria for pathological gambling. Using 8 of 10 original criteria, Young used a modified pathological gambling questionnaire (which she referred to as the Internet Addiction Diagnostic Questionnaire, or IADQ; see Table 1) as a screening measure to make a distinction between 'normal' internet users and pathological internet users (the latter of which Young referred to as "dependents"). Respondents who answered "yes" to five or more of the criteria were classified as dependents. The questionnaire items are included in Table 1.

In a sample of 596 participants, Young (1996) classified 396 as dependent users and 100 as non-dependent users. Participants were volunteers who responded to: a) nationally and internationally dispersed newspaper advertisements, b) flyers posted

among local college campuses, c) postings on electronic support groups geared towards internet addiction, and d) those who searched for keywords “internet addiction” on popular web search engines (i.e., Yahoo). Young was also able to determine that a majority of dependent users reported that their excessive use of the internet resulted in personal, family, and occupational problems that also have been documented as correlates of other behavioral addictions such as problem gambling.

Critics argued that Young’s (1996) findings were an exaggeration of the issue, particularly given the high number of participants classified as dependent users. It also was argued that likening PIU to pathological gambling had no support in the literature of the time (Mitchell, 2000). Despite the criticisms of Young’s methodology (which could be attributed to, for example, overly generous cut-off scores, or the fact that many participants were recruited based on pre-existing concerns about possible internet addiction), a subsequent summary of the international literature on PTU has found that Young’s modified gambling addiction measure is the most frequently used in the field of media psychology. The review also found that, even today, Young’s measure has the most psychometric support of any measure used for PIU (Gentile et al., 2013).

Others have argued against the existence of addiction to the internet based on the wide range of activities that can be carried out online, suggesting that individuals are not pathologically using the internet per se but instead are pathologically engaging in certain activities while on the internet. However, Young (1996) addressed this issue in the conclusions of her study. She noted that the internet itself is not necessarily what puts users at risk of developing pathological patterns of use, but instead appears to be dependent on the type of applications being used. Young was able to establish that

dependent and non-dependent users could be distinguished based on their online activities. Dependent users were 5-7 times more likely than non-dependent users to use two-way communication applications (e.g., chat rooms), whereas non-dependent users were 3-12 times more likely than dependent users to use applications that would allow them to gather information and use email. Thus, even from these early stages it became clear that social activities on the internet have the potential for pathology. More recent research supports this notion, showing that the degree of PIU varies across different types of online activity, with people engaged in cyber-relationships having higher PIU scores than people involved in other online activities (Chang & Law, 2008). As such, a concentration on socially-focused applications on the internet is where PTU research should continue to aim its lens, such as social media platforms like Facebook.

Facebook

Facebook falls under the umbrella of what is now being referred to as social networking sites (SNSs), along with websites like Twitter, Instagram, and YouTube. Since their creation, the growth in popularity of SNSs has been exponential. According to Facebook-generated statistics in 2017, the site currently has 1.75 billion monthly active users. This number continues to grow, with a 13.2% increase in Facebook users between 2014 and 2016. Facebook users spend 648,000,000 minutes each month on the site, share one million links, send two million friend requests, and three million messages every 20 minutes (Facebook Statistics, 2017). According to an internet use survey disseminated by Statistics Canada in 2010, 91% of those surveyed who were between the ages of 16 and 24 use SNSs. This number of young adult users is in addition to 70.2% of those aged 25-44, 36.7% of those aged 45-64, and 19.9% of those aged 65 and over. In

their 2010-2011 Canada-wide school census, Statistics Canada also found that students reported that, aside from speaking in person, websites such as Facebook were the method used most often to communicate with friends. This finding is rather impressive, considering that Facebook was only made available for world-wide use in 2007, taking only a few years to become one of the main methods of communication for youth. Findings regarding the popularity of Facebook add support to the notion that the website is, as some have suggested, a “rapidly expanding phenomenon that is changing the nature of social relationships” (Muisse, Christofides, & Desmarais, 2009; p. 441). However, as stated previously, those examining Facebook individually, as opposed to more general social network use, have faced some criticism.

Interestingly, the concept and study of pathological Facebook use is plagued by related, but polar opposite, criticism as Young’s (1996) early pathological internet use (PIU) research. While Young was criticized for being too broad in her scope by examining general internet use as opposed to more specific internet applications, Facebook researchers have been criticized for being too narrow in their focus by examining a single internet application rather than a more general social networking category. Nonetheless, it was Young’s opinion that the conceptualization of PIU should be similar to behavioral addictions such as pathological gambling. After more than 15 years, summaries of the PTU literature (Gentile et al., 2013) suggest that the strongest evidence for the construct validity of PTU is with the use of measurement instruments based on Young’s original measure. Given that Young’s original measure was in fact a modified pathological gambling measure, this has led to a general consensus regarding the conceptualization of PTU as falling under the category of a behavioral addiction,

similar to pathological gambling. However, it is important to note that Gentile et al.'s summary argues that different computer-based technologies evidence similar disorders; thus, they use the term PTU to broadly include the use of computers, internet, cell phones, and video games. These authors go on to note that the pattern of diagnosable symptoms and outcomes appears similar regardless of the technology or platform used. Conclusions of this nature suggest that there is no need to examine the conceptualization and measurement of pathological Facebook use (PFU) specifically, given that all computer-based technologies should fall under the same umbrella. However, Gentile et al.'s summary makes no mention of Facebook specifically, or social networking in general, in relation to the construct of PTU. Therefore, given the unique influence of social networking today and paucity of data on this domain specifically, it is first important to consider these social applications in isolation and not only by means of the medium being used to access them (i.e., the computer, the internet, cell phones, etc.). By examining Facebook specifically, it then will be possible to establish whether PFU should be included under the PTU umbrella, or whether PFU belongs in a category of its own. In future research, these findings then could be applied to the examination of other social networking sites (i.e., Twitter).

The notion that it is necessary to consider the specific application being used, not just the medium, is in line with Young's (1996) early research in which one of her conclusions regarding the construct of internet addiction was that the internet itself is not necessarily addictive, but instead addiction appears to be dependent on the type of applications being used. Other researchers also support this notion by concluding that the specific *type* of internet use is of particular importance when examining negative

outcomes, such as depression, social anxiety, and family cohesion (Gordon, Juang, & Syed, 2007). Other support for the examination of specific websites, such as Facebook, includes the fact that Young established that dependent and non-dependent internet users can be distinguished based on their online activities (i.e., dependent users were 5-7 times more likely than non-dependent users to use two-way communication applications such as chat rooms). Additional support for the importance of specifically examining Facebook use comes from the fact that the need to belong is said to be a fundamental human motivation (Baumeister & Leary, 1995). Thus, among the various online applications, it can be argued that Facebook serves the purpose of engaging in behaviours that are guided by motivations to belong and to form strong interpersonal attachments. As such, the use of social applications like Facebook could be driven by these powerful underlying motivations in a way that other internet applications are not. In other words, Pathological Facebook use (PFU) deserves individual attention before it can be confidently categorized in the same way as other computer-based technologies.

In further support of a specific examination of Facebook, many addictive substances also may be compiled within the addiction literature under the same general umbrella of Substance Use Disorders. However, the addictions field could not have gotten far with successfully diagnosing and treating substance use disorders if these substances were always empirically examined together. Just as it would be important to consider whether a patient is addicted to heroin or tobacco to fully understand their pathology, it is important to understand what distinctions there are, if any, between PFU, and the pathological use of other technologies or platforms. By examining Facebook

individually using a motivational framework, the current dissertation will help to clarify whether it is appropriate to conceptualize social applications in a category all their own.

Despite the above reviewed criticisms, there can be little doubt that Facebook already has had an indelible influence on popular culture in the 21st century in the 14 years since its inception. Researchers have begun to recognize the importance of determining what measurable association Facebook has with its users' socio-emotional functioning. While Facebook and social networking has begun to attract significant empirical attention, research in this area is still in its infancy relative to numerous other realms of social psychology. An unfortunate outcome of this is an incomplete picture of the various factors that may be associated with the well-being of increasingly technologically-minded generations who use these types of applications.

Facebook and well-being. SNSs like Facebook have both direct and indirect relationships with various facets of users' well-being (Ellison et al., 2007; Marino, Gini, Vieno, & Spada, 2018). Some of these relationships are positive and promote or enhance well-being, whereas others are the opposite direction. Before describing the current research in this area, it is important to provide a conceptualization of well-being for the purposes of the current study. A user's overall well-being was conceptualized for the current study in terms of one's satisfaction with life, the degree of positive and negative emotionality, experience of loneliness, and symptoms of depression. Although the following section will highlight research regarding Facebook's relationship with a variety of indices of well-being, particular attention will be paid to the relationship between Facebook and these indices specifically, whenever possible. Conceptualizing overall well-being as a combination of variables, as opposed to one single factor, is consistent

with previous research which suggests that a focus on both positive and negative emotionality is important information when considering an individual's subjective experience (Pavot & Diener, 1993). In addition, given that we are examining the pathological use of Facebook, we believe it is necessary to include outcome measures that will adequately assess pathological outcomes over-and-above negative emotionality, including life satisfaction. Finally, we have included screening measures for depression and loneliness in what we believe to be a comprehensive conceptualization of well-being. Measures of this nature were included given that the evidence for Facebook's potential negative association with users' well-being (as will be highlighted below) frequently associates Facebook use with symptoms of depression and loneliness. In support of the examination of the both positive and negative aspects of well-being in the current study, a recent meta-analysis found that almost all studies reviewed looked at *either* psychological distress (i.e., depression) *or* well-being (i.e., life satisfaction) as potential outcomes of problematic Facebook use. The authors proposed that future studies should examine both psychological distress and well-being concurrently, in order to get a more detailed picture of consequences Facebook users are likely to experience (Marino, Gini, Vieno, & Spada, 2018).

Positive and negative well-being and Facebook use. Marino, Gini, Vieno, & Spada (2018) reviewed the existing literature in an effort to examine the strength of the association between problematic Facebook use and both psychological distress and well-being. The authors of the meta-analysis hypothesized that problematic Facebook use would be positively correlated with psychological distress and negatively correlated with well-being. Problematic Facebook use was defined as a problematic behavior

characterized by either addictive-like symptoms and/or scarce self-regulation related to Facebook use reflected in social and personal problems. A final sample of 23 independent studies consisting of 13, 929 participants (60.7% females with a mean age of 21.93) was included in the final analyses. Results generally confirmed the authors' hypotheses. A positive correlation was found between problematic Facebook use and signs of psychological distress, such as depression. According to the authors, a smaller negative correlation was found between problematic Facebook use and well-being, such as life satisfaction. Findings of this nature highlight the importance of a closer examination of the relationship between Facebook use and both positive and negative facets of a user's life.

In terms of Facebook's positive association with well-being, use of the website is positively predictive of self-esteem through the stimulation of number of relationships formed on the site and by the frequency with which users receive positive feedback on their Facebook profiles (Valkenburg, Peter, & Schouten, 2006). A strong link also has been found between Facebook use and its users' connections with people in the offline world that they may otherwise have lost touch with after high school. As such, Facebook serves to maintain relations as people move from one offline community to another. This notion has been supported in research in which 75% of users reported frequently using Facebook to keep in touch with people whom they already know (Ellison et al., 2007). Online interactions may also be associated with developmental outcomes in young and emerging adults through peer feedback. It is suggested that the ease and accessibility of maintaining such contacts with peers via Facebook may foster the development of identity and intimate relationships, including friendships and romantic relationships

(Pempek, Yermolayeva, & Calvert, 2009). Given these and other findings, it is evident that Facebook use does have the potential to provide a positive influence in the lives of some of its users. However, not all users are so lucky. For many, the combination of both positive and negative outcomes is probably most likely; and, for a certain subset of users, the negative consequences of using Facebook may outweigh the positive.

The suggestion that Facebook serves the purpose of keeping friends even more connected runs contrary to research in which 55% of Facebook users reported communicating with their Facebook friends more often online than in person (Ellison et al., 2007). Thus, for some, Facebook could be contributing to a sort of ‘superconnected loneliness’ that may stem from an increasing reliance on online interactions at the expense of personal face-to-face communication with one’s social peer group (Marche, 2012). In other words, Facebook could be serving as a substitute for face-to-face interaction (Kujath, 2011) by giving an illusion that the user is engaged in actual social interaction similar to that encountered in real life, rather than merely a virtual one (Green & Brock, 1998). For example, social loneliness and social avoidance are positively related to time spent using Facebook (Lemieux, Lajoie, & Trainor, 2013); however, it remains unclear as to the causal direction of this relationship between Facebook and these well-being factors. This issue regarding the directionality of the relationship between Facebook and negative outcomes is not uncommon in the field. For example, is it loneliness that predicts that someone will be more likely to use Facebook in a pathological manner, or is it the other way around? Of course, it is highly likely that the relationship is reciprocal in nature. In fact, more recent research has found a causal link between Facebook use and well-being outcomes (Tromholt, 2016). A comparison

between participants who were asked to take a break from Facebook for a period of time and those who continued to use the platform adds to the finding that taking a break from Facebook has positive effects on life satisfaction and positive emotions (Tromholt, 2016). One of the objectives of the current study was to first determine whether a correlation existed between all variables being examined. It is only after these relationships are demonstrated that the question of directionality can begin to be teased apart.

More evidence for Facebook's negative association with well-being suggests that individuals who post negative status updates, which include publicly venting negative feelings, complaining about personal problems, or criticizing oneself and others, may exacerbate ruminative cognitive processes that undermine satisfaction with life and amplify depressive symptoms (Locatelli, Kluwe, & Bryant, 2012). More specifically, posting negative status updates tends to predict higher levels of rumination, whereas posting positive updates generally predicts reduced rumination. Additional research evidence suggests that heavy users may unknowingly sacrifice life satisfaction by engaging in procrastination in order to feel socially connected. When these same users were prompted to temporarily reduce, or completely stop, their Facebook activity over a period of two days, increases in life satisfaction and decreases in reports of procrastination were found. In addition, the more a participant reduced his or her Facebook use time relative to other participants, the more desirable the outcomes they subsequently experienced (Hinsch & Sheldon, 2013). These processes may be just some ways in which Facebook use is linked to poorer life satisfaction and an increase in reports of depression and loneliness in some users.

Predictors of negative outcomes. Given the mixed findings with regards to Facebook's role in the well-being of its users, there is a growing body of research focused on determining the factors that may predict whether Facebook use hinders or promotes well-being. For example, early research emphasized the frequency of Facebook use (i.e., how much time an individual spends logged on to Facebook per day) and its association with negative outcomes. However, it quickly became clear that it is not only quantity, but quality of social networking use that places individuals at risk for undesirable outcomes (Gordon, Juang, & Syed, 2007; Elphinston & Noller, 2011). In addition to early research on frequency of use, another line of research involved making use of broad personality constructs (i.e., The Five Factor Model) to determine the types of people who use Facebook. The aim of this line of research was to examine whether personality could help explain why some users experience negative consequences of their Facebook use, whereas others do not. Researchers have found that high scores on narcissism are significantly associated with antisocial Facebook behaviors (i.e., retaliating against negative comments from others on Facebook) and self-promoting Facebook behaviors (i.e., posting status updates and photos) (Carpenter, Green, & LaFlam, 2011). In addition, those high on conscientiousness, agreeableness, and emotional stability (i.e., low neuroticism) are significantly less likely to report posting problematic Facebook content on their profiles (i.e., posting information related to substance abuse or sexual behavior) than those scoring low on these traits (Wise, Alhabash, & Park, 2010).

Findings regarding the social and psychological profiles of Facebook users have helped shed some light on the various outcomes, both positive and negative, that are associated with Facebook use. However, the focus on broad personality constructs has

been criticized for not being as significant as some would suggest when it comes to predicting which users are most likely to experience which outcomes (Ross et al., 2009; Wilson, Fornasier, & White, 2010). Other lines of research have suggested instead that the negative consequences that have been associated with Facebook use are more likely a result of a certain subset of users developing what appears to be a compulsive or problematic pattern of use. For example, while testing the premise that one of the major reasons individuals may be inclined to use Facebook is to relieve psychosocial problems (e.g., loneliness and depression), Kim, LaRose, and Peng (2009) found that, to the contrary, it was individuals who were lonely or who did not have good social skills who were at risk of developing strong compulsive behaviors resulting in negative life outcomes. In further support of this notion, increased symptoms of problematic use tend to be associated with decreased self-esteem, happiness, satisfaction with life, and increased depression and loneliness (Spraggins, 2011). Problematic Facebook use is also negatively associated with determinants of well-being such as subjective happiness, and subjective vitality (Satici & Uysal, 2015). More recent research suggests that considering a user's goals when using Facebook could help explain what outcomes they experience (Jung, Pawlowski, & Kim, 2017). For example, users can feel like they have positive relations with others in life if they are using Facebook for a sense of belongingness. On the other hand, using Facebook with the goal of experiencing enjoyment from killing time is negatively associated with psychological well-being.

Despite the growing foundation of research into Facebook's relationship with its users' well-being, further research is necessary to identify other psychosocial characteristics that may better explain the propensity for addictive tendencies (Wilson et

al., 2010), and to identify the specific processes that take place in the context of social networking that may be pathogenic (Feinstein, Hershenberg, Bhatia, Latack, Meuwly, & Davila, 2013). The following section provides a description of the few studies that have begun to fill these gaps in the literature and further clarify what may distinguish problematic use from non-problematic.

Pathological Facebook use. As noted earlier, in a review of the controversies surrounding the field of behavioral addictions, Thombs and Osborn (2013) conceptualized addiction as a modern-day malfunction of an adaptation that once served our ancestors well in a harsh environment. They went on to suggest that we are all vulnerable, not only to alcohol and drug abuse, but to any activities that evoke neural signals in the brain's pleasure centers. Thombs and Osborn suggested that computer software applications provide new temptations that could put an individual user at risk of developing a pathological pattern of use. They created a list of 35 behaviors that have been described online and in the media as possible pathologies, including internet use and social networking. Using the same framework that Young (1996) used in her early formulations of PIU, Thombs and Osborn conducted a comprehensive review of the literature to determine whether evidence existed to support these behaviors as having the potential to be used pathologically. To be included in the review, these 35 behaviors were required to meet certain criteria: 1) the study was published in a peer-reviewed international or national scientific journal from 2000-2011; 2) The article reported results from a data-based study of more than one participant; and 3) The study employed a diagnostic interview or instrument to measure the target behavior as a pathology, or created an experimental condition to test a specific diagnostic symptom of pathology,

such as cue reactivity, continued involvement in the behavior despite negative consequences, or perceived loss of control over the behavior.

Using these criteria, Thombs and Osborn (2013) determined that internet use, including social networking, was second only to gambling in having the strongest scientific support for having the potential for being used pathologically. This conclusion is especially compelling considering that those authors also stated in their conclusions that they found no evidence in the scientific literature supporting the same consideration for 25 of the 35 behaviors in their list. In line with these findings, others have suggested that the reinforcing aspects of SNSs can promote pathological tendencies because of the interactive nature of this form of communication (Elphinston & Noller, 2011). As stated previously, although it may be necessary and appropriate for research purposes to compile all SNSs together, the present study will focus on Facebook specifically. Although small, a foundation of literature is growing which provides evidence for the existence of PFU.

In one of the first studies to measure PFU, Elphinston and colleagues (2011) developed the Facebook Intrusion Questionnaire (FIQ) using a combination of pathological gambling components and a mobile phone involvement questionnaire. Their rationale for the development of the scale was to obtain a better measure of Facebook usage than merely inquiring about frequency or duration of use. Although their measure does include questions regarding the extent to which the participant was actively engaged in Facebook activities, number of Facebook friends, and the amount of time spent on Facebook in a typical day, it also consisted of several attitudinal questions designed to assess the extent to which the participant was emotionally connected to Facebook and the

extent to which Facebook was integrated into his or her daily activities (i.e., “I am proud to tell people I’m on Facebook”; and “Facebook has become a part of my daily routine”). Internal consistency of the questionnaire was high ($\alpha=.85$) and mean scores indicated moderate Facebook Intrusion levels in respondents. Additionally, these researchers found that Facebook intrusion was linked to increased relationship dissatisfaction via heightened experiences of cognitive jealousy and surveillance behaviors. Elphinston and colleagues went on to call for further research that examines pathological levels of what they refer to as Facebook Intrusion, in addition to research assessing the extent to which Facebook Intrusion is associated with personal distress and disruptions to daily functioning.

Andreassen and colleagues (2012) developed their own assessment instrument: The Bergen Facebook Addiction Scale (BFAS). Although Elphinston and colleagues included items from a pathological gambling measure and items from a measure assessing mobile phone use in their development of the FIQ, the BFAS only incorporated pathological gambling criteria in the development of its scale items (i.e., items adapted from Young’s original measure). Internal consistency was also high for the BFAS ($\alpha=.83$). In line with Elphinston and colleagues, Andreassen et al. also concluded that, although their study lends support for the notion of Facebook use having the potential to reach pathological levels, more research was needed.

Several other studies have provided further support for the concept of PFU. Balakrishnan and Shamim (2013) also used Young’s PIU criteria as the foundation for the development of questions to assess PFU in Malaysian participants. Using a 31-item questionnaire, Balakrishnan and Shamim found evidence of addiction symptoms of

salience (the activity dominates the person's thoughts and behavior), loss of control (inability to limit time given to behavior), withdrawal (negative feelings experienced when the person is unable to perform the activity), and relapse (resuming the activity after attempting to reduce it) in their respondents. The questionnaire had very high internal consistency ($\alpha=.95$). Items on Balakrishnan and Shamim's questionnaire included, "I constantly check for updates" (salience), "I lose sleep sometimes due to late night log-ins to Facebook" (loss of control), "I get disappointed when I could not access Facebook" (withdrawal), and "I have deactivated my account before, but I have activated it again" (relapse and reinstatement). These authors found that the strongest pathology indicator in their sample was salience, such that a majority of university student participants in their sample reported thinking of Facebook even when they were not online, and sometimes even during lectures.

Based on the current evidence, the conceptualization of PFU as a valid construct has so far been reasonably well established. Moreover, in addition to finding support for the existence of PFU, researchers have established a link between pathological use and the negative outcomes that at least a portion of users have been known to experience (i.e., increased depression, decreased well-being). Thus, PFU may be the missing link that could provide an explanation for why some users tend to experience negative outcomes. However, up until this point in the current review of the literature, results have been discussed in terms of Facebook users in general, with no mention of the potential for gender differences. Given how gender stereotypes and behavioural expectations influence how both men and women behave in face-to-face interactions, some researchers have suggested that it can be assumed that the same could be said for online interactions

(Haferkamp, Eimler, Papadakis, & Kruck, 2012). Study of gender differences in online behaviour is important to consider in order to know whether males and females differ in their risk for developing pathological patterns of Facebook use. Therefore, a brief discussion of gender differences as they relate to internet use in general, and social networking use specifically, is presented next.

PFU and gender. In a study investigating gender and experiences with multiple forms of mediated communication, 381 undergraduate students from a large Southeastern university (267 women) were recruited to answer questions about their use of social networking sites, email, video calls, instant messaging, texting, and phone calls (Kimbrough, Guadagno, Muscanell, & Dill, 2013). These authors aimed to gain an overall impression about how these technologies are being used by men and women. It was found that women are generally more frequent mediated communication users overall compared to men. Women also reported preferring, and more frequently using, text messaging, social media, and online video calls, compared to men. Kimbrough et al. concluded that their results supported the contention that women use technology for connectivity purposes, as opposed to men who use it for more agentic purposes. They suggested that when the option to interact in person is not available, women turn to the mediated technology that best simulates face-to-face interaction. Other research also has found that men and women differ in their motives for using websites such as Facebook, concluding that men primarily perceive SNSs as a “pragmatic communication medium” (i.e., easily getting in contact with other people), whereas women’s motives are more driven by a “hedonistic perspective of personal enjoyment and self-presentation” (Haferkamp, Eimler, Papadakis, & Kruck, 2012; p. 96).

In line with Kimbrough and colleagues' (2013) suggestion that women are more likely to use technology that involves social interaction, Thompson and Lougheed (2012) found that when categorizing male and female Facebook users into light users (spending less than 1 hour per day on Facebook) versus heavy users (more than 1 hour per day), women were more likely than men to be categorized as heavy users (52.45% versus 38.40%). Interestingly, when categorized in the same fashion in terms of their general internet use, women and men were relatively equally divided into light and heavy users. Although findings such as these do not necessarily suggest that women are more at risk of engaging in PFU, they do highlight the need to consider this potential. Furthermore, Thompson and Lougheed's research, which involved surveying 268 college students (53.3% female) enrolled in an introductory health class, found that females were more likely than males to report spending more time on Facebook than intended, often losing sleep because of Facebook, feeling closer to Facebook friends than friends seen daily, that Facebook use sometimes caused them stress, and that they sometimes felt addicted to Facebook.

Perhaps the most convincing evidence thus far in terms of gender differences in risk of PFU is that of Andreassen and colleagues (2012) in their development of the Bergen Facebook Addiction Scale (BFAS). In regression analyses, these researchers found that women had higher scores than men on the BFAS. Andreassen et al. noted that this was contrary to the gender findings for some other behavioral pathologies, such as gambling. In their discussion of this finding, they suggested that men may be more prone to pathological engagement in solitary behaviours, whereas women score higher on measures of pathological engagement in behaviours involving social interaction.

Although further research is needed, these limited data highlight gender differences in Facebook use. However, although males and females may use Facebook differently and to a different degree, there is no data currently available that would suggest the path to pathological Facebook use would be different between men and women.

Given the growing evidence for the existence of PFU, researchers may now begin to explore the link between PFU and other major components of substance-related addictions such as prevalence rates, and the various factors that may predict its development. Although some researchers have been able to examine these addiction components in relation to general technology use, so far very few have examined the link between these components and Facebook specifically.

Prevalence of PFU. Thombs and Osborn (2013) reported prevalence rates for pathological internet use in adults of 1% in Norway and 0.7% in the United States. For teens and emerging adults, reported prevalence rates are higher (i.e., 6.7% in 15-to-19 year olds in Hong Kong, and 4.1% in 16-to-29 year olds in Norway). However, as stated previously, Thombs and Osborn noted in their review of the literature that these rates are for “pathological internet use *including* social networking”; various applications of the internet are not separated in the compiled data, thus providing further support for a focus on pathological use of social applications specifically. Gentile and colleagues (2013) estimated that 7-10% of technology users meet criteria for general PTU, but these numbers are also not for SNSs, or Facebook, specifically. In terms of prevalence of PFU, the data is limited. It has been reported that 75% of participants in one study (out of 268 total participants) said that they knew someone whom they thought was addicted to Facebook (Thompson & Loughheed, 2012). In addition, the same study found that 48% of

females (compared to 22% of males) strongly agreed with the statement, “sometimes I feel like I am addicted to Facebook”. Further data taken from a website providing statistical analyses of Facebook use in the U.S. suggests that 48% of respondents reported that they checked or updated Facebook just before they went to bed and right when they woke up. In addition, 18% of respondents under the age of 25 reported that they cannot go more than a couple of hours without checking Facebook. Similar to research on gender differences and Facebook use, more evidence is needed in order to be able to accurately estimate prevalence rates of PFU; however, the limited data that does exist only serves to add support to the call for further examination of the potential negative consequences of Facebook use.

The framework for understanding the factors that could predict which individuals are at risk of developing PTU, let alone PFU, is largely unknown. Some have speculated about possible explanations for why some individuals use SNSs like Facebook in a pathological manner while others do not. The majority of speculation has revolved around the individual’s motivations for using Facebook. As mentioned previously, several researchers have suggested that it is not the use of computer applications in particular that can be associated with either positive or negative consequences, but instead it may be the way the activity has been internalized (Seguin-Levesque et al., 2003). In other words, motivational factors can have an important bearing on online activities, independently of previously researched variables, such as broad personality constructs (Ross et al., 2009). Therefore, to address the questions of how best to conceptualize PFU and what the most suitable framework is for understanding its predictors, an examination of motivations for using Facebook may prove fruitful.

Theoretical Background of the Dualistic Model of Passion: Self-Determination

Theory and Cognitive Evaluation Theory

The motivational theory known as the Dualistic Model of Passion (the DMP) (Vallerand et al., 2003) has been used to understand motivations for the pathological use of video games and gambling and, more recently, Facebook overuse (Orosz, Vallerand, Bóthe, Tóth-Király, & Paskuj, 2016). Therefore, two theories that led to the development of the DMP, Self-Determination Theory (SDT; Deci & Ryan, 1985) and Cognitive Evaluation Theory (CET; Deci, 1975), will be briefly discussed next. A more detailed description of the DMP will follow, and research will be highlighted that supports its use as a theoretical framework for understanding PFU.

The main underlying tenet of the theory, which has also been an age-old philosophical debate, concerns what forces are at work in driving human behavior. According to its developers (Deci & Ryan, 1985), Self-Determination Theory (SDT) is an organismic theory. This means that SDT views humans as active and initiating their own behaviors. Organismic theories are distinguished from mechanistic theories which view humans as passive and being pressured or pushed to act by a combination of physiological drives and environmental stimuli. For a person to engage in a behavior that is said to be self-determined, this person has to make a decision of their own volition to engage in the behavior by determining whether it is in line with their personal values and principles. If a person engages in a behavior not by choice, but as a result of some pressure (i.e., to gain a reward or avoid punishment), then the behavior is said to be carried out in a non-self-determined manner (Deci & Ryan, 1985).

Before an activity or behavior can be labeled as self-determined, it is first important to understand that it is a combination of characteristics of the individual and of the context that determine how an individual becomes motivated to engage in a behavior. In other words, it is not enough for an external observer to say that an environment or behavior appears to be free from rewards or contingencies; the *perception* of the person who is engaging in said behavior regarding what events initiated their own behavior is also a determining factor. In addition to considering an individual's perception of what caused their behavior, we must also consider characteristics of the context in which the behavior occurred. Thus, we also need to know what event(s) in the environment initiated the behavior in question. For example, was the behavior initiated by the hope or promise of some reward or reinforcement, or solely by an individual's interest or curiosity?

Cognitive Evaluation Theory (CET) was developed and proposed by Deci and Ryan (1985) to explain findings about the effects of external events on intrinsic motivation, and self-determined behavior. According to the developers of SDT and CET, all human behavior falls into one of three categories: Self-determined; Control-determined; or Amotivational. Self-determined behaviour is behaviour that is chosen freely by an individual; control-determined behaviour is behaviour that is initiated by some anticipated reward or punishment; and amotivational behaviour is experienced by the individual as unmasterable or uninteresting and is therefore only engaged in for a brief period. These three types of behaviors do not occur spontaneously, but instead are initiated by three classes of initiating and regulating events in the environment: Informational; Controlling; or Amotivating. Informational events are events that initiate

behaviour because they are novel or interesting to the individual; controlling events initiate behaviour because they are rewarding or punishing; and amotivating events, although initiating some behaviours, are experienced by the individual as too difficult (i.e., they lose confidence in their ability to master the task) or uninteresting. Finally, people's perceptions of what has caused their behavior also requires some consideration. According to SDT and CET, all humans possess one of three orientations: an Autonomous orientation, a Control orientation, or an Impersonal orientation. These orientations are reliably related to the aforementioned behavioral outcomes and initiating events (Deci & Ryan, 1985) and are described next.

Orientations towards causality are not only related to how an individual perceives their environment, but also what information they select and attend to in their environment. For example, an individual who possesses an Autonomy orientation would not only attend to informational events in their environment more often than someone with a control or amotivational orientation (i.e., they are more likely to attend to events that are novel and interesting), but also would be more likely to interpret initiating and regulating events as Informational. The Autonomy orientation is theorized to be associated with self-determined behaviors. As such, a high degree of Autonomy orientation is associated with a high degree of self-determined functioning. This combination of characteristics of the individual and characteristics of the context provides the sequence of events that will determine whether a behavior is self-determined (intrinsically motivated) or non-self-determined (see Figure 1 for a summary of this process).

Based on a consideration of the combination of characteristics of the person and the environment in SDT and CET, we are better able to determine whether a person engaging in a behavior is self-determined, control-determined, or amotivated to do so. In line with this conceptualization of motivation, depending on the orientation of the person, the type of event or behavior they are engaging in, and the context in which the behavior occurs, two individuals who are engaging in the same behavior could be driven by completely different motivations and experience completely different outcomes, despite the fact that the activity is the same. For example, consider two Facebook users. Each user has developed a strong inclination to use Facebook as a result of one of the internalization processes described above. One individual uses Facebook due to an autonomous internalization of the activity into the self. This person only logs on to Facebook sporadically when she receives messages or to make plans with loved ones. As a result, this person can be said to be using Facebook in a self-determined fashion, in theory. In contrast, the second person engages in Facebook use due to a controlled internalization of the activity into the self. According to research, a controlled internalization can originate from either intra or interpersonal pressure (or both), typically because certain contingencies are attached to the activity such as feelings of social acceptance or self-esteem (Vallerand, 2012). This individual uses Facebook to constantly post status updates and pictures and feels disappointed and rejected if she does not receive what she considers to be a sufficient number of “likes” and comments on her posts. She has tried to cut down on her use of Facebook because it often distracts her from her responsibilities, but she has been unsuccessful in her attempts. This person can be said to be using Facebook in a control-determined fashion. Thus, it is believed that

viewing Facebook use from this motivational perspective will help explain why some individuals appear to be able to use Facebook without experiencing negative consequences, while others are at risk of developing a pathological pattern of use.

Using SDT and CET as a foundation, Vallerand and colleagues (2003) proposed that it is these two internalization processes (autonomous and controlled) that influence how we work, learn and carry out our daily lives. Specifically, they suggested that the Autonomous and Controlled processes are key not only in how people work and learn, but also to how people develop a passion for leisure activities, such as sports, exercise, shopping, online gaming, and, as will be argued, Facebook use.

Passion

According to Vallerand and colleagues (2003), the internalization processes of Autonomy and Control lead to two types of passion for leisure activities: Harmonious passion and Obsessive passion. Vallerand and colleagues defined passion as a strong inclination toward a self-defining activity or object that one likes, finds important and meaningful, and in which one invests time and energy. They argued that to be passionate about an activity, it is essential that the activity be meaningful for a person, rather than merely being an activity that an individual takes part in from time to time. Vallerand referred to this model of passion for leisure activities as the Dualistic Model of Passion (the DMP). This concept of duality refers to the notion that something you love can be good for you or bad for you, depending on how the activity is internalized. According to the model, Obsessive passion results from a controlled internalization of the activity into one's identity and self. As stated, Vallerand (2012) proposed that a controlled internalization of an activity can originate from intra or interpersonal pressure, typically

because certain contingencies are attached to the activity, or because the sense of excitement derived from engagement in the activity is uncontrollable. Thus, both internal (i.e., feeling states) and external pressures can initiate the internalization process. People with an obsessive passion are thus said to experience an uncontrollable urge to partake in an activity they view as enjoyable. As a result, people who are obsessively passionate about certain activities risk experiencing negative consequences during, and after, engagement in the activity.

On the other hand, Vallerand and colleagues (2003) suggest that harmonious passion results from an autonomous internalization of the activity into the person's identity and self. According to Vallerand (2012), an autonomous internalization occurs when an individual has freely accepted the activity as important for them without any contingencies attached to it. This acceptance produces a motivational force to engage in the activity willingly. When a person takes part in an activity in a harmonious way, individuals do not experience an uncontrollable urge to engage in the activity, but instead freely choose to do so of their own volition. In contrast to people who are obsessively passionate, people with a Harmonious passion are likely to experience positive affective, cognitive, and behavioral consequences during, or after, the activity. So far, the DMP has been successfully applied to the understanding of several behavioral addictions (i.e., gambling and online gaming, discussed in the following section, but this model has yet to be applied to the understanding of PFU.

Passion and pathological behavior. In 2005, Mageau, Vallerand, Rosseau, Ratelle, and Provencher examined the various affective and cognitive consequences of gambling and their relation to obsessive and harmonious passion. A sample of 554

participants completed instruments measuring passion towards gambling and several cognitive and affective outcomes, such as people's feelings and thoughts experienced during, and after, engagement in their favorite gambling activity. Participants were recruited at the Montreal Casino and in shopping centres, where they were asked to complete a questionnaire. These researchers aimed to explore the reasons why some individuals appear to be able to gamble without experiencing negative consequences, while others become pathological gamblers. Mageau and colleagues hypothesized that harmonious passion would be associated with positive outcomes both during and after the gambling activity, while obsessive passion would be associated with negative outcomes. The researchers then performed three sets of analyses: Partial correlations to assess the relationships between various outcomes and harmonious and obsessive passion; MANOVAs to test for differences in passion and affective and cognitive outcomes as a function of gender and gambling activities; and regressions to evaluate the relationship between types of gambling activities and affective and cognitive outcomes, as mediated by the two types of passion. Their findings confirmed their hypotheses. Harmonious passion was associated with positive outcomes such as feelings of amusement and fun, positive emotions, and perceptions of challenge and control. Harmonious passion also negatively predicted feelings of guilt and being judged by others after engaging in gambling behavior. In contrast, obsessive passion for gambling was positively associated with guilt, negative emotions, and anxiety.

Mageau et al. (2005) suggested that individuals who are obsessively passionate about gambling may look back at their gambling activity with anxiety, guilt, and negative emotions because their gambling does not feel like a conscious choice, but rather as

driven by their passion. On the other hand, individuals whose passion for gambling activities is harmonious experience their gambling as being under their control. These latter individuals tend not to experience negative emotions after the activity because gambling represents to them a consciously chosen activity. These results appeared to explain why some individuals seem to benefit from engagement in gambling activities (i.e., experience fun and amusement), while others experience negative consequences (i.e., guilt and anxiety). Vallerand and colleagues concluded that it is not engaging in gambling activities as such that is problematic, but rather having an obsessive passion towards the activity. In addition, these researchers concluded that Vallerand's motivational perspective of passion was successfully generalized to gambling activities, confirming its usefulness as a general theoretical framework for understanding this behavioral addiction. However, it is important to note that while this research does provide support for the use of the DMP in the understanding of behavioral pathologies, it only demonstrates a link between obsessive and harmonious passion, and various negative and positive outcomes, respectively. In order to confidently say that the model also can be applied to PFU, it is first important to highlight previous findings regarding the link between Passion and other behavioral addictions and pathologies, not just negative outcomes.

In 2004, Ratelle, Vallerand, Mageau, Rousseau, and Provencher examined obsessive and harmonious passion and their relation to problem gambling. These researchers aimed to extend previous research that had established the validity of a Gambling Passion Scale (GPS; Rousseau, Vallerand, Ratelle, Mageau, & Provencher, 2002) by determining whether the concept of passion could be applied to the study of

gambling behavior and whether obsessive passion for gambling was associated with more negative consequences than harmonious passion for gambling. More importantly, these researchers hypothesized that obsessive passion toward gambling would be strongly and positively associated with problem gambling and with cognitive and affective consequences associated with gambling dependence. Ratelle and colleagues went on to hypothesize that these negative consequences associated with problem gambling and dependence would not be related to harmonious passion for gambling. The researchers made use of the GPS, various measures of cognitive and affective consequences associated with gambling dependence (i.e., anxiety, rumination, and guilt), several measures of cognitive and affective consequences not associated with gambling dependence (i.e., vitality, positive emotions, and concentration), and a problem gambling screening measure to assess 412 participants recruited from the Montreal Casino.

The results of the study supported Ratelle et al.'s (2005) hypotheses. Specifically, Obsessive passion was associated with higher levels of problem gambling, ruminations, anxiety, and guilt, as well as lower levels of concentration, vitality, and positive emotions. As expected, harmonious passion towards gambling was not significantly related to problem gambling or any of the negative consequences measured. Interestingly, Harmonious passion for gambling was also not associated with positive consequences, with the exception of increased concentration. These researchers noted that this latter finding was in contrast to previous findings which showed positive associations between harmonious passion and positive consequences (such as those of Mageau and colleagues). Ratelle et al. (2004) suggested that it may be aspects of gambling itself (i.e., losing money while engaging in the activity) that prevent an

individual from experiencing positive consequences. Despite this unique finding, Ratelle et al. were able to conclude that their results were in line with previous research and indicated that the concept of passion can be a useful framework for studying gambling behavior.

Research has supported a connection between the behavioral addiction of gambling and pathological uses of technology (i.e., the strongest evidence to date for the existence of PTU is with the use of a modified gambling addiction scale). As such, it follows that if the DMP can validly be applied to the understanding of pathological gambling, then the model also could be applied to the understanding of some forms of PTU, and in fact, this has been the case.

In an attempt to determine the link between harmonious and obsessive passion and online video game addiction, Wang and Chu (2007) used an online survey to assess 404 participants' computer usage data, demographic information, passion for video gaming, and computer game addiction levels. Wang and Chu made use of a 10-item passion scale (5 questions assessing harmonious passion, and 5 items assessing obsessive passion) with questions modified to inquire about passion for online video games specifically (i.e., "How often do you have an obsessive feeling for online games?"). To assess online video game addiction, their study used an adapted version of Young's (1996) IADQ by modifying items to specifically inquire about computer game usage (i.e., "How often do you fear that life without *online games* would be boring, empty, and joyless?"). The Cronbach's alpha of harmonious passion, obsessive passion, and online game addiction were .78, .87, and .90, respectively.

Wang and Chu (2007) found a positive correlation between obsessive passion and online computer game usage, while there was no such correlation between harmonious passion and pathological computer game usage. They concluded that harmonious and obsessive passion were associated with pathological behaviour differently, such that only obsessive passion was related to pathological use of online games, while harmonious passion was not. These authors suggested that if users' passion for online games is harmonious, then they will not use online games in a pathological manner. Compared to obsessive users, harmonious users were more likely to stop playing online games when they had other important business to conduct.

The DMP also has been successfully applied to other pathological online behavior such as online shopping (Wang & Yang, 2008) and general internet activities (Tosun & Lajunen, 2009), with similar results. In addition, one study has been conducted more recently that applied the DMP to the understanding of general Facebook use and Facebook overuse (Orosz, Vallerand, Bóthe, Tóth-Király, & Paskuj, 2016). Facebook overuse was defined as the excessive use of Facebook and the problematic nature of everyday Facebook use that is similar to excessive gaming. Orosz and colleagues recruited a total of 256 participants (184 females, 73 males, mean age of 24) through Facebook and email to complete an online questionnaire package. According to the researchers, the purpose of the study was to assess the universal role of harmonious and obsessive passion in some of the positive and negative correlates derived from Facebook engagement. Additionally, they examined the role of impulsivity as a predictor of passion for Facebook. Participants completed measures of Facebook use and overuse, a measure of impulsivity and a scale measuring passion for Facebook. Results suggested

that, interestingly, obsessive passion was associated with both positive and negative correlates of Facebook use, such as self-expression and Facebook overuse, respectively. On the other hand, harmonious passion was only associated with positive correlates. Finally, results also suggested that impulsivity predicted obsessive passion but not harmonious passion.

Results such as those described in this section demonstrate that it has been consistently found that the path to pathological engagement in these activities is through obsessive passion. Moreover, only one study has successfully applied the DMP to Facebook use (Orosz et al., 2016). Therefore, the current study aims to add to this early foundation of literature by measuring the variables in question more comprehensively. Finally, studies also consistently find that this link between obsessive passion and pathology significantly predicts negative outcomes in other avenues of life such as well-being, which will be described further below.

Passion and well-being. In a study of older adults' passion for physical activity, Rousseau and Vallerand (2008) found that harmonious passion for an activity was related to an experience of positive affect during activity engagement and this positive affect was associated with higher levels of subjective well-being. In contrast, obsessive passion for physical activity was associated with lower levels of subjective well-being. These researchers concluded that engaging in a passionate activity in a harmonious manner can be associated with increased positive affect and can, over time, result in greater well-being.

One interesting finding of Rousseau and Vallerand's (2008) study was that all participants were assessed at three time points (T1, T2, and T3), and while obsessive

passion was related to higher levels of negative affect at T2, negative affect at T2 was not significantly related to subjective well-being at T3; however, obsessive passion was significantly related to subjective well-being at T3. This finding would suggest that it is not necessarily negative affect that explains the relationship between obsessive passion and subjective well-being. As such, further research is necessary to determine what variable(s) is responsible for this link. One explanation offered for this finding is that, although participants experienced little negative affect during activity engagement, which was evidenced by the low mean value for negative affect, it is possible that participants could experience negative affect *after* activity engagement. These researchers suggested that, because individuals with an obsessive passion come to be controlled by their activity, they might have to neglect or postpone doing other important activities to satisfy their need to perform their passionate activity. This neglect might eventually be related to the experience of guilt or anxiety, which could in turn undermine their subjective well-being. This explanation is in line with findings outlined previously, linking obsessive passion for gambling with feelings of guilt and anxiety after engagement in the gambling activity (Mageau et al., 2005).

Other studies have also consistently found a link between people's passion for leisure activities, and their well-being in the offline world. For example, in an attempt to determine why people with a more harmonious passion experience greater well-being, Mageau, Carpentier, and Vallerand (2011) found that the more people have harmonious passion, the more they tend to experience flow in their favorite activity, which in turn predicts greater well-being. Flow has been defined in the literature as the complete absorption of oneself in the present moment when all contents of consciousness are in

harmony with each other. When individuals are experiencing flow, they are said to experience a complete mastery over their environment and intense and focused attention on the activity (Csikszentmihalyi, 1988). In contrast, Mageau et al. (2005) found that the more people have an obsessive passion for an activity, the more they tend to ruminate about their passionate activity while engaging in another activity. These ruminations are negatively related to flow experiences in the other activity and are negatively associated with well-being. In other words, Mageau et al. concluded that people with more obsessive passion fail to experience positive affect in other activities because they tend to ruminate about their favorite activity while engaging in these other activities.

Summary

The most recent version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychological Association, 2013) includes structural changes that have opened the door for behavioral addictions to be included in the category of Substance Related and Addictive Disorders. Namely, after years of research and debate, pathological gambling was the first behaviour to be added to this new category, as opposed to being categorized as an impulse control disorder, as it once was. Moving forward, more research is needed to determine what other behaviours also may have the potential for reaching pathological levels in some individuals. Research on pathological internet use (PIU) has been ongoing since the early-to-mid 1990s. Researchers in the field have been able to determine that the most valid method of measuring PIU and other pathological technology use (PTU) is with a pathological gambling measure that has been modified to assess internet addiction and pathological engagement in other specific types of online activities, such as online gaming.

Coinciding with these findings is a review of the behavioral pathology literature (Gentile, Coyne, & Bricolo, 2013). Of the 35 behaviors included in the review, internet use, including social networking, was one of only a handful of behaviors that had sufficient support in the literature to be conceptualized as a pathology. As a result, researchers and clinicians are beginning to understand the importance of further examining the pathological use of online applications. This research would also include the negative outcomes associated with problematic use.

Authors of reviews of the existing PTU literature also concluded that more research is needed to further clarify potential predictors of the development of PTU. Some researchers have suggested that taking part in activities such as social networking may put people at particular risk of developing pathological patterns of use, given their emphasis on social interaction (Kuss & Griffiths, 2011). Thus, a specific examination of social networking behavior is warranted, and more specifically, in order to best understand what role these activities are playing in people's lives, certain applications such as Facebook are deserving of individualized attention, given their influence on popular culture.

Some researchers have begun to examine Facebook specifically to establish whether users are at risk of pathological use (e.g., Andreassen et al., 2012). This research, thus far, has been successful not only in establishing the existence of a pathological pattern of Facebook use, but also in demonstrating a link between this pathological pattern of use and negative outcomes for some individuals, such as increased depression and loneliness. In addition, existing research also has found that women appear to be more at risk of developing pathological patterns of use (Andreassen et al.,

2012; Thompson & Loughheed, 2012). However, there is no evidence to suggest that the path to development of pathological patterns of use would be different between women and men.

Despite initial strides, this field of research is still in its infancy. More research is needed to further establish Facebook as having the potential for reaching a pathological level in some users. Other areas of further examination include whether women may be more at risk than men, in addition to determining possible predictors of problematic use. In line with this call for further research, it has been suggested that it is not the use of Facebook per se that can be associated with negative consequences, but instead might be the way the activity has been internalized (Ross et al., 2009). Thus, it is believed that the use of well-established motivational theories to better understand patterns of Facebook use is necessary. The Dualistic Model of Passion (the DMP; Vallerand et al., 2003) has repeatedly been applied to the understanding of pathological engagement in other behaviors such as gambling and online video gaming, but has only once been applied to the understanding of pathological Facebook use. This motivational theory also has been successfully applied to understanding life outcomes we experience when engaging in activities we are passionate about, such as well-being (Rousseau & Vallerand, 2008). Finally, and most importantly, the DMP has been used to establish a link between an individual's passion for an activity, the development of an addiction to that activity, and the resulting negative outcomes. More specifically, research on other behavioral addictions, such as gambling and online gaming, has found that addiction to an activity serves a mediational role between an individual's passion for said activity, and negative life outcomes. Mediation hypotheses posit how, or by what means, a source variable (in

this case, passion for Facebook) relates to an outcome variable (in this case, Facebook users' well-being) through one or more potential intervening variables, or mediators (in this case, pathological Facebook use) (Preacher & Hayes, 2008).

The Proposed Study

The aim of the present study was to evaluate the association between passion and pathological Facebook use, and between Facebook use and well-being. In addition, levels of pathological Facebook use in women and men were compared. In our proposed model, obsessive passion for Facebook is theorized to predict pathological Facebook use which, in turn, is expected to predict negative well-being outcomes (see Figure 2).

Implications for this line of research include the ability to inform researchers, clinicians, and the public regarding the warning signs that an individual may be using Facebook in an unhealthy manner.

By using the DMP as a framework, the following hypotheses were proposed:

H1) Greater obsessive passion would predict greater pathological Facebook use, whereas greater harmonious passion would predict lower pathological Facebook use, and do so over and above gender and a measure of personality (given that gender and personality are established predictors of some Facebook use behaviours; Andreassen et al., 2012; Ross et al., 2009).

H2) Greater obsessive passion would significantly predict poorer satisfaction with life, less positive emotions, more negative emotions, higher depression, and more loneliness, whereas greater harmonious passion would significantly predict better satisfaction with life, more positive emotions, less negative emotions, lower depression, and less loneliness, and do so over and above age, gender, and personality.

H3) Greater pathological Facebook use would significantly predict poorer satisfaction with life, less positive emotions, more negative emotions, higher depression, and more loneliness.

H4a) The relationship between obsessive passion for Facebook and satisfaction with life, positive and negative emotions, depression, and loneliness would be mediated, at least in part, by pathological Facebook use.

H4b) The relationship between harmonious passion for Facebook and satisfaction with life, positive and negative emotions, depression, and loneliness would be mediated, at least in part, by pathological Facebook use.

H5) Women would report greater pathological Facebook use than men.

In addition to testing the above hypotheses, the following research question was also explored:

H6) What is the association between the frequency of Facebook use behaviors (e.g., posting status updates; posting pictures; playing Facebook games; sharing news of significant positive and negative life events; and social activism on Facebook as reflected by signing petitions, membership in groups related to social issues, seeking out information about social issues, and finding out about community events related to social issues) and pathological Facebook use?

Chapter 3: Methodology

Participants

Power analyses suggested that a minimum sample of 172 participants was required; however, for the sample to be as representative as possible, the aim was to recruit a minimum of 300. In addition, an equal number of male and female participants

was desired. Participants who were of legal age to consent (18+) were recruited through advertisements (Appendix A) on various social networking sites, such as Facebook, Kijiji, and Reddit, in addition to websites aimed at recruiting participants for social psychology research. It is noteworthy that previous research has found that paper-and-pencil and internet data collection methods are generally equivalent in outcomes (Weigold, Weigold, & Russell, 2013).

Sample

A total of 1842 people responded to the study advertisement by clicking on the link. Approximately 1405 individuals were deleted due to only partially completed data. The final sample consisted of 269 females and 168 males (for a total sample of 437), ranging in age from 18-70 years ($M = 29$; 90% between the ages of 18-40). The sample was 86% White/European (374). Most participants were either working full time (43%) or attending school full time (26%). In addition, at the time of data collection, the most common relationship status of participants was not currently dating/single (31%). However, a sizeable number were married (23%) or cohabiting with their partner (16.9%; See Table 2 for a more comprehensive description of participant characteristics).

Measures

Recruitment materials and informed consent. See appendix A and B for information regarding the advertisement for the current study as well as informed consent information that was provided to potential participants.

Demographic questionnaire. Participants were asked to provide general demographic information, such as age, gender, ethnicity and occupation. The demographic questionnaire also included questions regarding their frequency of

Facebook use, and Facebook use behavior (e.g., does the participant use Facebook to post pictures, status updates, play games, etc.; See Appendix C).

The Bergen Facebook Addiction Scale (BFAS). The BFAS (Andreassen et al., 2012) was developed using Young's IADQ (1996) and comprises six items, one for each of the six core features of addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse. Each item is scored on a 5-point Likert scale anchored by the end points *Very Rarely* (1) and *Very Often* (5). Sample questions from the scale are, "I've tried to cut down on my use of Facebook without success" (relapse) and, "I use Facebook so much that it has had a negative impact on my job or studies" (conflict). For the purposes of the current study, higher scores indicated greater pathological Facebook use. The BFAS had good factor structure, reliability ($\alpha = .83$), and validity according to the scale developers (Andreassen et al., 2012). For the current study, the BFAS was also highly reliable ($\alpha = .86$; See Appendix D).

Facebook Passion Scale (FPS). Participants were asked to think about Facebook and to indicate their degree of agreement with each item of the FPS. The FPS was adapted from Vallerand and colleagues' Passion Scale. Vallerand et al. (2003) developed a 14-item questionnaire to evaluate levels of obsessive and harmonious passion. Ratelle et al. (2004) reduced the scale to ten items, five items for harmonious and five items for obsessive passion. The current study modified the wording of scale items to explore Facebook use specifically. Sample questions from this scale are, "I have a tough time controlling my need to use Facebook" (i.e., obsessive passion) and "Facebook allows me to live memorable experiences" (i.e., harmonious passion). Participants' responses to each item were scored using a seven-point Likert scale anchored by the endpoints *Very*

Strongly Disagree (1) and *Very Strongly Agree* (7). Higher scores indicate more obsessive passion or more harmonious passion, respectively, depending on the subscale. Marsh, Vallerand, and colleagues (2013) examined the construct validity (factor structure, reliability, convergent and discriminant validity) of Passion Scale responses for a variety of activities such as leisure, sport, social, work, and education. They found that the same set of items was appropriate for assessing passion across a wide variety of activities. Cronbach alphas have been reported as .78 for harmonious passion and .87 for obsessive passion (Wang et al., 2007). Reliability for the current study was found to be .91 for the Obsessive Passion subscale and .85 for the Harmonious Passion subscale. For the entire FPS, Chronbach's alpha was .86 (see Appendix E).

Patient Health Questionnaire-9 (PHQ-9).The PHQ-9 (Spitzer, Kroenke, & Williams, 1999) is a self-report questionnaire consisting of nine questions asking about depression symptoms such as anhedonia, depressed mood, and suicidality. Participants were asked to choose from a list of options how often they had been bothered by each of these nine symptom items over the last 2 weeks. Items were scored on a 4-point Likert scale anchored by items *Not at all* (0) and *Nearly every day* (3). The sum of the PHQ-9 scores were calculated as a dimensional assessment of participant depression symptoms. Higher scores are reflective of the participant having more serious depression symptoms. This method has been used successfully in previous research (Inagaki et al., 2013), with Cronbach's alphas demonstrating moderate to strong internal consistency (i.e., reported values ranging from .74-.86; Titov et al., 2011). The PHQ-9 was highly reliable in the current study ($\alpha = .91$; see Appendix F).

The Satisfaction with Life Scale (SWLS). The SWLS (Pavot & Diener, 1993) was developed to assess satisfaction with the respondent's life as a whole. Unlike some other measures of well-being, the SWLS does not assess satisfaction with specific life domains, such as health or finances, but allows participants to integrate and weight these domains in whatever way they choose in their overall responding. The scale consists of five items rated on a 7-point Likert scale. The SWLS is a unidimensional scale, therefore item responses are summed to obtain a total satisfaction with life score. Pavot and Diener (2008) reported an average item score of 4 as 'neutral', >6.2 as indicating 'extremely satisfied' and <2 as reflective of being 'extremely dissatisfied'. For the purposes of the current study, the summed total satisfaction with life score was used for all analysis using this scale. According to its developers (Pavot & diener, 2008), life satisfaction as assessed by the SWLS shows a degree of temporal stability (e.g., .54 for 4 years), yet the SWLS has shown sufficient sensitivity to detect change in life satisfaction during the course of clinical intervention. The scale has good reliability, with Cronbach's alphas as high as .90 being reported (Maher, Doerksen, Elavsky, Hyde, Pincus, Ram, & Conroy, 2013), as well as good validity (Pavot & Diener, 2008). The SWLS is one of the most widely-used measures of well-being. For the current study, the SWLS was found to be highly reliable ($\alpha = .92$; see Appendix G).

The Social and Emotional Loneliness Scale for Adults – Short Version (SELSA-S). The SELSA-S (DiTommaso, Brannen, & Best, 2004) is a 15-item, self-report, multidimensional measure of loneliness. It assesses loneliness across three interpersonal domains: social, romantic and family loneliness. Subscales for social, family, and romantic loneliness each contain five items. Within each sub-scale,

participants rate on a 7-point Likert scale the extent to which they agree with statements pertaining to loneliness. The internal consistencies of each of these subscales are very good, with Cronbach alphas of .87, .89, and .90 for romantic, family and social loneliness, respectively. Furthermore, the concurrent, convergent, and discriminant validity of the SELSA-S also has been evidenced (DiTommaso et al., 2004).

Cronbach's alphas for the current study were .89 for the romantic loneliness subscale, .86 for the family loneliness subscale, and .85 for the social loneliness subscale. The full scale was highly reliable ($\alpha = .88$; See Appendix H).

The Positive and Negative Affect Schedule (PANAS). The PANAS (Watson, Clark & Tellegen, 1988) consists of two 10-item mood scales and was developed to provide brief measures of positive and negative affect. Its items were derived from a principal components analysis of Zevon and Tellegen's (1982) mood checklist, which broadly tapped the affective lexicon. Respondents were asked to rate the extent to which they have experienced each particular emotion over the last two weeks, using a 5-point scale (1 *very slightly or not at all*, 2 *a little*, 3 *moderately*, 4 *quite a bit* and 5 *very much*). Cronbach alphas for the positive and negative affective subscales have demonstrated good internal consistency (i.e., .89 and .85, respectively; Crawford & Henry, 2004), and the measure is a time-efficient instrument appropriate for use with a non-clinical sample. The positive affect subscale for the current study had a Cronbach's alpha of .91, with .90 for the negative affect subscale, and .87 for the full scale (see Appendix D).

The Big Five Inventory-10 (BFI-10). The BFI-10 (Rammstedt & John, 2007) is a brief 10-item questionnaire that was developed as an abbreviated version of the original 44-item BFI. Each of the five personality factors assessed by the BFI (neuroticism,

extraversion, openness to experience, agreeableness, and conscientiousness) consists of two items. Items were selected based on the consideration of several factors, such as maintaining one true-scored and one false-scored item for each subscale, selecting two items that measured core aspects of a Big Five dimension without being highly redundant, and selecting items based on corrected item-total correlations with the full BFI and the simple structure pattern of their loadings in factor analyses of all 44 items. All 10 items are rated on a 5-point likert scale ranging from *Disagree Strongly* to *Agree Strongly*. Cronbach alphas for the BFI-10 have demonstrated good internal consistency (i.e., .alphas of .55 to .80 have been reported; Erdle & Rushton, 2011). In addition, the scale developers report that the BFI-10 retains significant levels of reliability and validity (Rammstedt & John, 2007). Rammstedt and John did caution that effect sizes were found to be lower than for the full BFI, but stated that the BFI-10 is still sufficient for research settings with limited time constraints. For the current study, reliabilities were .23 for openness to experience, .32 for conscientiousness, .62 for extraversion, .35 for agreeableness, and .62 for neuroticism. Chronbach's alpha for the full BFI was .29. (See Appendix J). Given that the BFI-10 was used as a control variable for the purposes of the present study, all subscales were used in analyses, despite low alphas. In addition, low reliability and validity are a common occurrence for brief personality scales. Some have suggested that common reliability indicators are not always appropriate for judging the quality of scales with a minimal number of items (Rammstedt & Beierlein, 2014).

Procedure

Participation in the study involved the completion of a questionnaire package

requiring approximately 35 minutes. The questionnaire package was made available on Checkbox, an online survey platform. Participants were directed to the secure website and asked to complete a package including measures of passion for Facebook, pathological Facebook use, well-being, personality, and a demographic questionnaire which included questions pertaining to Facebook use characteristics. Those who met the requirement of being of legal age to consent in their country of residence (e.g., 18+ in Canada) read an informed consent page (Appendix B) with a brief description of the study including its purpose and objectives, estimated time to completion, and anticipated benefits. Following this information, participants were asked for their consent to participate by choosing one of two options, either “I consent” or “I do not consent”. Participants were also informed that they could withdraw from the study at any time. Statements of encouragement were displayed across the top of each new page of questionnaire items in an effort to minimize dropouts. Upon completion of the questionnaire package, all participants were automatically redirected to a debriefing page (Appendix K) and given the opportunity to enter their contact information (e.g., email address) into a draw for a chance to win one of three \$25 Visa gift cards (Appendix L). If participants chose to enter their names into the draw, they were then invited to click on a second, secure link directing them to a separate website to enter their contact information. Participant’s survey responses could in no way be linked to any identifying information.

Chapter 4: Results

Prior to conducting the analyses, data were cleaned and conditioned. No changes were made to the small amount of missing data. Results of a missing values analysis suggested that data was missing at random. As recommended by Tabachnick and Fidell

(2013) variables were evaluated for outliers. No univariate outliers (i.e., greater than ± 3 standard deviations from the mean and discontinuous with the distribution) were present. Multivariate outliers were assessed by calculating Mahalanobis Distances and Cook's distances. There were no problematic multivariate outliers. Overall, the data was found to have no major violations of assumptions of normal distribution, linearity, and homogeneity of variance. However, some Facebook use variables (e.g., posting pictures) were found to have significantly differing variances. To address this issue, the Games Howell (GH) was used in place of Tukey HSD to analyze mean differences between groups, given that the GH test is considered robust against such violations (Field, 2013).

Internet and Facebook Use Characteristics

As indicated in Table 3, almost half of the sample (47.4%) reported spending four or more hours per day using the internet, with slightly more than half (53.1%) reporting spending between 30 minutes and two hours of that time on Facebook. Participants most frequently reported checking Facebook four or more times per day (72.5%). The primary reasons reported for using Facebook were to communicate with friends and family (46.9%), or to look at, or read, friends' posts and pictures (39.1%). Interestingly, most participants (41.4%) reported using their cellular phone to spend time on Facebook, whereas a smaller portion used a computer (29.5%) or a cellular phone and computer equally (27.5%) to access the platform (see Table 4).

Facebook Activities: Social Activism and Facebook Games

Almost half of the sample (45%) reported taking part in social activism activities on Facebook (e.g., signing and sharing petitions, organizing or finding information about protests and rallies, etc.) either a few times a year or less, or never. However, the

remaining half reported regular participation in social activism, with most reporting taking part in these types of activities once or twice monthly (13.7%) or two or more times weekly (12.6%). Another 11.5% reported engaging in these activities at least once, and up to six times per day. A significant majority of the sample reported either never playing Facebook games (68.2%), or a few times per year or less (11.4%). Only a small number reported playing Facebook games once or multiple times per day (10.8%) (see Table 5).

Facebook Activities: Post Pictures, Post Status (positive and negative)

Approximately one-third of participants reported posting pictures once or twice monthly (29.1%). Another one-third of the sample reported posting pictures weekly or daily. Participant responses were evenly distributed across many of the response options for frequency of posting statuses on Facebook. Participants most often reported posting statuses a few times per year or less (21.3%), once or twice monthly (17.8%), or 2 or more times weekly (15.3%). When broken down into whether individuals posted positive or negative statuses, participants most frequently reported posting positive statuses (i.e., announcement of a positive life event such as a new job or baby) a few times per year or less (35%). Half of the sample (50.3%) reported that they had never posted a negative status (i.e., announcement of a negative life event such as a loss of a job or death of a family member; see Table 6).

Facebook Activities: Sharing Links, Checking Own Facebook Wall, Checking Others' Facebook Wall, Sending Private Messages

Participants most often reported sharing links on Facebook (e.g., sharing web links to news articles) once or twice monthly (22.4%) or two or more times weekly

(19.5%). However, responses were relatively evenly distributed across the other response options. The same was also true for frequency of individuals checking their own wall or checking others' walls. Few participants reported taking part in these types of Facebook activities multiple times per day. Private messaging, on the other hand, was one activity that participants reported engaging in frequently. Participants most often reported private messaging others two or more times weekly (25.4%), two to three times per day (15.3%) or 6 or more times per day (13.5%; see Table 7).

Description of Predictor and Mediator Variables

Table 8 contains the descriptive statistics for the scales and subscales used to measure Loneliness, Passion for Facebook, Positive and Negative Affect, Satisfaction With Life, Personality, Pathological Facebook Use, and Depression. Zero-order correlations between these measures are presented in Table 9.

As indicated in Table 10, there were modest correlations between age, gender, and the scales and subscales of interest to the current study. Gender (coded as 1 = female, 2 = male) was significantly related to Romantic Loneliness, $r(438) = .18, p \leq .001$, Family Loneliness, $r(437) = .18, p \leq .001$, and Social Loneliness, $r(437) = .19, p \leq .001$. Being female was also significantly related to higher Satisfaction With Life, $r(436) = -.20, p \leq .001$, higher Conscientiousness, $r(434) = -.10, p = .043$, higher Neuroticism, $r(434) = -.22, p \leq .001$, and lower Depression scores, $r(436) = .12, p = .01$. In terms of the Facebook use related variables, being female was also significantly related to greater Obsessive Passion scores, $r(436) = -.12, p = .01$. Additionally, older age was significantly related to lower negative affect $r(436) = -.22, p \leq .001$, higher conscientiousness $r(436) =$

.18, $p \leq .001$, lower neuroticism $r(436) = -.13, p = .006$, and lower depression $r(436) = -.16, p = .001$.

Hypotheses

Hypotheses 1 and 2. Hypotheses 1 and 2 were assessed via hierarchical multiple regression. In each model, age and gender were entered at step one, with personality entered at step two, as a means for controlling their variance so that the relationships between the variables under investigation (passion for Facebook and pathological Facebook use) could be more clearly examined. Predictors under investigation were then entered third in each model. For H1 α was set at .05. To control for type 1 errors, α was set at .01 for H2, given that seven multiple regressions were conducted

Hypothesis 1. As noted above, a three step hierarchical multiple regression was conducted with pathological Facebook use as the dependent variable. Age and gender were entered at step one of the regression, with the Big Five personality traits of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism entered at step two. Obsessive and harmonious passion were entered at step three. It was hypothesized that greater obsessive passion for Facebook would predict greater pathological Facebook use, whereas greater harmonious passion would predict lower pathological Facebook use, over and above age, gender, and personality. Results revealed that the overall model was statistically significant, accounting for 48% of the variance, Adjusted $R^2 = .53, [F(9, 423) = 55.06, p \leq .001]$. More specifically, greater obsessive passion was a significant predictor of higher pathological Facebook use, as measured by the Bergen Facebook Addiction Scale, over and above the control variables. However, results were not in the expected direction for harmonious passion. Instead,

greater harmonious passion for Facebook predicted greater pathological Facebook use, over and above personality (see Table 11).

Hypothesis 2. It was hypothesized that greater harmonious passion would significantly predict better satisfaction with life, more positive emotions, less negative emotions, lower depression, and less loneliness over and above age, gender, and personality. Additionally, it was predicted that greater obsessive passion would significantly predict poorer satisfaction with life, less positive emotions, more negative emotions, higher depression, and more loneliness over and above age, gender, and personality. As displayed in Table 12, greater obsessive passion did not significantly predict poorer satisfaction with life $t(422) = -.62, p = .53$; positive affect, $t(423) = -.18, p = .86$; or romantic loneliness, $t(423) = .92, p = .36$ over and above age, gender, and personality. However, higher obsessive passion was found to uniquely and significantly predict greater negative affect, $t(423) = 3.61, p \leq .001$; depression $t(422) = 4.38, p \leq .001$; family loneliness, $t(423) = 3.12, p = .002$; and social loneliness, $t(423) = 2.83, p = .01$. When examining Harmonious Passion, as Table 12 indicates, and contrary to expectations, greater harmonious passion did not significantly predict better satisfaction with life $t(422) = .13, p = .90$; positive affect, $t(423) = 1.29, p = .86$; negative affect, $t(423) = -.79, p = .43$; romantic loneliness, $t(423) = 1.30, p = .195$; family loneliness, $t(423) = -1.75, p = .08$; social loneliness, $t(423) = -.38, p = .08$; or depression, $t(422) = .99, p = .32$ over and above age, gender, and personality.

Hypothesis 3. The third hypothesis noted that greater pathological Facebook use would significantly predict poorer satisfaction with life, less positive emotions, more negative emotions, higher depression, and more loneliness. Gender was entered at step

one as a control variable given gender differences found in the development of the BFAS. Alpha was set at .01 to control for type I errors. As indicated by Table 13, greater pathological Facebook use predicted poorer satisfaction with life, $F(1, 433) = 14.35, p \leq .001$; less positive emotions, $F(1, 434) = 6.85, p = .01$; more negative emotions, $F(1, 434) = 36.80, p \leq .001$; higher depression, $F(1, 433) = 76.80, p \leq .001$; more romantic loneliness, $F(1, 434) = 18.67, p \leq .001$; more family loneliness, $F(1, 434) = 18.21, p \leq .001$; and more social loneliness, $F(1, 434) = 17.40, p \leq .001$.

Hypothesis 4. The bootstrapping method was utilized to conduct the mediational analyses. Bootstrapping employs a process of resampling from the data set for the purpose of statistical inference to assess the indirect effects (i.e., mediation; the paths between the independent variable and the mediators, and between the mediators and the dependent variable [*ab* paths]) even when statistical assumptions are violated (i.e., normality, Efron & Tibshirani, 1993; Preacher & Hayes, 2008). In accordance with the recommendations offered by Preacher and Hayes (2008), 5000 samples were requested. Confidence intervals (CI; 99%) generated for each analysis were mainly assessed to determine the statistical significance of the indirect effects. If the confidence intervals contained zero, then the indirect or mediational effects were deemed not significant (Wagner, 2013). The *a* path (i.e., the path between the independent variable and the mediator), *b* path (i.e., the path between the mediator and the dependent variable), and *c'* path (i.e., the path between the independent variable and dependent variable; Preacher & Hayes, 2008; Wager, 2013) were also examined in order to determine whether partial or full mediation was achieved. Partial mediation occurs when the *a* and *b* paths, as well as the *c'* path are statistically significant, whereas full mediation occurs when only the *a* and

b paths are significant (Wager, 2013). Each analysis consisted of one independent variable (obsessive or harmonious passion for Facebook), one dependent variable (well-being index) and one mediator (pathological Facebook use) (see Figure 3 for an illustration of the proposed mediational model).

Obsessive and Harmonious Passion

H4a and H4b) The fourth hypothesis predicted that the relationship between obsessive and harmonious passion for Facebook and satisfaction with life, positive and negative emotions, depression, and loneliness would be mediated at least in part by pathological Facebook use.

Satisfaction with life. Results demonstrated that pathological Facebook use significantly mediated the relationship between obsessive passion for Facebook and satisfaction with life ($b = -.92$, $CI = -1.72, -.19$). As demonstrated in Figure 4, the path from obsessive passion to pathological Facebook use and the path from pathological Facebook use to Satisfaction With Life were both statistically significant. Additionally, given that the path from obsessive passion to satisfaction with life was not significant, this is considered a full mediation (i.e., only the *a* and *b* paths are significant). Results demonstrated that pathological Facebook use significantly mediated the relationship between harmonious passion for Facebook and satisfaction with life ($b = -.21$, $CI = -.45, -.01$). The path from harmonious passion to pathological Facebook use and the path from pathological Facebook use to satisfaction with life were statistically significant. Given that the path between harmonious passion and satisfaction with life was not significant, this can be considered a full mediation.

Positive affect. Pathological Facebook use was not a statistically significant mediator between obsessive passion for Facebook and positive affect, ($b = -.81$, $CI = -1.75, .01$). The direct path between obsessive passion for Facebook and positive affect was also not significant, b (unstandardized coefficient) = $.91$, $p = .03$. (see Figure 4). Pathological Facebook use was also not a statistically significant mediator between harmonious passion for Facebook and positive affect, ($b = -.19$, $CI = -.47, .02$). The direct path between harmonious passion for Facebook and positive affect was also not significant, b (unstandardized coefficient) = $-.18$, $p = .03$ (see Figure 5).

Negative affect. Results demonstrated that pathological Facebook use significantly mediated the relationship between obsessive passion for Facebook and negative affect ($b = .84$, $CI = .02, 1.75$). The path from obsessive passion to pathological Facebook use and the path from pathological Facebook use to negative affect were statistically significant. In addition, given that the path between obsessive passion and negative affect was not significant, this can be considered a full mediation. Pathological Facebook use also significantly mediated the relationship between harmonious passion for Facebook and negative affect ($b = .37$, $CI = .11, .69$). The path from harmonious passion to pathological Facebook use and the path from pathological Facebook use to negative affect were statistically significant. Also, given that the path between harmonious passion and negative affect was not significant, this can be considered a full mediation (see Figure 6).

Depression. Pathological Facebook use was found to significantly mediate the relationship between obsessive passion for Facebook and depression ($b = 1.11$, $CI = .54, 1.72$). The path from obsessive passion to pathological Facebook use and the path from

pathological Facebook use to depression were statistically significant (see Figure 7). Given that the path between obsessive passion and depression was not significant, this can be considered a full mediation. Pathological Facebook use also significantly mediated the relationship between harmonious passion for Facebook and depression ($b = .39$, $CI = .19, .64$). As demonstrated in Figure 6, this relationship also can be considered a full mediation.

Romantic loneliness. Results demonstrated that pathological Facebook use significantly mediated the relationship between obsessive passion for Facebook and romantic loneliness ($b = .26$, $CI = .10, .45$). As demonstrated in Figure 7, the path from obsessive passion to pathological Facebook use and the path from pathological Facebook use to romantic loneliness were statistically significant. This can be considered a full mediation given that the path between obsessive passion and romantic loneliness was not significant. Additionally, results demonstrated that pathological Facebook use significantly mediated the relationship between harmonious passion for Facebook and romantic loneliness ($b = .06$, $CI = .02, .12$). As demonstrated in Figure 8, this relationship also can be considered a full mediation.

Family loneliness. Results demonstrated that pathological Facebook use significantly mediated the relationship between obsessive passion for Facebook and family loneliness ($b = .13$, $CI = .02, .26$). As demonstrated in Figure 9, these results can be considered a full mediation. In addition, results demonstrated that pathological Facebook use significantly and fully mediated the relationship between harmonious passion for Facebook and family loneliness ($b = .06$, $CI = .02, .10$).

Social loneliness. Pathological Facebook use was not a statistically significant mediator between obsessive passion for Facebook and social loneliness, ($b = .12$, $CI = -.004, .27$). The direct path between obsessive passion for Facebook and social loneliness was also not significant, b (unstandardized coefficient) = $-.02$, $p = .03$. However, results demonstrated that pathological Facebook use did significantly mediate the relationship between harmonious passion for Facebook and social loneliness ($b = .05$, $CI = .01, .10$), such that Harmonious Passion significantly negatively predicted pathological Facebook use, and pathological Facebook use predicted social loneliness. The path from harmonious passion to pathological Facebook use and the path from pathological Facebook use to social loneliness were statistically significant. Given that the path between harmonious passion and social loneliness was not significant, this can be considered a full mediation (see Figure 10).

Hypothesis 5. It was hypothesized that women would report greater PFU than men. This hypothesis was not supported. Results of a 2-tailed t -test revealed that women ($M = 11.54$) and men ($M = 10.55$) were not significantly different on levels of PFU, $t(505) = 2.178$, $p = .924$.

Hypothesis 6. Facebook use behaviors such as posting status updates, posting pictures, playing Facebook games, sharing news of significant life events (positive and negative), and social activism on Facebook (e.g., signing petitions, membership in groups related to social issues, seeking out information about social issues, and finding out about community events related to social issues) and pathological Facebook use were assessed using a series of one-way ANOVAs. Alpha was set at .05. Significant main effects were

followed up with Games-Howell (G-H) post-hoc tests. The latter is a modification of the Tukey HSD test and is robust to violations of homogeneity of variance and unequal n's.

Time spent using the internet by PFU. Results demonstrated there was no significant effect of time spent using the internet on pathological Facebook use (see Tables 14 and 15).

Frequency of checking Facebook by PFU. Results demonstrated that there was a significant effect of frequency of checking Facebook on pathological Facebook use. Post hoc tests suggested individuals who checked Facebook six or more times per day scored significantly higher on pathological Facebook use relative to those who checked once per day or less (see Tables 16 and 17).

Time spent checking Facebook by PFU. Results demonstrated that there was a significant effect of time spent checking Facebook on pathological Facebook use. Post hoc results suggest those who reported spending more time per day checking Facebook had higher PFU scores than those who reported checking Facebook for 10 minutes per day or less (see Table 18 and 19).

Medium used. Results demonstrated that there was no significant effect of the medium used (i.e., cell phone, laptop or desktop computer), to access Facebook on pathological Facebook use (see Tables 20 and 21).

Social activism. Results demonstrated that there was a significant effect of engaging in social activism while on Facebook on pathological Facebook use. Post hoc results demonstrate that those who reported taking part in social activism on Facebook two or more times weekly scored significantly higher on PFU than those who reported never engaging in social activism on Facebook (see Tables 22 and 23).

Facebook games. Results demonstrated that there was a significant effect of playing games on Facebook (i.e., Farmville) on pathological Facebook use. Response options were collapsed into two categories given low number of responses for the majority of response options. Post hoc results demonstrate that those who reported playing Facebook games (i.e., Candy Crush) a few times per year or more had significantly higher PFU scores than those who reported never playing Facebook games (see Tables 24 and 25).

Frequency of posting pictures. Results demonstrated that there was a significant effect of frequency of posting pictures on pathological Facebook use. Post hoc test suggest pathological Facebook use scores were significantly higher for those who reported posting pictures on Facebook two times per week or more compared to those who reported posting once weekly or less (see Tables 26 and 27).

Frequency of posting general statuses. Results demonstrated that there was a significant effect of frequency of posting general statuses on pathological Facebook use. An examination of group differences suggests, for example, that those who reported posting general statuses on Facebook once daily or more were more likely to use the platform pathologically than those who reported never posting general statuses (see Tables 28 and 29).

Frequency of posting positive statuses. Results demonstrated that there was a significant effect of frequency of posting positive statuses on pathological Facebook use. An examination of group differences demonstrated that pathological Facebook use scores were higher for those who reported posting positive statuses on Facebook once weekly or

more as compared to those who reported never posting positive statuses (see Tables 30 and 31).

Frequency of posting negative statuses. Results demonstrated that there was a significant effect of frequency of posting negative statuses on pathological Facebook use. Post hoc test results suggested those who reported posting negative status updates from once or twice monthly up to 4-5 times per day had significantly higher PFU scores than those who post negative statuses a few times per year or less, or never (see Tables 32 and 33).

Frequency of sharing links. Results demonstrated that there was a significant effect of frequency of sharing links on pathological Facebook use. Post hoc test results reveal that higher PFU scores for those who reported sharing links on Facebook multiple times per day than those who reported either never sharing links on Facebook, or only sharing links a few times per year (see Tables 34 and 35).

Frequency of checking own wall. Results demonstrated that there was a significant effect of frequency of checking one's own Facebook wall on pathological Facebook use. Post hoc test suggest the largest statistically significant difference in pathological Facebook use scores was between those who reported checking their own wall 4-6 times per day, and those who reported never checking their own Facebook wall, such that those who checked their own wall multiple times per day reported higher pathological Facebook use (See Tables 36 and 37).

Frequency of checking others' walls. Results demonstrated that there was a significant effect of frequency of checking others' walls on pathological Facebook use. An examination of the largest group differences suggests those who reported checking

others' Facebook walls up to 4-6 times per day reported significantly higher pathological Facebook use than those who reported never checking others' walls. Interestingly, those who reported checking others' walls once daily had significantly higher PFU scores than those who checked others' walls once weekly (see Tables 38 and 39).

Frequency of private messaging. Results demonstrated that there was a significant effect of frequency of private messaging on pathological Facebook. Post hoc test results reveal those who reported private messaging people on Facebook 4-6 or more times per day were more likely to report using Facebook in a more pathological manner than those who reported never private messaging people (see Table 40 and 41).

Chapter 4: Discussion

The purpose of the present dissertation was to investigate whether the Dualistic Model of Passion (the DMP; Vallerand et al., 2003) could be applied to further understand motivations for using Facebook and the various outcomes its users have been found to experience. In our proposed mediational model, pathological Facebook use was expected to mediate the relationship between obsessive and harmonious passion and well-being outcomes. More specifically, it was argued that the more obsessively passionate an individual's Facebook use was, the more likely they would be to use Facebook in a pathological manner, which, in turn, would predict negative well-being outcomes. Alternatively, harmonious passion for Facebook was expected to be related to lower levels of pathological use and therefore associated with positive effects on well-being. Levels of pathological Facebook use in women and men were also compared. In addition, different Facebook use behaviors, such as posting statuses and pictures, and their relation to pathological use, were explored.

Some researchers have suggested that an examination of peoples' motivations for using technology and the internet could help clarify factors that contribute to pathological use (Seguin-Levesque et al., 2003). According to the DMP, many behavioral addictions (e.g., gambling) are not inherently bad for us, but instead can be good or bad depending on why we engage in these behaviors and how they have been internalized into the self (Vallerand et al., 2003). Vallerand and colleagues suggested that this variation is due to people developing either an obsessive or harmonious passion for the activities we engage in. According to this model, obsessive passion develops due to certain contingencies being attached to the activity (i.e., rewards or punishments), or because the sense of excitement derived from engagement in the activity is difficult to control. On the other hand, when a person takes part in an activity in a harmonious way, individuals do not experience an uncontrollable urge to engage in the activity, but instead freely choose to do so of their own volition.

An argument for an examination of Facebook use in isolation from other more general internet use is based on Young's (1996) early research on pathological internet use (PIU). Young was able to determine that individuals who use social applications online are 5-7 times more likely to be considered "dependent" users than those who report using the internet for information-gathering purposes. In fact, these users' self-reported internet use behavior was validly measured using an instrument that had originally been a pathological gambling measure (Young, 1996). The valid measurement of PIU using a modified gambling measure would suggest that the same underlying mechanisms could explain both pathological gambling and pathological engagement with social applications on the internet. Additionally, Facebook has been found to be

associated with both positive and negative outcomes in terms of users' self-reported well-being. For example, use of the platform has been found to positively predict self-esteem through the stimulation of relationships formed on the site and positive feedback on Facebook profiles (Valkenburg, Peter, & Schouten, 2006), whereas social loneliness and social avoidance also have been found to be positively related to Facebook use (Lemieux, Lajoie, & Trainor, 2013; Jin, 2013, Song et al., 2014). These mixed results highlight the importance of further examining what factors may contribute to why some of us are able to use Facebook in a way that is balanced with other responsibilities, while others are not. The DMP's concept of obsessive and harmonious passion has demonstrated potential for clarifying mixed findings of this nature. For example, an individual could develop a passion for a leisure activity, in this case, Facebook, that is harmonious and in line with the person's values, or they could develop a passion that is obsessive and that they have difficulty controlling. In theory, these two types of motivations determine whether one could continue to engage with Facebook in a manner that is balanced with other of life's responsibilities or whether they could go on to develop a pathological pattern of use. In turn, both motivational drives would predict what kind of psychosocial outcomes a user might experience as a consequence of their Facebook use.

Finally, although at first glance obsessive passion would appear to share similar qualities to the concept of addiction (i.e., engaging in behavior that is difficult to control), having an obsessive passion for an activity means having a difficulty controlling the behavior, but perhaps not at a level with which it significantly interferes with life in the way having an addiction would. Thus, when the DMP has been used to understand other behavioral pathologies, passion is said to predict levels of addiction. For example, the

DMP has been successfully used to understand what determines not only which people are most prone to pathologically engage in behaviors such as gambling (Ratelle et al., 2004; Mageau et al., 2005) and online gaming (Wang & Chu, 2007), but also for understanding what types of outcomes these users are more prone to experience based on these two types of motivation.

Prior to summarizing the findings related to the proposed mediational model, the relationship between pathological Facebook use and some of the more commonly observed and utilized Facebook behaviors will be discussed.

Exploratory: Facebook Use Behaviors and Pathological Facebook Use

The purpose of this exploratory analysis was to determine whether certain users are more likely to engage with Facebook pathologically based on what they are doing while on the platform. More specifically, the current study examined whether users are more likely to use Facebook pathologically depending on whether, or how frequently, they are posting status updates or pictures, playing Facebook games, sharing news of significant life events (positive and negative), checking their own Facebook wall or others' walls, private messaging, sharing links, or taking part in social activism (e.g., signing petitions, membership in groups related to social issues, etc.). Levels of Pathological Facebook Use amongst the participants of the present study are first discussed briefly to provide some additional context.

The Bergen Facebook Addiction Scale's (BFAS; Andreassen et al., 2012) developers did not examine specific cut-off scores for pathological use in their original research. Instead, they suggested that identification of such thresholds should be pursued in further studies. However, more recent research examining Facebook addiction and

loneliness (Shettar, Karkal, Kakunje, Mendonsa, & Chandran, 2017) made use of cut-off scores of 0-10 to indicate “normal” usage, 11-14 to indicate “the possibility of Facebook addiction” and 15 and above to indicate “Facebook addiction”. Based on these suggested interpretive categories, approximately half of participants in the present study (52.9%) were in the normal usage category, a quarter (23.5%) were in the possible Facebook addiction category, and a quarter (23.6%) were in the Facebook addiction category. Similarly, Shettar and colleagues’ sample’s BFAS scores could be divided as 41%, 33%, and 26%, respectively. A comparison between the current study and data obtained from Shettar and colleagues suggests that the participants of the present study have similar levels of pathological Facebook use. In further support of the consistency in level of Facebook use, Young, Kuss, Griffiths, and Howard, (2017) also found a mean BFAS score of 12.80 compared to the mean BFAS score of 11.18 of the current study.

Findings of the exploratory analyses demonstrate that the time users spend surfing the internet in general, and the medium with which they browse Facebook (e.g., laptop versus cellular phone), had little to do with their level of pathological use. On the other hand, it was consistently found that the more times per day people posted pictures, updated their statuses (whether of general information about their lives, or about positive or negative life events), took part in social activism, shared links, checked their own and others’ walls, and private messaged people on Facebook, the greater their reported levels of pathological Facebook use.

These above findings are interesting in the context of previous research that makes a distinction between two types of Facebook use: active and passive use (Burke, Marlow, & Lento, 2010). Active Facebook use behaviors, also referred to as directed

communication, are those behaviors that facilitate interaction between the user and other Facebook users, such as private messaging or posting on other people's Facebook walls. Passive Facebook use behaviors, on the other hand, involve monitoring other people's Facebook activity without exchanges between users. Actively using Facebook for directed communication is linked to increased social capital and decreased loneliness in users. On the other hand, passive Facebook use, also referred to as content consumption (e.g., passively scrolling through Facebook, browsing friend's walls, reading comment sections of posts, etc.) is tied to reduced social capital and increased loneliness (Burke, Marlow, & Lento, 2010). Thus, based on these findings, one might expect that the current study would find a similar division in terms of active and passive behaviors and PFU. For example, one might expect to find that the more often people are actively communicating with friends through private message, the less lonely they would be, especially given that either positive or negative outcomes depend, at least in part, on not only the type of communication users are engaging in (e.g., active versus passive), but also on the strength of the relationship between the user and the person they are communicating with (Burke & Kraut, 2016). In turn, someone who is benefiting from their directed communication on Facebook would presumably not be engaging with Facebook pathologically. However, the findings of the current study suggest that the more participants engaged in both active (i.e., private messaging) and passive (i.e., browsing others' Facebook walls) communication on Facebook, the higher levels of pathological Facebook use they reported. This unexpected finding would suggest that there is a certain point at which even typically healthy interactions can become pathological. In particular, even when people are engaging directly with their Facebook

friends (i.e., sending private messages), if they report engaging in these types of behaviors multiple times per day, then they are more likely to be using Facebook in a more pathological manner than those who report never engaging in these behaviors, or only engaging occasionally. The construct of escapism (i.e., avoiding stressors by escaping to the online world) predicts both active and passive Facebook use behavior (Frison & Eggermont, 2016). Therefore, when the motive of escaping from life stressors is what is at the foundation of someone's Facebook use, then this experience may help explain why some users are prone to engage in even typically healthy behaviors at a higher frequency and morph into pathological use levels as this healthy use becomes problematic. Additionally, it is clear that the frequency with which individuals are engaging in behaviors on Facebook (i.e., returning multiple times per day) continues to be associated with pathological use. These findings are also consistent with more recent longitudinal research that found that the more users "liked" things on Facebook, clicked links, or updated statuses over a three year period, the lower their overall mental health (Shakya & Christakis, 2017).

When considering the mixed findings of the present study, particularly in light of previous research, at least one conclusion is clear; it is not enough to say that social media sites like Facebook are entirely harmful or harmless. Use of social networking sites is a complex activity that requires more nuanced attention to better understand its role and influence on our mental health and well-being. The current study attempted to parse out some of these contributing factors in light of an individual's motivations for using Facebook. As will be discussed below, in an effort to highlight the relationships among the variables included in the model, the relationship between an individual's

passion for Facebook, and their level of pathological Facebook use, in addition to the influence of passion on well-being, will be outlined. As well, both obsessive and harmonious passion will be discussed separately for purposes of clarity.

Obsessive Passion and Pathological Facebook Use

Research has already applied the DMP to the understanding of pathological engagement in non-substance related activities such as problem gambling (Ratelle et al., 2004), pathological use of online games (Wang & Chu, 2007), online shopping (Wang & Yang, 2008) and general internet activities (Tosun & Lajunen, 2009). This research has consistently demonstrated that obsessive passion for an activity tends to predict pathological engagement in that activity.

Results from the current study were in line with the broader research. Unsurprisingly, the more obsessively passionate an individual was with regards to their Facebook use, the more they engaged with Facebook at a pathological level (e.g., being preoccupied with Facebook when engaging in other activities, having difficulty controlling, cutting down, or stopping Facebook use, etc.). This finding was true even when accounting for age, gender, and personality. In the present study, personality was used as a control variable given that it is a relatively well-established predictor of some Facebook use behaviours (Ross et al., 2009). For example, those higher in conscientiousness and agreeableness have been found to be less likely to post statuses about problematic content (e.g., content related to drug use; Karl, Peluchette, & Schlaegel, 2010).

Obsessive Passion and Well-being

In terms of the relationship between passion and well-being outcomes, it was predicted that obsessive passion for Facebook would be associated with poorer well-being. Findings indicated that greater obsessive passion for Facebook was related to the experience of greater negative affect, depression, family loneliness, and social loneliness. These results are consistent with previous findings of the association between obsessive passion and negative outcomes for people who take part in activities such as gambling (Mageau et al., 2005; Ratelle et al., 2004) and even physical activity (Rousseau and Vallerand, 2008). Additionally, more recent findings about the connection between obsessive passion for more modern technologies, such as online media streaming and Facebook, have continued to confirm the notion that engaging in an activity obsessively, such that it interferes with functioning in other life domains, is associated with poorer scores on various indices of well-being (Orosz et al., 2016). On the other hand, greater obsessive passion did not significantly predict poorer satisfaction with life, less positive affect, or greater romantic loneliness. Other research has found that when heavy Facebook users were prompted to temporarily reduce or completely stop their Facebook use over two days, increases in life satisfaction were reported (Hinsch & Sheldon, 2007). Thus, results of the current study are partly inconsistent with previous research. However, the current study is not the first study to find mixed relationships among obsessive passion and maladaptive outcomes of social media use. In fact, obsessive passion has been more recently found to be tied to adaptive outcomes, such as persistence in an activity (Orosz et al., 2016). Findings such as these would suggest that while obsessive

passion does in fact have a clear negative association with users' well-being in many respects, other aspects of well-being may remain unaffected despite problematic use.

In sum, obsessive passion for Facebook does predict poorer overall well-being outcomes for its users as expected. With a better understanding of individual relationships between obsessive passion, pathological Facebook use, and well-being outcomes, the next step of the current dissertation was to more closely examine relationships between harmonious passion, pathological Facebook use, and well-being.

Harmonious Passion and Pathological Facebook Use

Examinations of the relationship between the DMP and problematic gambling and online gaming has consistently demonstrated that harmonious passion does not predict pathological engagement in an activity, and, in fact, often predicts lower levels of pathological use (Ratelle et al., 2004; Wang & Chu, 2007; Wang & Yang, 2008).

Contrary to expectations, however, greater harmonious passion was not associated with lower pathological Facebook use in the current study. In fact, a relationship was found in the opposite direction. The more harmonious someone's passion for Facebook, the greater pathological Facebook use they reported, even when controlling for the contribution of age, gender, and personality. It is worth noting that despite this unexpected finding, harmonious passion only accounted for a small percentage of the variance over and above the control variables of age, gender, and the Big Five personality traits of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Additionally, findings of the current study showed that average levels of both harmonious and obsessive passion across participants were relatively low. This would suggest that participants were not as passionate about their Facebook use as they

may be for gambling and online gaming. Nevertheless, these results are even more intriguing given that numerous studies suggest harmonious passion either has no association with pathological engagement in non-substance related activities, or is predictive of lower levels of pathological engagement in activities, such as gambling (Ratelle et al., 2004).

A number of authors have noted that there is something about the use of social applications in particular that appears to put people more at risk for pathological use (Young, 1996; Chang & Law, 2008). Thus, the current study's unexpected finding that harmonious passion was positively associated with pathological Facebook use could be related to the social nature of the platform. It is possible that motivations for using Facebook may not be as influential in terms of the types of outcomes individuals experience despite harmonious motivations for using the site.

In order to clearly delineate whether the findings of the current study regarding harmonious passion and its association with pathological Facebook use are valid, the findings would have to be replicated. Although there is a paucity of research examining the relationship between passion and Facebook use, it is worth noting that one study does exist (Orosz et al., 2016). Contrary to the current study, these researchers did not find a positive association between harmonious passion for Facebook use and pathological use. Only obsessive passion, not harmonious passion, predicted what the researchers referred to as "Facebook overuse" (Orosz, Toth-Kiraly, & Bothe, 2015). Facebook overuse was assessed by having participants respond to items such as, "It happens that I use Facebook instead of sleeping". However, the Facebook overuse construct used by Orosz and colleagues' was not assessed using the same modified gambling measure that was used in

the present study to measure pathological Facebook use (the Bergen Facebook Addiction Scale; BFAS; Andreassen et al., 2012). Instead, Orosz and colleagues used a measure of what they referred to as Facebook Intensity. The use of different outcome measures between the current study and Orosz and colleagues' study would make it difficult to compare the findings of both studies. For example, it is possible that the two measures have assessed different constructs and thus this could explain why the relationship between harmonious passion and outcome measures would be different.

More specifically, the Facebook Intensity Scale (FIS; Orosz et al., 2016) consists of the four subscales of Boredom (using Facebook to relieve boredom), Self-expression (frequently updating one's profile as a function of impression management), Persistence (needing to check Facebook before bed and valuing Facebook as an important platform), and Overuse (using Facebook even when one does not have time to do so). As mentioned, it was only the Overuse subscale that Orosz and colleagues made use of in their analysis of pathological Facebook use and passion. The overuse subscale consists of three items: "I spend time on Facebook at the expense of my obligations"; "I spend more time on Facebook than I would like to"; and, "It happens that I use Facebook instead of sleeping".

On the other hand, the BFAS is a modified version of Young's (1996) original internet addiction measure which continues to be the most frequently used measure in the field of media psychology with the most psychometric support (Gentile et al., 2013). In the development of the BFAS, items were selected based on representation of the six core features of addiction: salience (the activity dominates thinking and behavior), mood modification (the activity modifies/improves mood), tolerance (increasing amounts of the

activity are required to achieve previous effects), withdrawal (the occurrence of unpleasant feelings when the activity is discontinued or suddenly reduced), conflict (the activity causes conflicts in relationships/work/education/other activities), and relapse (a tendency to revert to earlier patterns of the activity after abstinence or control). It is possible that the BFAS is capturing a more detailed picture of pathological Facebook use than the Overuse subscale used by Orosz and colleagues (2016).

Conveniently, Orosz and colleagues compared the BFAS and the Facebook Intensity Scale in their study. In the study's comparison of the FIS and the BFAS, the BFAS was entered as the outcome variable, while the FIS factors were the predictors. Results showed that only the FIS factors of Overuse and Persistence were associated with the BFAS. In addition, only 51.8% of the variance in the BFAS was accounted for by the FIS factors. Based on these results, along with subscale and item-level comparisons, despite the fact that Overuse and Persistence factors are related to the BFAS, it is clear that these two scales are measuring different constructs. Additionally, by using only the Overuse subscale in their examination of problematic Facebook use and its relationship with passion, Orosz and colleagues (2016) were not able to capture as detailed a picture of the concept of problematic use as can be assessed using the BFAS. A more detailed picture of pathological Facebook use and its relation to passion would be captured by the BFAS given the inclusion of addiction components. This nuance may provide an explanation for why Orosz and colleagues' (2016) found that harmonious passion did not predict Facebook overuse, whereas harmonious passion did predict pathological Facebook use in the current study, albeit in the opposite direction than expected.

Findings that demonstrate a positive relationship between harmonious passion and pathological engagement in an activity suggests that foundational research on passion and pathology with regards to behaviors such as gambling and video gaming may not be able to fully capture the complexity involved in engagement with Facebook or perhaps even other social networking sites. Thus, even when an individual is engaging with Facebook in a harmonious way, there could still be added risk of using social networking sites in a pathological manner. The potential for both obsessive and harmoniously passionate users to be at risk of using Facebook at pathological levels suggests that more research is needed to fully understand the variables impacting the well-being of more technologically minded generations.

Harmonious Passion and Well-being

In terms of the relationship between passion and well-being outcomes, it was predicted that engaging with Facebook in a harmonious way would be associated with positive well-being outcomes. However, despite previous research suggesting that harmonious passion predicts positive well-being outcomes (Mageau et al., 2005; Orosz et al., 2016; Ratelle et al., 2004), being harmoniously passionate for Facebook was not associated with better satisfaction with life, greater experience of positive emotions, or lower negative emotions, less depression, or less romantic, family, or social loneliness as expected.

Other studies also have failed to substantiate effects of harmonious passion on adaptive outcomes (Mageau et al., 2005; Stenseng et al., 2011). For example, previous research has failed to find an association between harmonious passion, gambling, and positive outcomes. It was suggested that because engaging in gambling can mean

regularly experiencing negative consequences (e.g., loss of money), even when someone is engaging in the activity in a harmonious fashion, an individual would still experience negative affect which, in turn, is associated with well-being outcomes (Ratelle et al., 2004). Harmonious passion also has been found to have small, but positive correlations with maladaptive outcomes in previous studies of behavioral pathologies and well-being, such as gambling and negative affect (Akehurst & Oliver, 2014; Martin and Horn, 2013). Having said this, it is important to note that harmonious passion for Facebook was found to be primarily unrelated to well-being outcomes, rather than predicting poorer outcomes. These findings do not suggest that harmoniously engaging with Facebook predicts poorer well-being, but rather that the potential protective effects of harmonious passion (e.g., feelings of amusement and fun, positive emotions, and perceptions of challenge and control) are absent (Mageau et al., 2005).

In sum, although obsessive passion for Facebook does predict higher levels of pathological Facebook use and poorer well-being outcomes for its users as expected, harmonious users did not experience the expected positive consequences of their Facebook use merely because of their autonomous motivations for using the platform. In fact, harmonious passion had a neutral connection to well-being outcomes, and was associated with higher levels of pathological Facebook use, based on the current research. With a better understanding of individual relationships between passion and well-being outcomes, the next step of the current dissertation was to more closely examine relationships between pathological Facebook use and well-being prior to discussing the proposed mediational model in its entirety.

Pathological Facebook Use and Well-being

Consistent with previous findings, the present study found that the more an individual reported using Facebook in a pathological manner, the poorer their satisfaction with life, the less positive emotions, the more negative emotions, greater depression symptoms, and more romantic, family, and social loneliness they experienced. The role of pathological Facebook use in the mental-health and well-being of users is not surprising. Other research in the field (Primack, Shensa, Escobar-Viera, Barrett, Sidani, Colditz, & James, 2017) has found that the more social media platforms someone uses, the more likely they are to report negative well-being outcomes, such as increased levels of both anxiety and depression, even when controlling for total time of social media use. Primack et al. concluded that these associations are strong enough that it may be valuable for clinicians to ask individuals with depression and anxiety about multiple platform use and to counsel them with regard to this potential contributing factor.

Interference with, and distraction from, other daily life activities is one possible underlying mechanism that could help explain how pathological Facebook use is impacting users' well-being. In other words, if some Facebook users are distracted by thoughts of Facebook (or possibly even actively using Facebook) when in university classes, then this behavior could negatively impact their ability to absorb material and subsequently influence their performance on tests and assignments. In support of this notion, previous research has found that the strongest pathology indicator for Facebook use was salience (e.g., "I spend a lot of time on Facebook", "I would be lost without Facebook", and "Sometimes I think of Facebook while in my lecture/meeting/discussion"). More specifically, a majority of university student participants who used Facebook at pathological levels reported thinking about Facebook

even when they were not online (Balakrishnan & Shamim, 2013). It is worth noting that although PFU had a clear relationship with well-being outcomes of participants, findings suggested that PFU did not account for much variability over and above the control variables. Therefore, it is possible that PFU could be conceptualized more as a symptom of poor well-being and mental health issues than a cause.

Now that the relationships among the variables included in the proposed model have been explored in isolation, the mediational model in its entirety will be discussed.

The Proposed Model of PFU Mediating the Relationship Between Passion and Well-Being

Based on extensive research demonstrating a relationship between obsessive passion for an activity, increased levels of pathological engagement in said activity, and subsequent maladaptive outcomes, it was predicted that the relationship between obsessive passion for Facebook and maladaptive outcomes would be mediated by pathological Facebook use. In other words, the association between obsessive passion and levels of satisfaction with life, positive affect, negative affect, symptoms of depression, romantic loneliness, family loneliness and social loneliness of Facebook users depends, at least in part, on how pathologically an individual is using Facebook.

In the present study, the relationship between obsessive passion for Facebook and satisfaction with life, negative affect, depression, romantic loneliness, and family loneliness, was fully mediated by pathological Facebook use. This means that the more obsessively passionate an individual is about their Facebook use, the more they tend to use Facebook in a pathological manner and the more maladaptive outcomes they experience. However, contrary to previous research, the relationship between obsessive

passion for Facebook and positive affect and social loneliness was not mediated by pathological Facebook use. As stated previously, it is possible that given the social aspect of Facebook, or at least given the illusion of social interaction as some have referred to it (Green & Brock, 1998), social loneliness is not a consequence of obsessive passion for Facebook and pathological use. In fact, other research has found that self-esteem can be boosted for some users due to the social relationships stimulated through use of the website (Valkenburg, Peter, & Schouten, 2006). In terms of the current findings for positive affect, higher levels of pathological Facebook use were found to be associated with lower levels of positive affect in the present study, but level of pathological facebook use did not mediate the relationship between obsessive passion and positive affect. This is not surprising given the findings of the current study that obsessive passion did not predict lower levels of positive affect when examining the relationship between these two variables individually. It may be that there are still some benefits to Facebook, such as entertainment or the stimulation of relationships and subsequent boost to self-esteem or creation of at least transitory positive affect mood states, as mentioned above. The latter could mean that even engaging obsessively does not necessarily have a detrimental relationship with positive emotions experienced while using the platform.

In terms of relationships among harmonious passion for Facebook, pathological Facebook use, and well-being outcomes, it was predicted that harmonious passion for Facebook would predict lower levels of pathological Facebook use and therefore more positive well-being outcomes. The results of the present study continue to highlight the unique dynamics involved in the use of Facebook and possibly social networking sites in

general. More specifically, the relationships between harmonious passion for Facebook and satisfaction with life, negative affect, depression, romantic, family, and social loneliness were fully mediated by pathological Facebook use. However, relationships were yet again in an unexpected direction. The more harmoniously passionate an individual was for Facebook, the more pathologically they used Facebook, and the more maladaptive outcomes they experienced, with the exception of positive affect. This finding that positive affect is not significantly related to harmonious passion is not surprising given the similar finding with regards to obsessive passion and positive affect outlined above.

As stated previously, earlier research has consistently found that harmonious passion for an activity is either not related to pathological engagement in the activity or predicts lower levels of pathological engagement (Ratelle et al., 2004). Not only did the present study find that harmonious passion predicts some level of pathological Facebook use, it also suggests that those harmoniously passionate users who go on to develop pathological patterns of use also may be at risk of experiencing the same or similar maladaptive outcomes as those who are obsessively passionate. This potential outcome would be despite harmonious users having what is theorized to be a healthy motivation to use the platform in the first place (Vallerand et al., 2003).

It may be that even when engaging harmoniously, some users are engaging in behaviors on Facebook that do not serve to maintain social connections, and these types of Facebook use behaviors are more predictive of pathological use and/or maladaptive well-being outcomes (Frison & Eggermont, 2016). In the current study, findings suggested that even when users were engaging in active forms of communication on

Facebook, the higher frequency with which they engaged in these behaviors, the higher pathological Facebook use they reported. This may provide one explanation for the positive relationship between harmonious passion, pathological Facebook use, and negative well-being outcomes.

Another potential explanation for the unexpected relationship between harmonious passion, pathological Facebook use, and negative well-being outcomes could be the use of multiple social networking sites. As stated, previous research found that use of multiple websites like Facebook is associated with substantially higher odds of having increased levels of depression and anxiety symptoms. Facebook users who reported using 7-11 social media platforms were at especially increased risk compared to those who reported using only 0-2 platforms (Premach et al., 2017). Researchers have speculated that increased multitasking between multiple platforms, or between multiple platforms and other obligations could explain poorer outcomes for heavier social media users. This problem is potentially due to the fact that multitasking is often associated with negative mental health outcomes (Chen & Yan, 2016). Therefore, despite engaging with Facebook (or other similar sites) in a harmonious way, it is possible that regular monitoring of these multiple social media platforms (e.g., Instagram, Twitter, Snap Chat, etc.) is associated with higher levels of pathology and poorer outcomes in some users. Additionally, it is possible that multitasking across multiple social networking sites could mean that users have less time to engage in the type of meaningful one-on-one communication that has been found to be related to improvements in well-being (Burke & Kraut, 2016).

As will be discussed below, in a final effort to further clarify relationships among passion, pathology, and well-being for Facebook users, the current study also examined gender differences among the variables.

Gender and Pathological Facebook Use

Contrary to our hypothesis that women would report higher levels of pathological Facebook use than men, results indicated that women and men did not significantly differ in reported levels of pathological Facebook use. The hypothesis of the current study that women would report higher PFU than men was based on data from the development of the Bergen Facebook Addiction Scale (BFAS; Andreassen et al., 2012). The scale developers found that women had higher BFAS scores. However, the findings of the BFAS developers were contrary to even these authors' original hypotheses. This was due to research they cited that found no differences between men and women for other behavioral addictions such as pathological gambling and video game addiction (Wang & Chu, 2007; Molde, Pallesen, Bartone, Hystad, & Johnsen, 2009). It is unclear why the present study did not find similar gender differences in pathological Facebook use to those of the scale developers, and instead found results more akin to research on gambling and video game addiction. However, it is possible Andreassen and colleagues' findings were due to limitations with their own research (e.g., errors in data analysis, etc.). Furthermore, it is possible that these inconsistent findings stem from the fact that all the participants of the current study were recruited through entirely online advertisements, with the majority of participants recruited directly through Facebook posts. Therefore, men and women may not differ in their pathological Facebook use in the current study due to the fact that all participants are representative of a similar

population of Facebook users. Namely, users that are on Facebook frequently enough, and engaged with Facebook in such a way, that they would be more inclined not only to see the link to the study, but also to click on it to participate. Therefore, the men and women recruited for the study may not be representative of average Facebook users. It is possible that with a more varied sample (e.g. participants recruited through offline means), our findings would also reflect responses of people who possess a Facebook account, but who are not as active in their use and engagement with Facebook.

Taken together, the findings of the current study demonstrate the complex nature of social media use. Findings related to harmonious Facebook use in particular highlight the need for further research on the role platforms such as Facebook can play in the lives of increasingly technologically minded generations.

Theoretical Implications

The current study contributes to the literature in several important ways. The premise of the Dualistic Model of Passion (DMP) is that an individual's motivations for engaging in an activity can be either harmonious and in line with their values and goals, or it can be obsessive and difficult to control (Vallerand et al., 2003). Based on this nuance, it was anticipated that those users who are obsessively passionate about Facebook would use Facebook at more pathological levels and therefore would experience more negative well-being outcomes as a result. On the other hand, it was anticipated that those users who engaged with Facebook in a more harmonious way would report lower levels of pathological Facebook use and would therefore experience positive well-being. These expectations were only partially supported, and lead to informed alterations in the proposed theoretical model as discussed next.

The results of the current research suggest that, although obsessive passion does consistently predict detrimental outcomes as anticipated, harmonious motivations for using Facebook are not enough to protect some Facebook users from using the platform pathologically. In addition, the current study lends support to the DMP premise that an activity is not inherently good or bad for an individual, but instead it depends on a host of factors related to the individual (e.g., personality) and the context of the behavior (e.g., perceived benefits gained by engaging in the activity; Vallerand et al., 2003). In line with this duality, the Uses and Gratifications Theory (UGT; Rubin, 1994) is a theory which posits that people are not merely passive consumers of media, but instead seek out media use to satisfy specific needs. UGT suggests that media use is determined by a set of factors which include people's needs and motives to communicate, the psychological and social environment, the mass media, functional alternatives to media use, communication behavior, and the consequences of such behavior. Despite the UGT being developed at a time long before the birth of Facebook, the notion that understanding media use behavior requires understanding of a complex network of interacting factors continues to be true.

The current research also provided support for the argument that Facebook use must be examined in isolation of other internet and social media platforms in order to fully appreciate the complexity of the variables involved in its use. An examination of Facebook alone also provides a foundation of literature that can be then expanded and applied to the use of other social networking sites (i.e., Twitter, Instagram, Snap Chat) to examine parallels and discrepancies in influences on use. The findings of the current study also highlight the importance of continued examination of social media sites as potential sources of pathology in the growing field of behavioral addictions.

Clinical/Applied Implications

In terms of more real-world implications of the current findings, previous research has found that increased social networking site use can be tied to levels of increased depression and anxiety for some users (Premach et al., 2017). Premach and colleagues have suggested that findings of this nature point to the importance of directly inquiring about social media use when working with people in mental health settings. To extend this proposal even further, the current findings suggest that not only should clinicians inquire about people's social media use, but they also should be making an effort to educate people about the complex nature of social media use, and its potential impacts, in the hopes that younger generations will learn skills to successfully navigate these complex relationships.

More specifically, Cognitive Behavior Therapy (CBT) (Beck, 2011) is one of the more commonly applied evidence-based treatments for depression, anxiety, and other mental health issues. In psychological treatment using CBT, people are assisted in developing skills for how to recognize the thoughts they are having about the world around them, and how those thoughts and perceptions influence their feelings and behaviors. If this is, in fact, a "new age" and our interactions are increasingly moving online and changing the nature of our relationships (Muisse et al., 2009), then the same CBT principles should apply to this online world. In fact, a pilot study of a social media literacy intervention to reduce risk factors for eating disorders in young women found improvements not only in media literacy, but also body image and disordered eating (McLean, Wertheim, Masters, & Paxton, 2017). According to McLean and colleagues, the social media literacy program included education about the influential and targeted

nature of advertising on social media, critiquing digitally manipulated images on social media, reducing appearance comparisons with social media images, developing resilience to upward comparisons on social media, reducing the frequency of peer appearance-related commenting on social media, and reducing focus on and importance of appearance in social media interactions (McLean, Wertheim, Masters, & Paxton, 2017). One of the goals of interventions of this nature would be to help social media users, particularly new ones, to be more mindful and aware of how to think critically about their social media use and appreciate how it may be impacting them, both positively and negatively.

Future Directions and Recommendations

Several lines of future research are highlighted in the context of the present findings. First, clarifying whether gender differences in pathological Facebook use exist would be important given mixed findings in this regard. Second, the findings of the present study should be replicated to determine whether the unexpected findings with regards to harmonious passion, PFU, and well-being are reliable and robust.

Additionally, researchers should continue to examine the contributing factors to the development of passion for screen-based activities such as Facebook. More recently, researchers have found that impulsivity predicts obsessive, but not harmonious, passion (Orosz, Vallerand, Bothe, Toth-Kiraly, & Paskuj, 2016). This would suggest that impulsivity may be at least one factor that aids the development of obsessive passion for these types of activities. Once the present study's findings have been clarified and replicated further, it would be beneficial to extend the findings further by examining what factors may contribute to the development of the two types of passion for Facebook, in

addition to which harmonious users may be at particular risk and why. A third direction for future research would be to expand the application of these findings to other social media platforms such as Twitter and Instagram.

Finally, different predictive models could be examined. The present study found that direct communication behaviors on Facebook can be related to pathological use when engaged in multiple times per day. Although PFU mediates the relationship between passion for Facebook and well-being outcomes to some extent, there may be some moderating variables worth considering. For example, it is possible that levels of using escape as a motivation for Facebook use may be related to whether harmoniously passionate people go on to develop a pathological pattern of use. Additionally, an alternate model whereby levels of obsessive and harmonious passion mediate the relationship between pathological Facebook use and well-being outcomes may be worth examining.

Limitations

Limitations of the present study include the convenience sample, most of whom likely came from the sharing of the questionnaire link on Facebook. Participants in the current study were users who were on Facebook frequently enough, and engaged with Facebook in such a way, that they would be more inclined not only to see the link to the study, but also to click on it to participate. As such, results of the present study may be more reflective of users who spend a lot of time on Facebook. Second, the present findings are cross-sectional rather than prospective. Therefore, directionality, in addition to cause and effect, cannot be inferred. For example, it is possible that rather than factors such as loneliness being only a potential consequence of some types of Facebook use,

they also could be predictive of greater pathological Facebook use in an effort to fill a void in the user's life. Third, the platform on which the survey was hosted did not provide the option of randomized ordering of questionnaires across participants. As such, order effects could be a concern. A fourth limitation is that the present study's findings are based entirely on self-reported passion, pathological Facebook use, and well-being of the participants surveyed. It is possible that if other data gathering practices, such as informant reports and interviews with users, and digital use monitoring diaries were used in addition to self-report measures, the current results could be altered or enhanced. Finally, as is common with other studies conducted in Western nations, the current findings may not be generalizable to broader population when considering various intersecitonalties of race/culture/nationality/sexual and gender identity/etc.

Conclusions

The present study aimed to explore the relationships between passion for Facebook, pathological Facebook use, and well-being and mental health outcomes. Findings suggest that, as expected, the more obsessively someone uses Facebook, the more at risk they are of developing pathological patterns of use, and, in turn, the more risk for certain maladaptive outcomes. Moreover, and contrary to expectation, the more an individual used Facebook in a harmonious manner, the more at risk they were for pathological use. Additionally, no differences were found between men and women in their self-reported levels of pathological Facebook use.

It is possible that gaining a better understanding of certain aspects of the types of behaviors people are engaging in while on Facebook would help explain these unexpected findings (e.g., active versus passive Facebook behaviors). There also may be

other variables related to people's reasons for using Facebook that are worth considering (e.g., impulsivity or escapism). As many as a quarter of the participants demonstrated pathological Facebook use and an additional quarter were in the at risk range for this problematic level of use. Finally, and unsurprisingly, the present study's findings consistently demonstrated that the more often an individual engages in stereotypical Facebook behaviors, such as posting pictures and statuses, the more at risk they are of using Facebook at a pathological level. In conclusion, results of the current study demonstrate that, similar to other non-substance related behaviors, use of Facebook is complex, motivations for using Facebook are multifaceted, and consequences for use can vary.

Tables

Table 1

Internet Addiction Diagnostic Questionnaire (IADQ)

1. Do you feel preoccupied with the Internet (think about previous on-line activity or anticipate next on-line session)?
 2. Do you feel the need to use the Internet with increasing amounts of time in order to achieve satisfaction?
 3. Have you repeatedly made unsuccessful efforts to control, cut back, or stop Internet use?
 4. Do you feel restless, moody, depressed, or irritable when attempting to cut down or stop internet use?
 5. Do you stay on-line longer than originally intended?
 6. Have you jeopardized or risked the loss of significant relationship, job, educational or career opportunity because of the Internet?
 7. Have you lied to family members, therapist, or others to conceal the extent of involvement with the Internet?
 8. Do you use the Internet as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)?
-

Table 2
Participant Characteristics

<i>Variable</i>	<i>N</i>	<i>%</i>
Gender		
Male	269	38.4
Female	168	61.6
Ethnicity		
White/European	374	85.6
Asian/Pacific Islander	22	5.0
Biracial/Multicultural	16	3.7
Hispanic/Latino/Latina	11	2.5
Black/African	10	2.3
Aboriginal/First Nations	4	.9
Occupation		
Working full time	186	42.6
Attending school full time	115	26.3
Attending school and working	76	17.4
Currently unemployed	35	8.0
Working part-time	24	5.5
Relationship Status		
Not currently dating/single	136	31.1
Married	99	22.7
Living with partner	74	16.9
In a long-term relationship but not living with partner	52	11.9
Common-law	41	9.4
Dating	33	7.6

Note. *N* = 437.

Table 3

Descriptive Statistics of Internet and Facebook use (Time Spent Using the Internet, Length of Facebook Account, Number of Times Checking Facebook Per Day)

<i>Variable</i>	<i>N</i>	<i>%</i>
Time spent using internet		
4 or more hours per day	207	47.4
3-4 hours per day	90	20.6
2-3 hours per day	74	16.9
1-2 hours per day	51	11.7
30-60 minutes per day	12	2.7
10-30 minutes per day	1	.2
10 minutes or less per day	1	.2
Length of Facebook account		
3 or more years	417	95.4
2-3 years	9	2.1
1-2 years	5	1.1
6 months - 1 year	3	.7
3-6 months	1	.2
Less than 1 month	0	0
Number of times checking Facebook per		
6 or more times per day	223	51.0
4-5 times per day	94	21.5
2-3 times per day	76	17.4
Once daily	23	5.3
2 or more times weekly	9	2.1
Once or twice monthly	5	1.1
Less than once monthly	3	.7
Once weekly	1	.2
A few times per year or less	2	.5
Time spent checking Facebook		
5 or more hours per day	14	3.2
3-4 hours per day	30	6.9
2-3 hours per day	52	11.9
1-2 hours per day	110	25.2

<i>Variable</i>	<i>N</i>	<i>%</i>
30-60 minutes per day	122	27.9
10-30 minutes per day	71	16.2
10 minutes or less per day	37	8.5

Note. *N* = 436-437.

Table 4

Descriptive Statistics of Internet and Facebook use (Reasons for Using, and Medium Used)

<i>Variable</i>	<i>N</i>	<i>%</i>
Reason for using Facebook		
To communicate with friends and	205	46.9
To look at/read friends' posts and	171	39.1
To find information (i.e., news articles)	35	8.0
To find out about social events	10	2.3
To play games	7	1.6
To contact old friends	4	.9
To meet new people	1	.2
To contact romantic interests	1	.2
Medium used		
Cellular phone	181	41.4
Desktop or laptop computer	129	29.5
Computer and cell phone equally	120	27.5

Note. $N = 436-437$.

Table 5

Descriptive Statistics of Facebook Activities: Social activism, and Facebook Games

<i>Variable</i>	<i>N</i>	<i>%</i>
Social activism		
6 or more times per day	2	.5
4-5 times per day	6	1.4
2-3 times per day	18	4.1
Once daily	24	5.5
2 or more times weekly	55	12.6
Once weekly	28	6.4
Once or twice monthly	60	13.7
A few times per year or less	126	28.8
Less than once monthly	46	10.5
Never	71	16.2
Facebook games		
6 or more times per day	8	1.8
4-5 times per day	2	.5
2-3 times per day	21	4.8
Once daily	16	3.7
2 or more times weekly	8	1.8
Once weekly	5	1.1
Once or twice monthly	10	2.3
Less than once monthly	17	3.9
A few times per year or Less	50	11.4
Never	298	68.2

Note. $N = 437$.

Table 6

Descriptive Statistics of Facebook Activities: Posting pictures and statuses

<i>Variable</i>	<i>N</i>	<i>%</i>
Post pictures		
6 or more times per day	3	.7
4-5 times per day	2	.5
2-3 times per day	7	1.6
Once daily	8	1.8
2 or more times weekly	62	14.2
Once weekly	62	14.2
Once or twice monthly	127	29.1
Less than once monthly	67	15.3
A few times per year or less	80	18.3
Never	18	4.1
Post Status		
4-5 times per day	3	.7
2-3 times per day	11	2.5
Once daily	22	5.0
2 or more times weekly	67	15.3
Once weekly	50	11.4
Once or twice monthly	78	17.8
Less than once monthly	66	15.1
A few times per year or less	93	21.3
Never	46	10.5
Post positive status		
4-5 times per day	1	.2
2-3 times per day	5	1.1
Once daily	7	1.6
2 or more times weekly	23	5.3
Once weekly	31	7.1
Once or twice monthly	85	19.5
Less than once monthly	85	19.5

<i>Variable</i>	<i>N</i>	<i>%</i>
A few times per year or less	153	35.0
Never	46	10.5
Post negative status		
4-5 times per day	1	.2
2-3 times per day	4	.9
Once daily	1	.2
2 or more times weekly	8	1.8
Once weekly	11	2.5
Once or twice monthly	24	5.5
Less than once monthly	40	9.2
A few times per year or less	125	28.6
Never	220	50.3

Note. $N = 437$.

Table 7

Descriptive Statistics of Facebook Activities: Sharing links, checking walls, and private messaging

<i>Variable</i>	<i>N</i>	<i>%</i>
Share links		
6 or more times per day	6	1.4
4-5 times per day	10	2.3
2-3 times per day	25	5.7
Once daily	29	6.6
2 or more times weekly	85	19.5
Once weekly	45	10.3
Once or twice monthly	98	22.4
Less than once monthly	57	13.0
A few times per year or less	52	11.9
Never	29	6.6
Check own wall		
6 or more times per day	20	4.6
4-5 times per day	11	2.5
2-3 times per day	38	8.7
Once daily	76	17.4
2 or more times weekly	71	16.2
Once weekly	58	13.3
Once or twice monthly	63	14.4
Less than once monthly	38	8.7
A few times per year or less	38	8.7
Never	23	5.3
Check others' wall		
6 or more times per day	24	5.5
4-5 times per day	15	3.4
2-3 times per day	68	15.6
Once daily	61	14.0
Once weekly	57	13.0
2 or more times weekly	74	16.9
Once or twice monthly	69	15.8

<i>Variable</i>	<i>N</i>	<i>%</i>
Less than once monthly	26	5.9
A few times per year or less	31	7.1
Never	11	2.5
Private Message		
6 or more times per day	59	13.5
4-5 times per day	29	6.6
2-3 times per day	67	15.3
Once daily	64	14.6
2 or more times weekly	111	25.4
Once weekly	39	8.9
Once or twice monthly	35	8.0
Less than once monthly	14	3.2
A few times per year or less	13	3.0
Never	4	.9

Note. *N* = 437.

Table 8
Descriptive Statistics of scales and subscales

Measure	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
The Bergen Facebook Addiction Scale	437	11.18	4.92	5.00	30.00
Patient Health Questionnaire - 9	436	15.12	5.87	8.00	36.00
The Satisfaction With Life Scale	436	22.77	7.41	5.00	35.00
Facebook Passion Scale					
Obsessive Passion	436	2.14	1.29	1.00	6.80
Harmonious Passion	436	3.42	1.31	1.00	7.00
The Social and Emotional Loneliness Scale for Adults – Short Version					
Social Loneliness	437	2.84	1.35	1.00	7.00
Romantic Loneliness	437	3.45	1.87	1.00	7.00
Family Loneliness	437	2.55	1.32	1.00	6.80
The Positive and Negative Affect Scale					
Positive Affect	437	31.51	8.74	10.00	50.00
Negative Affect	437	21.83	8.53	10.00	50.00
The Big Five Inventory- 10					
Openness to Experience	434	3.53	.94	1.00	5.00
Conscientiousness	434	3.50	.87	1.00	5.00
Extraversion	434	3.09	1.07	1.00	5.00
Agreeableness	434	3.56	.90	1.00	5.00
Neuroticism	434	2.88	1.10	1.00	5.00

Note. *N* = 437.

Table 9

Correlations Between Scales and Subscales

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RomLone ¹	-	.27**	.29**	.08	.06	-.23**	.25**	-.39**	-.08	-.24**	-.05	-.05	.06	.19**	.30**
FamLone ²		-	.57**	.14*	-.06	-.43**	.26**	-.52**	-.12*	-.24**	-.21**	-.25**	.17**	.18**	.47**
SocLone ³			-	.14*	-.01	-.48**	.24**	-.48	-.11*	-.27**	-.33**	-.22**	.21**	.18**	.43**
ObsPass ⁴				-	.32**	-.04	.22**	-.06	-.05	-.15**	.04	-.07	.17**	.73**	.26**
HarPass ⁵					-	.08	.02	.03	.03	.001	.05	-.01	.03	.30**	.09
PosAffect ⁶						-	.06	.45**	.14**	.36**	.28**	.11*	-.20**	-.12*	-.38**
NegAffect ⁷							-	-.35**	-.07	-.24**	-.16**	-.16**	.45**	.27**	.53*
LifeSatis ⁸								-	.06	.33**	.23**	.20**	-.23**	-.16**	-.52**
BFIopen ⁹									-	.06	.15**	.05	-.07	-.03	-.05
BFIconsc ¹⁰										-	.17**	.16**	-.20**	-.15**	-.33**
BFIextrav ¹¹											-	.12*	-.21**	.03	-.23**
BFIagree ¹²												-	-.10*	-.01	-.17**
BFIneuro ¹³													-	.20**	.40**
BFAS ¹⁴														-	.38**
PHQ-9 ¹⁵															-

Note. $N = 433-437$; * $p < .05$ ** $p < .01$; RomLone = Romantic Loneliness; FamLone = Family Loneliness; SocLone = Social Loneliness; ObsPass = Obsessive Passion; HarPass = Harmonious Passion; PosAffect = Positive Affect; NegAffect = Negative Affect; LifeSatis = Satisfaction With Life; BFIopen = Openness; BFIconsc = Conscientiousness; BFIextrav = Extraversion; BFIagree = Agreeableness; BFIneuro = Neuroticism; BFAS = Bergen Facebook Addiction Scale; PHQ-9 = Patient Health Questionnaire-9

Table 10

Correlations between measures and gender and age.

Variable	Gender	Age
Romantic Loneliness	.18**	-.06
Family Loneliness	.18**	-.01
Social Loneliness	.19**	-.003
Obsessive Passion	-.12*	-.04
Harmonious Passion	-.08	.00
Positive Affect	-.04	-.01
Negative Affect	.06	-.22**
Satisfaction With Life	-.20**	.01
Openness	-.02	.06
Conscientiousness	-.10**	.18**
Extraversion	-.03	.01
Agreeableness	-.05	.02
Neuroticism	-.22**	-.13**
Pathological Facebook Use	-.08	-.07
Depression	.12*	-.16**

Note. $N = 433-437$. * $p \leq .05$, ** $p \leq .01$.

Table 11

Hierarchical multiple regression analyses predicting pathological Facebook use from age, gender, personality and obsessive and harmonious passion for Facebook

Predictor	Pathological Facebook Use				
	β	t	R	$AdjR^2$	ΔR^2
Step 1			.11	.01	.01
Age	-.08	-1.55			
Gender	-.09	-1.83			
Step 2			.25	.05	.05
Personality					
Openness	-.02	-.44			
Conscientiousness	-.13	-2.63**			
Extraversion	.09	1.89			
Agreeableness	.02	.39			
Neuroticism	.18	3.47***			
Step 3			.73	.53	.48
Obsessive Passion	.69	19.09***			
Harmonious Passion	.08	2.14*			

Note. $N = 433$. *** $p \leq .001$ ** $p \leq .01$ * $p \leq .05$

Table 12

Multiple Regression Analyses: Harmonious and Obsessive Passion for Facebook Predicting Well-being and Mental Health Outcomes

<i>Variables</i>	<i>SWL</i> ¹	<i>PosAff</i> ²	<i>NegAff</i> ³	<i>Dep</i> ⁴	<i>SLone</i> ⁵	<i>FLone</i> ⁶	<i>RLone</i> ⁷
	β	β	β	β	β	β	β
Step 1							
Age	-.02	-.02	-.22***	-.14**	.02	.02	-.03
Gender	-.21***	-.05	.03	.10*	.20***	.19***	.18***
ΔR^2	.04***	.003	.05***	.04***	.04***	.04***	.04***
Step 2							
Personality							
Openness	.004	.09*	-.02	.01	-.05	-.07	-.07
Conscientious	.25***	.31***	-.10*	-.21***	-.17***	-.15**	-.21***
Extraversion	.12**	.19***	-.03	-.10*	-.23***	-.12*	.02
Agreeableness	.11*	.02	-.09*	-.09*	-.14***	-.19***	.01
Neuroticism	-.21***	-.12*	.42***	.36***	.17***	.14**	.06
ΔR^2	.19***	.20***	.22***	.24***	.06***	.14***	.06***
Step 3							
Harmonious	.01	.06	-.03	.04	-.02	-.08	.06
Obsessive	-.03	-.01	.16***	.19***	.13**	.15**	.05
ΔR^2	.001	.003	.02***	.04***	.01	.02**	.01
Total R ²	.23	.21	.29**	.32***	.25*	.20**	.10

Note. $N = 432-433$. ¹Satisfaction with Life; ²Positive Affect; ³Negative Affect; ⁴Depression; ⁵Social Loneliness; ⁶Family Loneliness; ⁷Romantic Loneliness. ** $p \leq .001$ * $p \leq .01$

Table 13

Multiple Regression Analyses: Pathological Facebook Use Predicting Well-being and Mental Health Outcomes

<i>Variables</i>	<i>SWL¹</i>	<i>PosAff²</i>	<i>NegAff³</i>	<i>Dep⁴</i>	<i>SLone⁵</i>	<i>FLone⁶</i>	<i>RLone⁷</i>
	β	β	β	β	β	β	β
Step 1							
Gender	-.20**	-.04	.06	.12**	.19**	.18**	.18**
ΔR^2	.04	.001	.004	.02	.04	.03	.03
Step 2							
BFAS	-.18**	-.13*	.28**	.39**	.19**	.20**	.20**
ΔR^2	.03	.02	.22	.15	.04	.04	.04
Total R ²	.07**	.02*	.08**	.16**	.07**	.07**	.07**

Note. $N = 432-433$. BFAS = Bergen Facebook Addiction Scale

** $p \leq .001$ * $p \leq .01$

Table 14

Analysis of variance of pathological Facebook use by time spent using the internet

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	168.26	3	56.09	2.34	.073
Within groups	10373.69	432	24.01		
Total	12645.31	435			

Table 15

Means and standard deviations of PFU by time spent using internet

<i>Category</i>	<i>M</i>	<i>SD</i>
2 hours – 10 minutes or less	11.32	5.04
2-3 hours per day	10.43	4.67
3-4 hours per day	10.39	4.80
4 or more hours per day	11.76	4.85

Note. N = 436

Table 16

Analysis of variance of Facebook pathological Facebook use by frequency of checking Facebook

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	989.88	3	329.96	14.92	≤.001
Within groups	9552.07	432	22.11		
Total	10541.95	435			

Table 17

Means and standard deviations of PFU by frequency of checking Facebook

<i>Category</i>	<i>M</i>	<i>SD</i>
Once daily – A few times per year or less	8.21 ^{abc}	4.21
2-3 times per day	9.29 ^{ade}	4.30
4-5 times per day	11.17 ^{bd}	3.94
6 or more times per day	12.41 ^{ce}	5.19

Note. $N = 436$; matching letters denote means that are statistically significantly different from each other.

Table 18

Analysis of variance of pathological Facebook use by time spent checking Facebook

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	1560.95	3	520.32	25.03	$\leq .001$
Within groups	8981.01	432	20.79		
Total	10541.95	435			

Table 19

Means and standard deviations of PFU by time spent checking Facebook

<i>Category</i>	<i>M</i>	<i>SD</i>
10-30 minutes or less per day	8.61 ^{abc}	3.49
30-60 minutes per day	10.58 ^{ad}	4.17
1-2 hours per day	11.97 ^b	4.55
2-5 or more hours per day	13.95 ^{cd}	5.91

Note. $N = 436$; matching letters denote means that are statistically significantly different from each other.

Table 20
Analysis of variance of pathological Facebook use by medium used

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	20.85	2	10.43	.44	.65
Within groups	10221.63	427	23.94		
Total	10242.47	429			

Table 21

Means and standard deviations of PFU by medium used to browse Facebook

<i>Category</i>	<i>M</i>	<i>SD</i>
Desktop or laptop computer	11.13	4.96
Cellular phone	11.37	4.74
I use my cell phone or computer equally as often	10.83	5.05

Note. $N = 430$

Table 22

Analysis of variance of frequency of pathological Facebook use by frequency of social activism

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	932.80	5	186.56	8.35	$\leq .001$
Within groups	9609.15	430	22.35		
Total	10541.95	435			

Table 23

Means and standard deviations of PFU by frequency of Social Activism

<i>Category</i>	<i>M</i>	<i>SD</i>
Never	9.21 ^{abc}	4.15
A few times per year or less	10.24 ^{de}	4.16
Less than once monthly	10.33	4.07
Once or twice monthly	12.75 ^{ad}	5.35
Once weekly - 2 or more times weekly	12.28 ^b	4.68
Once daily or more	13.48 ^{ce}	6.41

Note. $N = 436$; matching letters denote means that are statistically significantly different from each other.

Table 24
Analysis of variance of frequency of pathological Facebook use by frequency of playing Facebook games

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	108.27	1	108.27	4.49	.04
Within groups	10433.02	433	24.10		
Total	10541.29	434			

Table 25

Means and standard deviations of PFU by frequency of playing Facebook games

<i>Category</i>	<i>M</i>	<i>SD</i>
Never	10.85 ^a	4.81
A few times per year or more	11.92 ^a	5.12

Note. $N = 437$.

Table 26
Analysis of variance of frequency of pathological Facebook use by frequency of posting pictures

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	768.57	4	192.14	8.47	≤.001
Within groups	9773.38	431	22.68		
Total	10541.95	435			

Table 27

Means and standard deviations of PFU by frequency of posting pictures

<i>Category</i>	<i>M</i>	<i>SD</i>
A few times per year or less/never	8.82 ^{abcd}	3.95
Less than once monthly	11.21 ^a	4.25
Once or twice monthly	11.13 ^b	4.81
Once weekly	12.45 ^c	5.38
2 or more times weekly – 6 or more times per day	13.32 ^d	5.93

Note. $N = 436$; matching letters denote means that are statistically significantly different from each other

Table 28
Analysis of variance of frequency of pathological Facebook use by frequency of posting general statuses

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	498.05	6	83.01	3.55	.002
Within groups	10043.90	429	23.41		
Total	10541.95	435			

Table 29

Means and standard deviations of PFU by frequency of posting general statuses

<i>Category</i>	<i>M</i>	<i>SD</i>
Never	9.76 ^{bc}	5.13
A few times per year or less	9.98	4.12
Less than once monthly	10.89 ^a	4.62
Once or twice monthly	11.15	5.22
Once weekly	12.54	5.00
2 or more times weekly	12.34 ^c	4.84
Once daily or more	12.69 ^{ab}	5.44

Note. $N = 436$; matching letters denote means that are statistically significantly different from each other.

Table 30
Analysis of variance of frequency of pathological Facebook use by frequency of posting positive statuses

<i>Source</i>	<i>Sum of Squares</i>	<i>Df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	651.68	4	162.92	7.10	≤.001
Within groups	9890.27	431	22.95		
Total	10541.95	435			

Table 31

Means and standard deviations of PFU by frequency of posting positive statuses

<i>Category</i>	<i>M</i>	<i>SD</i>
Never	10.28 ^a	4.86
A few times per year or less	10.15	4.48
Less than once monthly	10.92	4.43
Once or twice monthly	11.87	5.44
Once weekly-5 times per day	13.64 ^a	5.00

Note. $N = 436$; matching letters denote means that are statistically significantly different from each other.

Table 32
Analysis of variance of frequency of pathological Facebook use by frequency of posting negative statuses

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	448.09	3	149.36	6.40	$\leq .001$
Within groups	10039.83	430	23.34		
Total	10487.92	433			

Table 33

Means and standard deviations of PFU by frequency of posting negative statuses

<i>Category</i>	<i>M</i>	<i>SD</i>
Never	10.40 ^a	4.64
A few times per year or less	11.69 ^b	4.81
Less than once monthly	11.30	4.46
Once or twice monthly-4-5 times per day	13.57 ^{ab}	5.91

Note. N = 434; matching letters denote means that are statistically significantly different from each other.

Table 34

Analysis of variance of pathological Facebook use by frequency of sharing links

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	632.56	5	126.51	5.49	$\leq .001$
Within groups	9909.39	430	23.05		
Total	10541.95	435			

Table 35
Means and standard deviations of PFU by frequency of sharing links

<i>Category</i>	<i>M</i>	<i>SD</i>
Never - A few times per year or less	9.07 ^{abc}	3.83
Less than once monthly	10.67	4.49
Once or twice monthly	11.00	4.79
Once weekly	12.76 ^a	5.21
2 or more times weekly	12.15 ^b	4.69
Once daily - Multiple times per day	11.19 ^c	5.83

Note. $N = 437$; matching letters denote means that are statistically significantly different from each other.

Table 36

Analysis of variance of pathological Facebook use by frequency of checking own wall

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	1123.25	8	140.41	6.37	$\leq .001$
Within groups	9418.70	427	22.06		
Total	10541.95	435			

Table 37

Means and standard deviations of PFU by frequency of checking own wall

<i>Category</i>	<i>M</i>	<i>SD</i>
Never	8.04 ^{abcd}	4.92
A few times per year or less	8.56 ^e	3.65
Less than once monthly	10.42 ^{fg}	3.94
Once or twice monthly	10.33 ^f	3.87
Once weekly	10.47 ^g	4.43
2 or more times weekly	12.04 ^a	4.99
Once daily	12.37 ^b	5.17
2-3 times per day	12.34 ^c	5.00
4-6 or more times per day	14.45 ^{de}	6.06

Note. $N = 437$; matching letters denote means that are statistically significantly different from each other.

Table 38

Analysis of variance of pathological Facebook use by frequency of checking others' walls

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	1436.32	7	205.19	9.65	≤.001
Within groups	9105.64	428	21.28		
Total	10541.95	435			

Table 39

Means and standard deviations of PFU by frequency of checking others' walls

<i>Category</i>	<i>M</i>	<i>SD</i>
Never – a few times per year or less	7.81 ^{abcde}	3.18
Less than once monthly	10.77 ^{afg}	4.49
Once or twice monthly	9.71 ^{hi}	3.70
Once weekly	10.63 ^{hjk}	4.85
2 or more times weekly	11.02 ^{bj}	4.60
Once daily	11.39 ^{ck}	5.27
2-3 times per day	13.51 ^{df}	4.83
4-6 or more times per day	14.44 ^{egi}	5.52

Note. $N = 437$; matching letters denote means that are statistically significantly different from each other.

Table 40

Analysis of variance of pathological Facebook use by frequency of private messaging

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P-value</i>
Between groups	301.65	4	75.41	3.18	.014
Within groups	10206.42	430	23.74		
Total	10508.07	434			

Table 41

Means and standard deviations of PFU by frequency of private messaging

<i>Category</i>	<i>M</i>	<i>SD</i>
Never – once weekly	9.92 ^a	4.25
2 or more times weekly	10.94	4.58
Once daily	11.80	4.86
2-3 times per day	11.54	5.08
4-6 or more times per day	12.23 ^a	5.70

Note. $N = 435$; matching letters denote means that are statistically significantly different from each other.

Figures

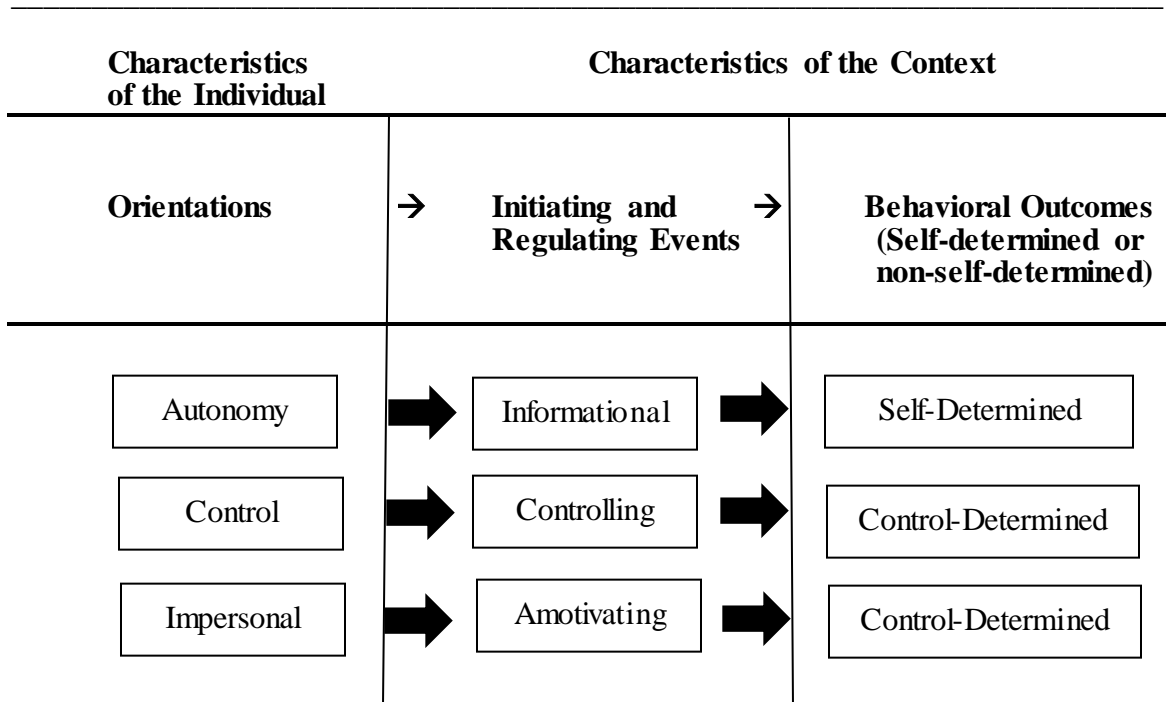


Figure 1. Cognitive Evaluation Theory and SDT. Three orientations towards causality reliably related to three classes of initiating and regulating events that can determine three classes of behaviors and motivationally relevant processes.

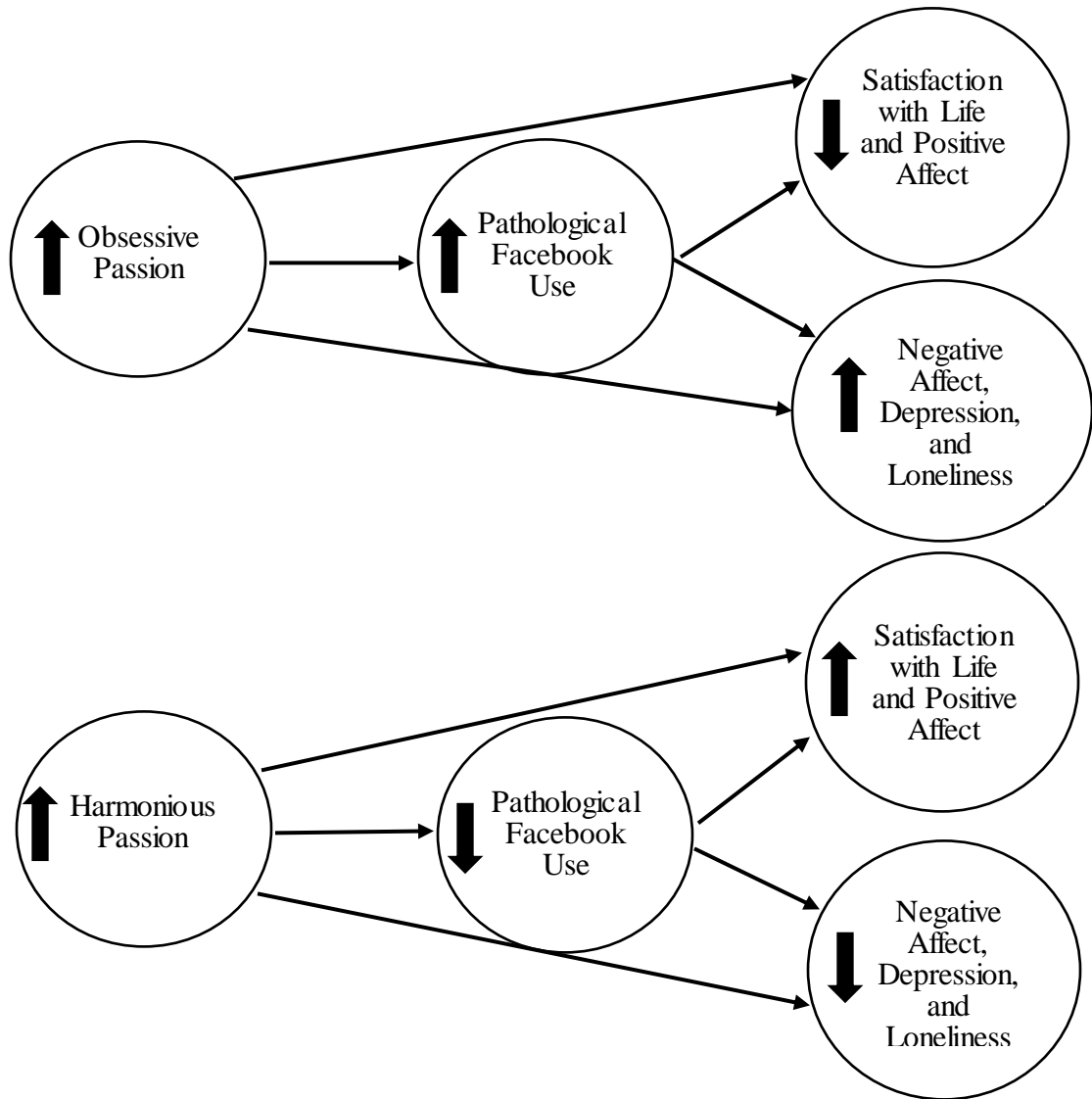


Figure 2. Proposed model. The Mediational model includes direct effects of obsessive passion and harmonious passion on outcome measures and pathological Facebook use on outcome measures. In addition, the model includes indirect effects of obsessive passion and harmonious passion on outcome measures through the intervening variable of pathological Facebook use. Obsessive passion and harmonious passion are expected to be correlated in the model.

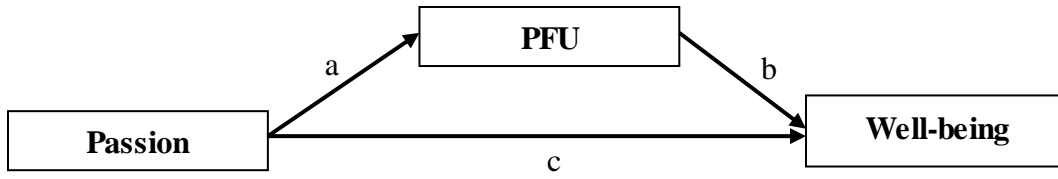


Figure 3. Mediation model of passion for Facebook use, pathological use, and well-being.

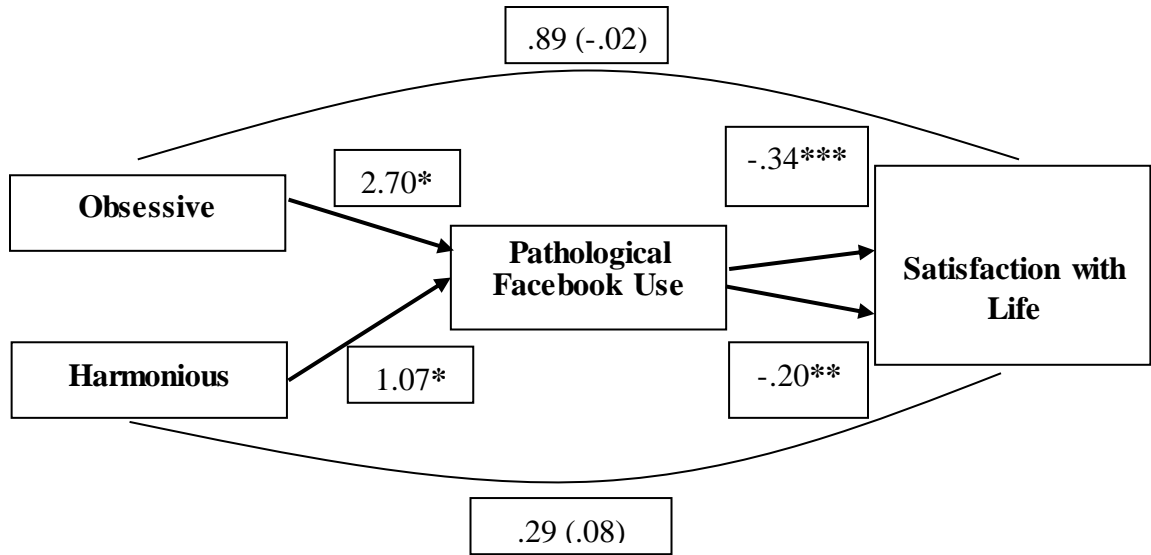


Figure 4. Model of the relationship between Obsessive and Harmonious Passion and Satisfaction With Life, mediated by Pathological Facebook Use for the entire sample. Values presented are unstandardized coefficients. The value displayed in parentheses represents the total effect of Obsessive and Harmonious Passion on Satisfaction With Life (i.e., *c* path, which is the sum of the direct path [i.e., the value presented outside of the parentheses] and indirect paths).

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

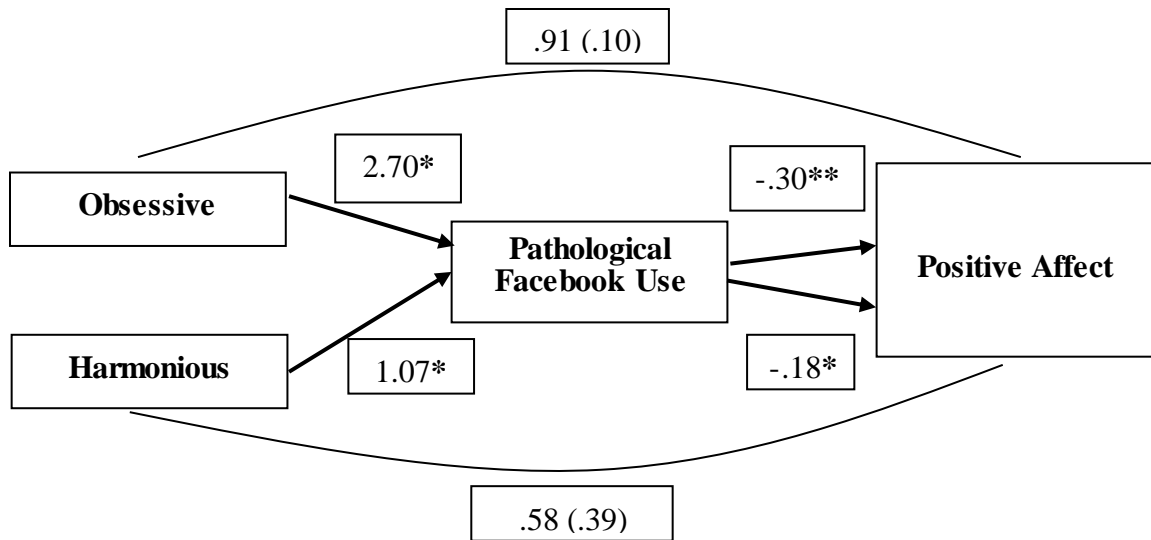


Figure 5. Model of the relationship between Obsessive and Harmonious Passion and Positive Affect, mediated by Pathological Facebook Use for the entire sample. Values presented are unstandardized coefficients. The value displayed in parentheses represents the total effect of Obsessive and Harmonious Passion on Positive Affect (i.e., *c* path, which is the sum of the direct path [i.e., the value presented outside of the parentheses] and indirect paths).

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

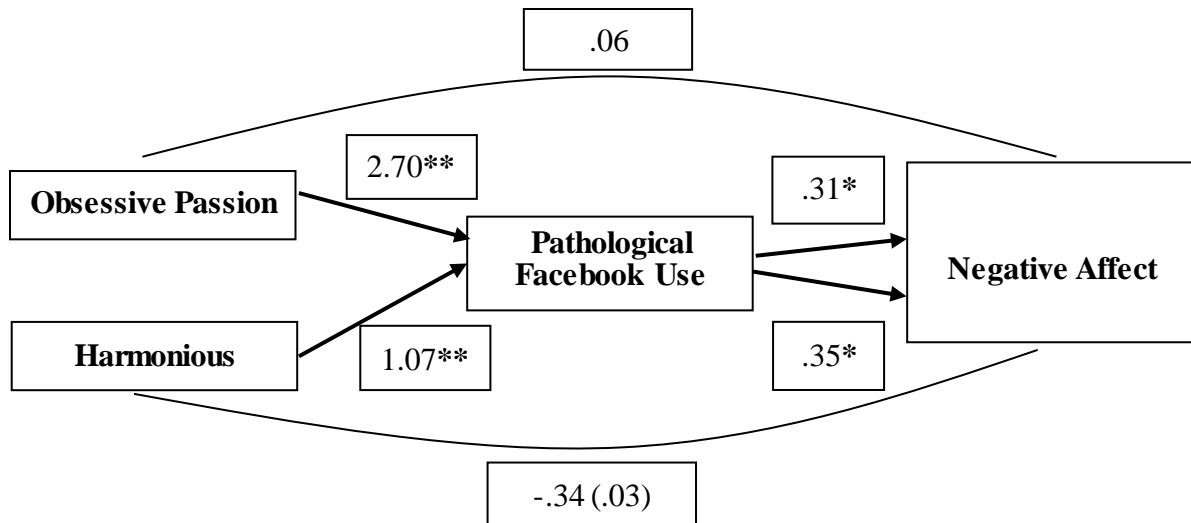


Figure 6. Model of the relationship between Obsessive and Harmonious Passion and Negative Affect, mediated by Pathological Facebook Use for the entire sample. Values presented are unstandardized coefficients. The value displayed in parentheses represents the total effect of Obsessive and Harmonious Passion on Negative Affect (i.e., *c* path, which is the sum of the direct path [i.e., the value presented outside of the parentheses] and indirect paths).

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

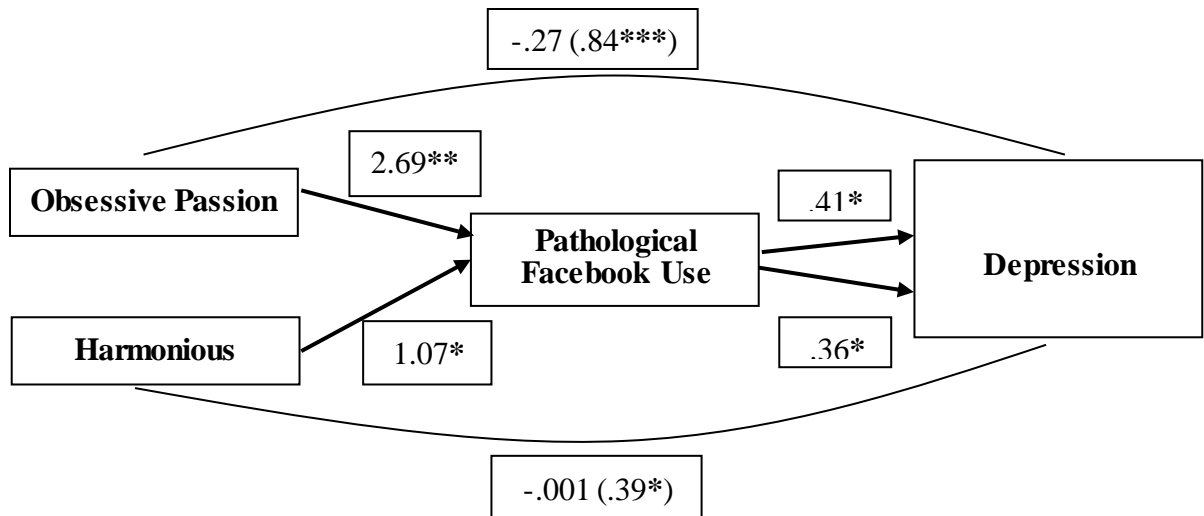


Figure 7. Model of the relationship between Obsessive and Harmonious Passion and Depression, mediated by Pathological Facebook Use for the entire sample. Values presented are unstandardized coefficients. The value displayed in parentheses represents the total effect of Obsessive and Harmonious Passion on Depression (i.e., *c* path, which is the sum of the direct path [i.e., the value presented outside of the parentheses] and indirect paths).

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

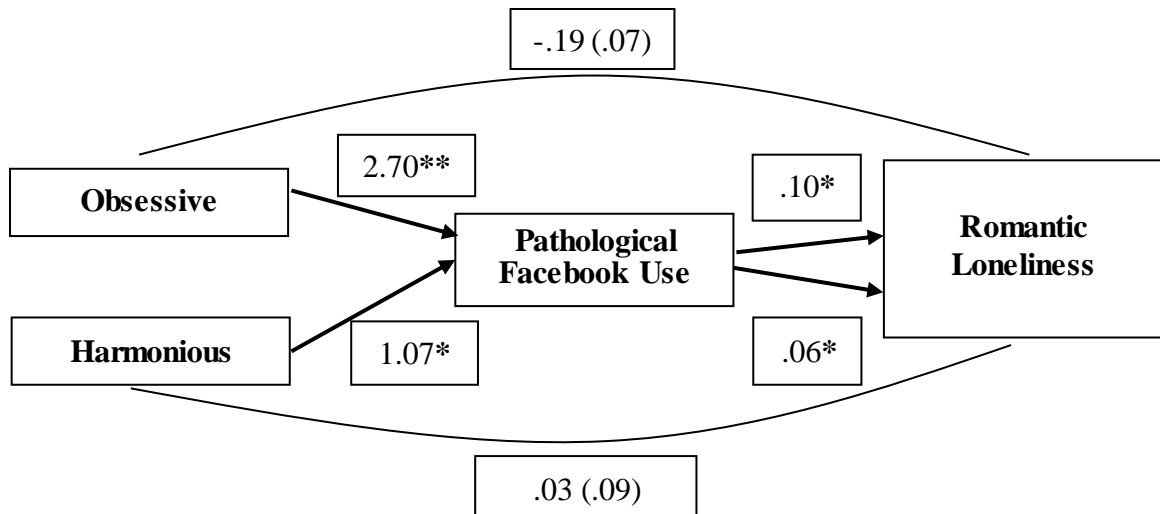


Figure 8. Model of the relationship between Obsessive and Harmonious Passion and Romantic Loneliness, mediated by Pathological Facebook Use for the entire sample. Values presented are unstandardized coefficients. The value displayed in parentheses represents the total effect of Obsessive and Harmonious passion on Romantic Loneliness (i.e., *c* path, which is the sum of the direct path [i.e., the value presented outside of the parentheses] and indirect paths).

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

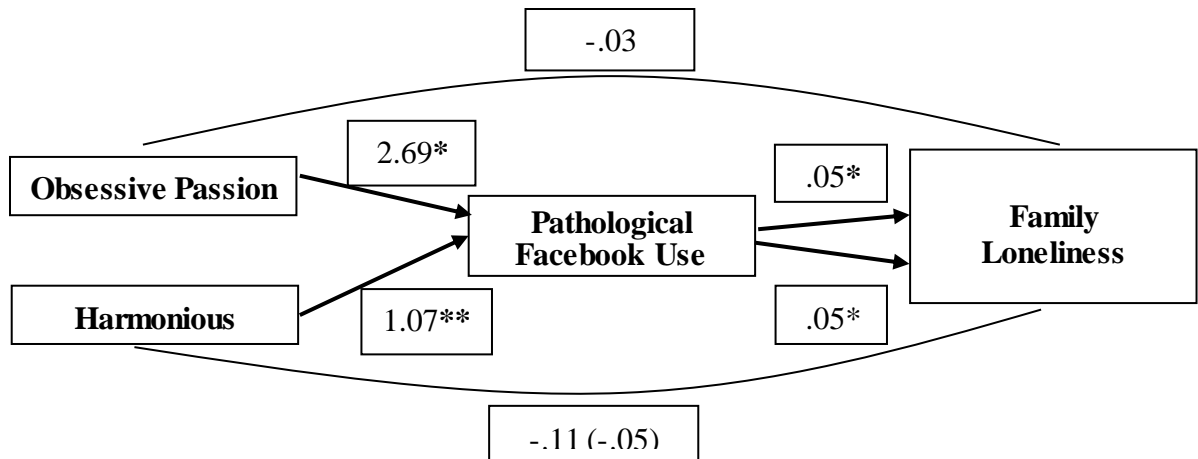


Figure 9. Model of the relationship between Obsessive and Harmonious Passion and Family Loneliness, mediated by Pathological Facebook Use for the entire sample. Values presented are unstandardized coefficients. The value displayed in parentheses represents the total effect of Obsessive and Harmonious passion on Family Loneliness (i.e., *c* path, which is the sum of the direct path [i.e., the value presented outside of the parentheses] and indirect paths).

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

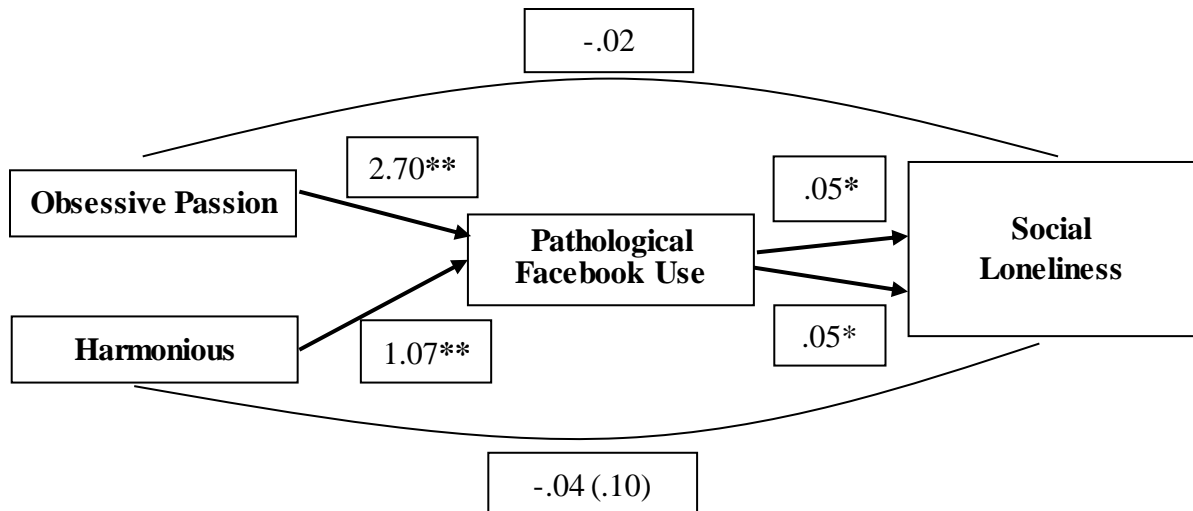


Figure 10. Model of the relationship between Obsessive and Harmonious Passion and Social Loneliness, mediated by Pathological Facebook Use for the entire sample. Values presented are unstandardized coefficients. The value displayed in parentheses represents the total effect of Obsessive and Harmonious Passion on Social Loneliness (i.e., *c* path, which is the sum of the direct path [i.e., the value presented outside of the parentheses] and indirect paths).

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

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Appendices

Appendix A

Recruitment Materials

Online recruitment:

Participate in online research for a chance to win one of three \$25 Visa gift cards!

I am a Ph.D. student at the University of New Brunswick and I am conducting a study on Facebook use and well-being. If you are of legal age to consent in your country of residence (e.g., 19 in Canada, 21 in some U.S. states) and have an active Facebook account, you are eligible to participate!

Please follow the link to complete the survey and enter for your chance to win!

<https://survey.psyc.unb.ca/needlinkhere.com>

Appendix B Informed Consent

Welcome to the Facebook and Well-Being Survey!

We appreciate your interest and we thank you for taking the time to participate.

If you are of legal age to consent in your country of residence (e.g., 19 in Canada and 21 in some U.S. states) and currently have an active Facebook account, you are invited to participate in a survey investigating the relationship between Facebook use and well-being in men and women. This study is being conducted by Shauna Sutherland, graduate student in Psychology, and Enrico DiTommaso, Ph.D., Professor in the Psychology Department at the University of New Brunswick (UNB) Saint John campus.

If you choose to participate, you will have the **option of entering an online raffle to win one of three Visa Gift Cards worth \$25 (CDN)!!**

You will be asked to complete an online survey which will take approximately 30 minutes to complete. The survey includes questions about your opinions concerning topics related to Facebook use (e.g., "How many days per week do you use Facebook?") and your feelings about Facebook, as well as questions concerning depression, loneliness, satisfaction with life, positive and negative emotions, and personality. We ask that you complete the survey in a quiet location where you will not be distracted.

Please note that **participation is completely voluntary. You may withdraw from the study at any time without penalty.** You will also be able to skip any question that you

prefer not to answer. However, you will not be able to enter the raffle until you click the "submit" button at the end of the survey.

Participation in our online survey is confidential, anonymous, and no identifying information will be reported from the results. In the case that you choose to participate in the raffle or receive an email summary of the results, you will be lead to a separate secure site where you will be asked to enter your contact information. If you provide your contact information, this information will be stored separately and will not be associated with your survey data in order to further ensure your anonymity.

Furthermore, all data collected will be stored in a secure database on a secure server hosted by UNB. Only the researchers will have access to the responses and any written or published material as a result of the study will not include any personal participant information.

POTENTIAL BENEFITS: The results of this study will provide information about the relationship between Facebook use and well-being for men and women.

POTENTIAL RISK AND DISCOMFORT: We do not anticipate that you will experience any discomfort during the study. However, if you do feel uncomfortable, you can withdraw from the study at any point in time or choose to not answer questions without penalty.

QUESTIONS: If you have questions before, during, or after the study, you can contact the researcher, Shauna Sutherland at shauna.sutherland@unb.ca, or her supervisor, Dr. Enrico DiTommaso at rico@unb.ca. You can also contact the chair of the Department of Psychology's Ethics Review Committee at the University of New Brunswick, Dr. Daniel Voyer, at psyceethics@unb.ca.

* I confirm that I live in Canada and I am 19 years or older OR I confirm that I live outside of Canada and I am of legal age to consent to participate in my country of residence (age 21 or older in some states/countries and age 18 or older in other states/countries).

- Yes
- No

*I currently have an active Facebook account.

- Yes
- No

*I have read and understand the above information and consent to participating in this online survey.

- I consent
- I do not consent

Appendix C Demographic Questionnaire

How old are you? _____

What is your sex? ___ Female
 ___ Male
 ___ Transgender Man
 ___ Transgender Woman
 ___ Other: _____

What is your occupation? ___ Attending school full-time
 ___ Working full-time
 ___ Attending school and working
 ___ Currently Unemployed

Which of the following BEST describes your race/ethnicity?
 ___ Aboriginal/First Nations
 ___ Black/African
 ___ White/European
 ___ Asian/Pacific Islander
 ___ Hispanic/Latino/Latina
 ___ Biracial/Multicultural
 ___ Other: _____

What is your current relationship status?
 ___ Dating
 ___ In a long term relationship but not living together
 ___ Living with my partner
 ___ Common-law
 ___ Married
 ___ Not currently dating/Single

If you are in a relationship, how long have you been in your current relationship (in months)?
 ___ (months)

Do you use the internet?
 ___ Yes
 ___ No

If yes, how much time do you spent using the internet per day (this includes, but is not limited to, sending emails, browsing websites, watching videos, etc.)?

- 4 or more hours a day
- 3-4 hours a day
- 2-3 hours a day
- 1-2 hours a day
- 30-60 minutes a day
- 10-30 minutes a day
- 10 minutes or less a day

Do you have a Facebook account?

- Yes
- I have deactivated my Facebook account
- No, I do not have a Facebook account

If you do not currently have an active Facebook account, please stop here and do not continue to the following questions. We thank you for your participation.

If you answered yes to the previous question, how long have you had a Facebook account?

- Less than 1 month
- 1-3 months
- 3-6 months
- 6 months – 1 year
- 1-2 years
- 2-3 years
- 3 or more years

How often do you check Facebook on average (i.e., how many times per day do you check Facebook for any reason. This includes, but is not limited to, posting on your Facebook wall, reading your newsfeed, browsing friends' Facebook walls, looking at pictures, etc.)?

- 6 or more times a day
- 4-5 times a day
- 2-3 times a day
- Once daily
- 2 or more times weekly
- Once weekly
- Once or Twice monthly
- Less than once monthly
- A few times per year or less

In total, approximately how much time do you spend checking Facebook per day (on average)?

- 5 or more hours a day
- 3-4 hours a day
- 2-3 hours a day
- 1-2 hours a day
- 30-60 minutes a day
- 10-30 minutes a day
- 10 minutes or less a day

What medium do you use most often to check Facebook?

- Desktop or Laptop Computer
- Cellular Phone
- I use my computer or cell phone equally as often

What do you primarily use Facebook for?

- to meet new people
- to communicate with friends and family
- to contact old friends
- to contact romantic interests
- to play games
- to find information (i.e., news articles)
- to find out about social events

When you are on Facebook, how do you feel (generally)?

	Very Slightly	A little	Moderately	Quite a bit	
Extremely					
	Or not at all				
1. Interested	1	2	3	4	5
2. Distressed					
3. Excited					
4. Upset					
5. Guilty					
6. Hostile					

- 7. Enthusiastic
- 8. Irritable
- 9. Inspired
- 10. Annoyed

Using the list below, please report if you have ever engaged in each activity while on Facebook by placing a checkmark in either the “yes” or “no” option. You can select as many items as necessary. In addition to checking “yes” for each item that applies to you, please also rate the degree to which you have engaged in the activity by placing a checkmark next to the appropriate response option. For example, if you have posted pictures on Facebook, you would place a checkmark next to “yes” for the item “Post pictures”. In addition, if you post pictures on a daily basis, you would place a checkmark next to the response option “Daily”.

Take part in social Activism (i.e., signing petitions, finding information about rallies or protests, sharing news related to social issues that are important to you, joining groups related to social issues) Yes ___ No ___

- ___ 6 or more times a day
- ___ 4-5 times a day
- ___ 2-3 times a day
- ___ Once daily
- ___ 2 or more times weekly
- ___ Once weekly
- ___ Once or Twice monthly
- ___ Less than once monthly
- ___ A few times per year or less

Play Facebook games Yes ___ No ___

- ___ 6 or more times a day
- ___ 4-5 times a day
- ___ 2-3 times a day
- ___ Once daily
- ___ 2 or more times weekly
- ___ Once weekly
- ___ Once or Twice monthly
- ___ Less than once monthly

___ A few times per year or less

Post Pictures

Yes ___ No ___

- ___ 6 or more times a day
- ___ 4-5 times a day
- ___ 2-3 times a day
- ___ Once daily
- ___ 2 or more times weekly
- ___ Once weekly
- ___ Once or Twice monthly
- ___ Less than once monthly
- ___ A few times per year or less

**Post general status updates
related to daily activities**

Yes ___ No ___

- ___ 6 or more times a day
- ___ 4-5 times a day
- ___ 2-3 times a day
- ___ Once daily
- ___ 2 or more times weekly
- ___ Once weekly
- ___ Once or Twice monthly
- ___ Less than once monthly
- ___ A few times per year or less

**Post status updates related to
news of significant positive life
events**

Yes ___ No ___

- ___ 6 or more times a day
- ___ 4-5 times a day
- ___ 2-3 times a day
- ___ Once daily
- ___ 2 or more times weekly
- ___ Once weekly
- ___ Once or Twice monthly
- ___ Less than once monthly
- ___ A few times per year or less

**Post status updates related to
News of significant negative life
events**

Yes ___ No ___

- 6 or more times a day
- 4-5 times a day
- 2-3 times a day
- Once daily
- 2 or more times weekly
- Once weekly
- Once or Twice monthly
- Less than once monthly
- A few times per year or less

Share links related to news stories, videos, websites, etc. that you find funny or interesting Yes ___ No ___

- 6 or more times a day
- 4-5 times a day
- 2-3 times a day
- Once daily
- 2 or more times weekly
- Once weekly
- Once or Twice monthly
- Less than once monthly
- A few times per year or less

Check Facebook wall Yes ___ No ___

- 6 or more times a day
- 4-5 times a day
- 2-3 times a day
- Once daily
- 2 or more times weekly
- Once weekly
- Once or Twice monthly
- Less than once monthly
- A few times per year or less

Post on other people's wall Yes ___ No ___

- 6 or more times a day
- 4-5 times a day
- 2-3 times a day
- Once daily
- 2 or more times weekly

- Once weekly
- Once or Twice monthly
- Less than once monthly
- A few times per year or less

Send private Facebook messages Yes No

- 6 or more times a day
- 4-5 times a day
- 2-3 times a day
- Once daily
- 2 or more times weekly
- Once weekly
- Once or Twice monthly
- Less than once monthly
- A few times per year or less

Appendix D
Bergen Facebook Addiction Scale (BFAS)

	BFAS				
How often during the last two weeks have you...	Very Rarely	Rarely	Sometimes	Often	Very Often
	0	1	2	3	4
1. Spent a lot of time thinking about Facebook or planning your use of Facebook					
2. Felt an urge to use Facebook more and more					
3. Used Facebook in order to forget about personal problems					
4. Tried to cut down your use of Facebook without success					
5. Become restless or troubled if you are prohibited from using Facebook					
6. Used Facebook so much that it has had a negative impact on your job or studies					

Appendix E

Facebook Passion Scale (FPS)

Passion Scale

For the following items, please consider your reasons for using Facebook over the past two weeks and consider the extent to which you agree or disagree with each statement.

Very Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Very Strongly Agree
1	2	3	4	5	6	7

**1.I cannot live
without Facebook**

**2.I am emotionally
dependent on
Facebook**

**3.I have a tough
Time controlling
my need to use
Facebook**

**4.I have almost an
obsessive feeling
for Facebook**

**5.The urge is
so strong,
I cannot help
myself from
using Facebook**

**6.Facebook allows
Me to live memorable
experiences**

**7.Facebook is
in harmony
with the other activities
in my life**

**8.The new things
that I discover
with Facebook
allow me to appreciate
it even more**

**9. Facebook reflects
The qualities I
like about myself**

**10. Facebook allows
Me to live a variety
of experiences**

Appendix F

Patient Health Questionnaire-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problem

- | | Not at all | Several Days | More Than Half the Days | Nearly Every Day |
|---|------------|--------------|-------------------------|------------------|
| | 0 | 1 | 2 | 3 |
| 1. Little interest or pleasure in doing things | | | | |
| 2. Feeling down, depressed, or hopeless | | | | |
| 3. Trouble falling or staying asleep, or sleeping too much | | | | |
| 4. Feeling tired or having little energy | | | | |
| 5. Poor appetite or overeating | | | | |
| 6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down | | | | |
| 7. Trouble concentrating on things, such as reading the newspaper or watching television | | | | |
| 8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual | | | | |
| 9. Thoughts that you would be better off dead or of hurting yourself in some way | | | | |

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- | Not Difficult at all | Somewhat Difficult | Very Difficult | Extremely Difficult |
|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Appendix G
Satisfaction With Life Scale (SWLS)

SWLS

Below are five statements with which you may agree or disagree. Using the scale below, indicate your agreement with each item when considering the past two weeks by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- | | | |
|---|---|----------------------------|
| 1 | = | Strongly disagree |
| 2 | = | Disagree |
| 3 | = | Slightly disagree |
| 4 | = | Neither agree nor disagree |
| 5 | = | Slightly agree |
| 6 | = | Agree |
| 7 | = | Strongly agree |

- _____ 1. In most ways my life is close to my ideal.
- _____ 2. The conditions of my life are excellent.
- _____ 3. I am satisfied with my life.
- _____ 4. So far I have gotten the important things I want in life.
- _____ 5. If I could live my life over, I would change almost nothing.

Appendix H
Social and Emotional Loneliness Scale for Adults – Short Version (SELSA-S)

SELSA-S

On this page you find a number of statements that an individual might make about his/her social relationships. Please read these statements carefully and indicate the extent to which you agree or disagree with each one as a statement about you, using the 7-point rating provided to the right of each question.

Please take a moment to think your relationship with your partner, your family and your friends over the past 2 weeks. Please circle the number that best reflects the degree to which each of the following statements describes your thoughts and feelings during the PAST 2 weeks. Please try to respond to each statement.

In the last 2 weeks:

	Strongly Disagree							Strongly Agree
1. In the last two weeks I felt alone when I was with my family.	1	2	3	4	5	6	7	
2. In the last two weeks I felt part of a group of friends.	1	2	3	4	5	6	7	
3. In the last two weeks I had a romantic partner with whom I shared my most intimate thoughts and feelings.	1	2	3	4	5	6	7	
4. In the last two weeks there was no one in my family who I could depend on upon for support and encouragement, but I wish there had been.	1	2	3	4	5	6	7	
5. In the last two weeks my friends understood my motives and reasoning.	1	2	3	4	5	6	7	
6. In the last two weeks I had a romantic or martial partner who gave me the support and encouragement I needed.	1	2	3	4	5	6	7	
7. In the last two weeks I didn't have a friend (s) who shared my view, but I wish I had.	1	2	3	4	5	6	7	
8. In the last two weeks I felt close to my family.	1	2	3	4	5	6	7	
9. In the last two weeks I was able to depend on my friends for help.	1	2	3	4	5	6	7	
10. In the last two weeks I wished I had a more satisfying romantic relationship.	1	2	3	4	5	6	7	
11. In the last two weeks I felt a part of my family.	1	2	3	4	5	6	7	

12. In the last two weeks my family really cared about me.	1	2	3	4	5	6	7
13. In the last two weeks I didn't have a friend (s) who understood me, but I wish I had.	1	2	3	4	5	6	7
14. In the last two weeks I had a romantic partner to whose happiness I contributed.	1	2	3	4	5	6	7
15. In the last two weeks I had an unmet need for a close romantic relationship.	1	2	3	4	5	6	7

Appendix I
The Positive and Negative Affect Schedule (PANAS)

PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past 2 weeks. Use the following scale to record your answers.

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	Extremely

_____ interested	_____ irritable
_____ distressed	_____ alert
_____ excited	_____ ashamed
_____ upset	_____ inspired
_____ strong	_____ nervous
_____ guilty	_____ determined
_____ scared	_____ attentive
_____ hostile	_____ jittery
_____ enthusiastic	_____ active
_____ proud	_____ afraid

Appendix J

Big Five Inventory-10 (BFI-10)

BFI-10

Instruction: How well do the following statements describe your personality over the last two weeks?

I see myself as someone who...

	Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
	1	2	3	4	5
1. is reserved					
2. is generally trusting tends to be lazy					
3. is relaxed, handles stress well					
4. has few artistic interests					
5. is outgoing, sociable tends to find fault with others					
6. does a thorough job					
7. gets nervous easily					
8. has an active imagination					

Appendix K Debriefing Information

Thank you for taking the time to participate in our research. This study attempted to investigate the relationship between Facebook use (e.g., frequency of use, feelings about Facebook) and well-being for men and women.

Founded in 2004, Facebook is a relatively recent development in an online world that appears to have taken a hold of the social lives of many individuals in its relatively short lifespan. This is demonstrated in part by its more than 500 million active users (50% of whom login on any given day) who spend over 700 billion minutes logged onto Facebook per month. Given these statistics, there is no denying that the well-being of Facebook users is likely being influenced in numerous ways.

For example, based on the current literature we hypothesize that for some people, passion for Facebook can lead to problematic use, which can have a negative impact on their lives. On the other hand, other users would be passionate about Facebook in such a way that it can have a positive impact on their lives.

For those who would like to learn more about this topic, please find below a select list of suggested reading:

Andreassen, C., Torsheim, T., Brunborg, G., & Pallesen, S. (2012). Development of a Facebook Addiction Scale. *Psychological Reports, 110*(2), 501-517. doi: 10.2466/02.09.18.PRO.110.2.501-517

Balakrishnan, V., & Shamim, A. (2013). Malaysian Facebookers: Motives and addictive behaviours unravelled. *Computers in Human Behavior, 29*(4) 1342-1349. doi: 10.1016/j.chb.2013.01.010

Vallerand, R. J. (2012). From motivation to passion: In search of the motivational processes involved in a meaningful life. *Canadian Psychology/Psychologie Canadienne, 53*(1), 42-52. doi: 10.1037/a0026377

If you would like further information regarding any aspect of this study, please feel free to contact the researchers.

Shauna Sutherland: shauna.sutherland@unb.ca Dr. E. DiTommaso: rico@unb.ca

If you would like to contact someone who is not directly involved in this research that can provide further information regarding your participation, you can contact Dr. Daniel Voyer, Chair, Research Ethics Board, UNB Fredericton Psychology Department at psychethics@unb.ca

In addition, if you feel the need for further assistance or information regarding your Facebook use behavior or well-being, we would encourage you to speak to a trained professional. For University of New Brunswick participants, this could include contacting UNB's counselling services at (506) 453-4820 (Fredericton) or sending an email to sjcounsellor@unb.ca (Saint John). For those participants who are not students, we would encourage you to contact your local community mental health center. We also recommend the following websites as a resource: <http://virtual-addiction.com/> and <http://www.webmd.com/mental-health/features/when-technology-addiction-takes-over-your-life>

Thank you once again for your participation!

Appendix L

Raffle information and follow-up research request

Thank you very much for participating in our research! We appreciate your time and effort.

In return for your participation you may enter our raffle to win one of three \$25 Visa gift cards.

All you have to do is enter your **email address below.**

In addition, we are asking for your permission to be contacted in the future for further research. If you would agree to be contacted to answer more questions regarding your Facebook use, please also select the option “I consent to being contacted for future research”. Of course, consenting to being contacted in the future does not mean you have committed to participating. If at the time of contact you are no longer interested or able to participate, we will understand!

**We will contact winners of the raffle when the contest closes.
Good Luck!!**

CURRICULUM VITAE

Shauna Louise Sutherland

Universities attended (with dates and degrees obtained):

2009-Present Ph.D., Clinical Psychology, University of New Brunswick

2004-2008 B.A., (Honours), Psychology, Saint Mary's University

Publications: None.

Peer-Reviewed Conference Presentations:

Sutherland, S. L., & DiTommaso, E. (2012, June). *The role of Facebook use in individual and romantic well-being*. Poster presented at the Canadian Psychological Association Conference, Halifax, NS.

Sutherland, S. L., Arthurs, S. A., & DiTommaso, E. (2011, June). *Religiosity, spirituality, and attachment to God: Implications for well-being*. Poster presented at the Canadian Psychological Association Conference, Toronto, ON.

Other Conference Presentations:

Sutherland, S. L., Arthurs, S. A., & DiTommaso, E. (2010, March). *Religiosity, spirituality, and attachment to God: Implications for well-being*. Poster presented at the Interprofessional Health Research (iHR) Conference, Saint John, NB.

Sutherland, S. L., McGrath, D., Graham, A. R., Breen, E. K., Allen, S. L., Tonet, J., Sherry, D. L., Stewart, S. H., & Sherry, S. B. (2009, April). *Perfectionism and depression: Testing vulnerability, scar, and reciprocal hypotheses in a 3-wave longitudinal study*. Poster session presented at Meeting at the Crossroads: Student Research in Health Conference, Dalhousie University, Halifax, NS.

Hartling, N., Doucette, S., Fossum, K., Hamilton, A., **Sutherland, S. L.**, Sherry, D. L., Stewart, S. H., & Sherry, S. B. (2009, May). *A preliminary test of the interpersonal model of health anxiety in romantic couples*. Poster session presented at the 33rd Annual Atlantic Provinces Council on the Sciences Undergraduate Psychology Conference, Mount Saint Vincent University, Halifax, NS.

Hartling, N., Doucette, S., Fossum, K., Hamilton, A., **Sutherland, S. L.**, Sherry, D. L., S. H., & Sherry, S. B. (2009, April). *Testing the interpersonal model of health anxiety: Does health-related worry mediate the relation between interpersonal neuroticism and reassurance-seeking?* Poster session presented at Meeting at the Crossroads: Student Research in Health Conference, Dalhousie University, Halifax, NS.

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