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THE RELATIONS AMONG MOTIVES, NEGATIVE AFFECT, AND CONTEMPORARY COMPUTER USAGE: WHO IS USING WHAT AND WHY?

Emily Orr
University of Windsor

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by
Emily S. Orr

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Emily S. Orr

APPROVED BY:

_____
Dr. Serge Desmarais, External Examiner
University of Guelph

_____
Dr. Kai Hildebrandt
Communication, Media, and Film

_____
Dr. Ken Cramer
Psychology

_____
Dr. Alan Scoboria
Psychology

_____
Dr. R. Robert Orr, Advisor
Psychology

_____
Dr. M. Khalid, Chair of Defense
Faculty of Graduate Studies and Research

May 15, 2012

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ABSTRACT

Researchers in the domain of computer-mediated communication (CMC) are beginning

to investigate the motives for using tools such as Facebook and MSN Messenger (MSN).

It is unclear, however, whether motives specific to Facebook and MSN use are associated

with negative affect or with the use of these tools. The present study investigated the

motives for Facebook and MSN use and the affective and usage correlates of these

motives. A total of 360 CMC users were recruited for this study. Of this total, 350 were

Facebook users and 259 were MSN users. The study was conducted online and

participants completed a series of self-report questionnaires assessing motives, negative

affect, and CMC use. Data reduction analyses of motives questionnaires revealed five

motives for Facebook use and four motives for MSN use. The Regulation of Social

Anxieties motive for Facebook use and the Offline Stress Reduction motive for MSN use

were both positively correlated with negative affect (NA) and social avoidance, and

negatively correlated with positive affect (PA). The Enjoyable Distraction motive (for

both Facebook and MSN) was positively correlated with the frequency of Facebook use

and with the intensity of Facebook and MSN use. These results demonstrated that the

CMC use motives that correlated with negative affect were different from the CMC use

motives that correlated with CMC usage. The present study also demonstrated the

importance of including a measure of negative affect (NA) when investigating CMC

motives and affective correlates. Implications for using the need to belong framework

(Baumeister & Leary, 1995) in CMC motives research were discussed.

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CHAPTER I
INTRODUCTION AND LITERATURE REVIEW

In the last decade, the Internet has become a primary vehicle for communication and social interaction. New and varied Internet-based tools have been developed and are continually modified to facilitate online communication. Because of these developments, interpersonal communication has changed, and with it, relationships among people have changed. Relationships that are maintained primarily (and sometimes developed) through these computer-mediated communication (CMC) channels are now machine-to-machine, rather than face-to-face or voice-to-voice. These tools provide new and exciting ways to communicate and they are changing the way human beings interact and how relationships are formed and maintained (Ross, 2010).

Although the nature of communication in human relationships is changing, there is much that is unknown about what motivates people to use CMC. The purpose of the present study was to examine the motives for using Facebook (a social networking site [SNS]) and for using MSN Messenger (an instant messaging [IM] program). The present study also investigated the relations between the motives for CMC use and negative affect, including symptoms of depression and social anxiety. Finally, the relations between motives and the frequency and intensity of Facebook and MSN use were explored.

CMC: The New Research Domain

Computer-mediated communication (CMC) refers to any form of interpersonal communication facilitated through the use of a computer. Computer-mediated communication tools are the vehicles through which this communication takes place. By definition, CMC is a social enterprise as it requires the interaction of two individuals.

There are many genres of CMC tools that individuals can use to communicate and interact with one another. Two previously identified examples of CMC genres are social networking sites (SNSs) and instant messaging (IM) programs. There can be many examples of specific tools within each CMC genre. These tools are constantly evolving and developing idiosyncratic features. As such, each tool offers unique social experiences that can alter the motivations to use it. This can also be the case for tools from the same genre. Facebook and MSN Messenger were selected as the specific communication tools of interest for the present study because they were popular examples of SNSs and IM programs at the outset of this study.

The present study investigated the unique motives for using Facebook and for using MSN Messenger. The analyses presented in the Results section of this document are applicable to Facebook and MSN as they existed when the data were collected (i.e., between February 2010 and August 2010). The following paragraphs will outline the features offered by these tools at that time. As CMC tools evolve, researchers are provided with opportunities to track how motives for using CMC and usage patterns change over time. These patterns can only be tracked, however, if researchers describe the nature and features of the investigated CMC tools when the data were collected.

Social networking sites (SNSs) are websites that allow users to create profiles (i.e., electronic interactive scrapbooks). Once an SNS account is established, users can search for friends or other users of that SNS. Most SNSs allow users to add friends (i.e., contacts) to their lists and then browse the profiles of these friends. Facebook is an SNS that is somewhat unique because, unlike other SNSs such as MySpace, Facebook users have a tendency toward adding their offline acquaintances as their Facebook friends

(Ellison, Steinfield, & Lampe, 2007). At the outset of the present study (i.e., February 2010), Facebook offered many features to personalize Facebook profiles. These features included options to: post photos; post notes (a feature where users could write mini-blogs or articles); post or join events (a feature where users could advertise and manage the guest-lists for real-world events or signal their intent to attend a contact's event); join groups (a feature where users could join specific forums of other users with whom they shared goals, origins, or beliefs); post status updates (a feature where users could advertise what they were doing at a given moment); send messages (a feature where users could send private messages to other users, accessible only through the Facebook messaging system); post links (a feature where users could share URLs to websites of interest); and, post items in Marketplace (an online store where Facebook users could post items for sale to other users). Facebook users could also post publicly visible messages on the "walls" (i.e., the main profile page) of their Facebook friends.

Two additions were made to Facebook around the time of the launch of this study. Since this time, these features have changed some of the previously mentioned features. Two of these additions were the "Like" feature (where users could indicate that they liked something a friend had posted), and an on-site chat feature (through which users could send real-time instant messages to friends, provided those friends were online and at the Facebook.com website). The Like feature, in particular, has since contributed to significant changes in how Facebook is used. For example, Facebook users can now indicate whether they "Like" online material on non-Facebook.com websites (e.g., a product's webpage, or a television show hosted on an online streaming site, etc.). "Liked" information is linked to users' Facebook accounts and is displayed in their profiles. This

feature allows advertisers to track Facebook users' online whereabouts in order to target online marketing endeavours. The increasing popularity and use of this feature has coincided with a relative demotion of the Groups feature. Currently, public figures and activities develop "Pages" (i.e., those that Facebook users can "Like") in lieu of Groups. The Facebook real-time instant messaging program has also undergone significant evolution since the outset of the present study. This feature now links the histories of users' private messages to their instant messaging histories, ostensibly merging these features that were once separate. These examples serve to highlight that Facebook is a continuously changing tool, evolving rapidly even during the course of the present research.

Instant messaging (IM) programs are platforms that allow users to send real-time text messages, typically through free online services. The primary service offered by IM programs is akin to text messages that can be sent through mobile phones. Windows Live Messenger (formerly known as MSN Messenger, but still colloquially and henceforth referred to as MSN) is an IM program that was initially developed for Windows and launched by Microsoft in 1999 (Windows Live Messenger, n.d.). In order to utilize this program, individuals must first download the free software to their personal computer. They can then add other MSN users (via e-mail addresses) to their personal contacts lists. As of February 2010, MSN had a number of features available in addition to traditional contact-to-contact chat features. A group chat feature was offered, wherein users could invite more than one contact to chat in the same message forum. All users invited to the group chat could read messages from and send messages to the other MSN users participating in the chat. Users were also able to directly send files from their computer

(i.e., the computer on which MSN was downloaded) through MSN to the computers of their contacts. Two other features offered at the outset of this study were PC-to-PC calls and PC-to-phone calls. These two features allowed users with the necessary hardware to speak via voice, through their computers to the computers, landlines, or mobile phones of their contacts. At the outset of the present study, MSN users could send messages to offline contacts (i.e., so that they would receive the messages once they returned online). MSN also offered game options which allowed MSN users to play real-time electronic versions of traditional games with their contacts (e.g., playing a virtual game of chess). More recent versions of MSN have integrated the technology of this IM program with other forms of electronic entertainment. For example, mobile phone users with data streaming capabilities can access and operate MSN on their phones. Furthermore, a system known as Windows Live Messenger 360 now allows MSN users to access information about their contacts from their Xbox Live accounts (a gaming system that connects Xbox users via their Internet connections).

Aside from noting the dates of data collection in CMC research, another important element in this domain is assessing and reporting the frequency and intensity of tool use. Frequency of CMC tool use is the number of separate times an individual logs on to a CMC tool. Intensity refers to the amount of time spent online in a typical or average session. For example, someone may use MSN with low frequency and high intensity (e.g., they log on once a day, but actively use MSN for several hours). Someone who uses a tool with high frequency and low intensity may be someone who logs in to Facebook many times a day, but stays logged on for seconds (e.g., to check their wall or messages).

Facebook and MSN are two computer-mediated communication (CMC) tools that, at the outset of this study, were popular examples of social networking sites (SNSs) and instant messaging (IM) programs, respectively. Tools such as these are changing the way relationships are formed and maintained. The reasons why individuals turn to these tools is unclear. Accordingly, the present study investigated the motives for using Facebook and MSN. The present study also investigated the affective and usage correlates of these motives.

Motivation and the Need to Belong

Humans are motivated to engage in a variety of behaviours, from seeking out food and water, to competing with others for limited resources. Theorists from different backgrounds vary with respect to their beliefs as to what causes human behaviour (e.g., biology and neurobiology theories, drive-reduction theories, learning theories, psychoanalytic or unconscious theories, etc.). Perhaps one of the most noted theories of human motivation is need theory. Need theory asserts that all humans have fundamental needs that are required to survive and to function with minimal distress. These needs result in motivated actions and reactions. One of the most prominent and most cited needs theorists is Abraham Maslow (Koltko-Rivera, 2006).

Before publishing his own theory, Maslow (1943b) argued that a comprehensive theory of motivation should meet several conditions. Maslow stressed that motivation theories should focus on the end goal, as opposed to the means to get there. That is, Maslow believed that the motivated behaviours (or "pathways," p. 370, 1943a) to satisfying needs were not as relevant as the goals or needs themselves. Maslow believed that a focus on pathways would neglect unconscious pathways. Maslow argued that a

single motivated behaviour (i.e., a pathway) could simultaneously satisfy more than one need. Similarly, he noted that multiple motivated behaviours (or pathways) could contribute to the same end-goal (i.e., a particular need).

Maslow went on to publish his own theory of motivation (1943a) using the criteria he had published earlier (1943b). His theory outlined a hierarchy of the following five needs: physiological needs; safety needs; love needs; esteem needs; and self-actualization needs. In his earlier work outlining the necessary conditions of a theory of motivation (1943b), Maslow noted that human needs must be arranged in a hierarchy where, if lower-level needs are not met (e.g., physiology), then higher-level needs (e.g., self-actualization), cannot be met. Accordingly, Maslow's theory of motivation is often arranged in a five-step pyramid with physiological needs as the foundation, followed by safety, love, and esteem needs, with self-actualization needs as the pyramid cap. Belongingness needs were considered part of "love needs" in Maslow's conceptualization. Maslow's framework for motivation theories suggests that computer-mediated communication (CMC) usage is a means; it is a motivated behaviour. Accordingly, the motives to use of Facebook or MSN are pathways and not end-goals or needs. This, consequently, raises the question as to what need are these behaviours (i.e., using Facebook and MSN) attempting to satisfy? Given that CMC is an inherently social enterprise, it would seem as though the need to belong likely represents a fundamental need that motivates CMC use.

The need to belong has been described as a fundamental need of existence (Baumeister & Leary, 1995). This powerful human need motivates goal-directed behaviour intended to establish and maintain loving interpersonal relationships. Maslow's

own theory of motivation supported the concept of a human need for love, although his framework argued that behaviours to satisfy this need were only initiated if a person had met their physiological and safety needs. Baumeister and Leary's (1995) theory emphasized that the need to belong is more fundamental (i.e., as opposed to being a higher level motive). This need was satisfied by developing and maintaining "lasting, positive, and significant relationships." Baumeister and Leary argued that this need was met if an individual was exposed to "frequent interaction plus persistent caring" (p. 497). The notion of the need to belong as a fundamental and primary motive of human behaviour is familiar in clinical settings where patients may forgo physiological needs (e.g., food and health) or compromise safety needs (e.g., staying in an abusive relationships) in order to maintain a sense of connectedness with others.

Baumeister and Leary (1995) argued for the primacy of the need to belong by examining cross-cultural evidence. They presented the following five arguments as evidence that the need to belong is fundamental: (a) social interactions are natural and do not require special circumstances to form; (b) humans actively resist the deterioration of interpersonal bonds; (c) a great deal of intra-individual processes (e.g., thoughts, emotions, and behaviours) are directed toward interpersonal processes; (d) the loss of interpersonal relationships is correlated with affective distress and poor physical health; and, (e) group formation has been imperative in the survival and reproduction of many cultures and species. On the basis of this cross-cultural evidence, they concluded that the need to belong is a fundamental need that motivates human behaviour. Baumeister and Leary (1995) noted that the need to belong is not fundamentally more important than other needs (such as Maslow's physiological or safety needs) but suggested that the

motivated behaviours to satisfy other needs would not compete with or prohibit behaviours meant to establish and maintain interpersonal relationships.

Both Maslow's (1943a, 1943b) and Baumeister and Leary's (1995) theories noted that when human needs are unmet, distress (both physical and mental) ensues. Baumeister and Leary demonstrated this premise with a review of empirical evidence. They reported that the presence of satisfactory interpersonal relationships was strongly negatively correlated with "unhappiness, depression, and other woes" (p. 506). They further outlined that failure to satisfy the need to belong was associated with increases in depression, grief, anxiety, guilt, jealousy, and loneliness. Baumeister and Leary's (1995) concluding statement regarding emotion and the need to belong was: "Many of the strongest emotions people experience, both positive and negative, are linked to belongingness" (p. 508).

Negative Affect

Computer-mediated communication (CMC) is a social enterprise that connects people. The present study investigated the motives for CMC use within the framework that a need to belong operates as a fundamental human need. It is this need that drives human behaviour. If unfulfilled belongingness needs motivate CMC use for some individuals, then it would suggest that negative affect (and its correlates) may also be related to CMC use for some users. Toward that end, past research has shown that increasing well-being (i.e., satisfaction with life) is negatively correlated with time spent using CMC (Schiffrin, Edelman, Falkenstern, & Stewart, 2010). This suggests that people who are not satisfied with their lives (and who may be experiencing negative affect) are likely to use CMC more intensely. The exact nature of this relation, however, is not

causal, although it suggests that life dissatisfaction (and, relatedly, negative affect) is positively correlated with intensity of CMC use. Given that Schiffrin and colleagues (2010) demonstrated a significant relation between life dissatisfaction and intensity of CMC use, it seems logical to suggest that negative affect may also be associated with CMC use. As outlined by Baumeister and Leary (1995), negative affect is often generated by having too few social relationships (a sentiment echoed by Schiffrin et al., 2010) and an unfulfilled need to belong. Negative affect in the need to belong literature, however, is most often assessed via clinical constructs such as social anxiety and depression. Accordingly, these variables will now be defined and described. Subsequently, the relations among these variables and CMC use will be described.

Social anxiety is an anxiety disorder that includes an unrelenting fear of one or more social situations, often related to concerns of interpersonal judgement (APA, 2000). These worries may extend to social interactions and/or performance situations. Individuals with social anxiety report that they know that their fears are excessive, but nonetheless avoid social situations or endure them with significant anxiety and discomfort (APA, 2000). Social anxiety generates fear and avoidance of social situations in offline settings and has also been shown to be negatively correlated with fulfilment of the need to belong (Baumeister & Leary, 1995). People with social anxiety typically have fewer offline relationships than they desire due to the discomfort they experience in social situations. It seems logical, then, to assume that symptoms of social anxiety will be positively correlated with attempts to establish relationships through (less threatening) online situations. Indeed, McKenna and Bargh (1999) reported that social anxiety was significantly associated with establishing relationships through the Internet. The

Liebowitz Social Anxiety Scale – Self-Report (LSAS-SR; Liebowitz, 1987) will be used to assess social anxiety symptoms in the present study.

A major depressive episode (or a depression) is a discrete episode of depressed mood with additional cognitive and behavioural symptoms. If an individual experiences a depressive episode, the episode can include some or all of the following symptoms: depressed or sad mood; significantly reduced interest and/or motivation to engage in formerly enjoyed activities (i.e., anhedonia); changes to appetite and/or sleep; loss of energy; restlessness or moving more slowly; negative thoughts about the self; impaired cognitive functions; and thoughts of suicide (APA, 2000). Unsatisfactory interpersonal relationships are not diagnostic of depression, but empirical evidence has demonstrated that when people do not have frequent contact with loving others, they are more likely to experience depressive symptoms (Baumeister & Leary, 1995). That is, an unsated need to belong is associated with symptoms of depression. It seems reasonable to assume, then, that depression symptoms may be associated with motives to establish caring relationships with others and, consequently, may result in the use of computer-mediated communication (CMC). The Center for Epidemiological Studies-Depression scale (CES-D; Radloff, 1977) will be used in the present study to assess depression symptoms.

In addition to the CES-D as a measure of depression, the present study also included a measure of personality traits that are typically associated with the development and maintenance of depression symptoms. The depressive personality traits were included, not as a measure of personality, but as a means to further clarify significant results pertaining to depression symptoms.

Blatt (1974) developed a conceptualization of depressive personality styles after he observed that there were certain character traits that were routinely associated with depression. These personality styles were not diagnostic of depression and were based in a psychoanalytic, object relations framework. Blatt (1974) argued that individuals with these personality traits had an increased susceptibility to depression (i.e., they were more likely to develop depressive episodes). The characteristics of these individuals differed from those who appeared to have less susceptibility to depression. Blatt, D'Affliti, and Quinlan (1976) developed the Depressive Experiences Questionnaire (DEQ) with items reflecting the behaviours and characteristics that Blatt observed to be associated with developing depression. Factor analyses of the DEQ revealed that there were two personality structures associated with the development of depression: the self-critical personality and the dependent personality. Individuals with self-critical personality traits were vulnerable to self-perceived failure and concerns about loss of environmental control (Blatt et al., 1976). Conversely, individuals with dependent personality traits required ongoing care and attention from those around them. In the absence of such care, these individuals were prone to feeling abandoned. Dependent individuals were apt to placate their significant others in order to pro-actively preserve their relationships (Blatt et al, 1976).

It should be noted that these personality styles are different from dysthymic disorder (i.e., a sub-clinical major depressive episode) given that Blatt's conceptualization was based in psychoanalytic theory as opposed to the symptomatic expressions of depression. That is, the criteria used to assess the depressive personality styles are not symptoms of depression. Rather, they are personality traits that have been

observed to be correlated with developing depression. The DEQ will be used to assess dependent and self-critical personality traits. Again, this measure is not included as a primary measure of personality, but rather is included to help clarify any significant results related to depressive symptoms and motives for CMC use.

Finally, Watson, Clark, and Tellegen's (1988) formulation of positive affect (PA) and negative affect (NA) was used in the present document. It is important to specify the use of the term "negative affect" in the present study, given that this is a measurable construct within the context of Watson and colleague's (1988) formulation. When "negative affect" is followed by the acronym "NA," or when NA is used independently, it refers to Watson et al.'s (1988) measurable variable. When the term "negative affect" is used without the "NA" qualifier (e.g., in the title of this document), it refers to the collective of affective variables assessed in the present study, including NA, social anxiety symptoms, and depression symptoms. It is also acknowledged that although Positive affect (PA) is a factor that is qualitatively distinct from NA (i.e., and not merely the opposite of NA), PA was considered one of the "negative affect" variables of the present study. It was described in this manner for ease and clarity. With that clarification outlined, the following paragraphs will review Watson's (1988) conceptualization of NA and PA.

Watson et al. (1988) reported that when mood scales (e.g., for depression or anxiety symptoms) are factor analyzed, they consistently generate two factors: a positive affect (PA) factor and a negative affect (NA) factor. The reliability with which these two factors have been obtained suggests that these factors are distinct from one another. Positive affect (PA) is conceptualized as representing pleasure, excitement, and focus at

the high end, and as feeling down and lethargic at the low end. Conversely, negative

affect (NA) is better understood as a state of agitation. Low levels of NA are manifested

as a state of relaxation and high levels of NA are manifested in signs of affective distress.

Watson et al. (1988) further reported that NA that is associated with subjective distress

and poor coping, whereas PA is correlated with social engagement.

Watson and colleagues (1988) developed the Positive and Negative Affect

Schedule (PANAS) to assess NA and PA. Much of the variance in scores on measures of

depression and anxiety is accounted for by NA (Clark & Watson, 1991). Accordingly, the

present study included the PANAS to determine whether significant correlations

involving the CES-D score for depression or the LSAS-SR scores for social anxiety were

due to negative affect (NA) or the unique variance associated with depression or anxiety

symptoms.

In summary, the present study will use the PANAS, LSAS-SR, CES-D, and DEQ

to assess NA, PA, social anxiety symptoms, depression symptoms, and depressive

personality traits. The relations between these variables and the use of computer-

mediated communication (CMC) will now be reviewed.

Affect and CMC

According to Tyler (2002), since its commercialization almost two decades ago,

the Internet has been both blamed for negative affective experiences (e.g., loneliness) and

heralded for the benefits it provides for those who struggle with social or communication

deficits. Similarly, Tyler argued that there were two competing research frameworks with

respect to Internet use when it first became an object of empirical investigation (2002).

One framework suggested that the Internet and computer-mediated communication

(CMC) tools provided greater quantity and quality of social interactions. The opposing framework argued that the Internet made offline social interactions obsolete, to the detriment of people's well-being. This framework developed because the launch of the Internet provided people with many new opportunities to search for information online and to send messages to others (e.g., through initial forms of e-mail or Internet Relay Chat). The abundance of information available at people's fingertips was blamed for weakening offline social ties, given that people were thought to be less likely to leave their homes.

As McKenna and Bargh (2000) reported, these negative initial reactions to the commercial launch of the Internet were fueled by preliminary research in the domain. Some researchers concluded that Internet use was directly or indirectly associated with increased negative feelings and reductions in users' offline social networks, resulting in increased loneliness and depression (for reviews, see Bargh & McKenna, 2004; McKenna and Bargh, 1999, 2000). McKenna and Bargh (2000) argued, however, that the Internet also offered unique opportunities for communication that were not necessarily detrimental. This framework was eventually acknowledged by researchers whose research initially found that use of the Internet was detrimental. For example, one of the seminal studies that blamed the Internet as a cause of loneliness and depression (i.e., Kraut et al., 1998) later reported (with a longitudinal data set) that the harmful effects of Internet use were much less harmful than was initially thought (Kraut et al., 2002). Negative affect is now much less considered as an outcome of Internet use. Researchers are now, however, beginning to evaluate whether negative affect is a motivating factor for CMC use.

The relations between the negative affect variables in the present study and computer-mediated communication (CMC) use will be reviewed in the following sections. Results related to social networking sites (SNSs) and instant messaging (IM) programs will be reported when available.

CMC and positive affect (PA) and negative affect (NA). Recent studies of the relations between computer-mediated communication (CMC) and affect have begun to investigate higher order emotional variables such as Watson et al.'s (1988) positive affect (PA) and negative affect (NA). It is noted that searches for CMC and PA or NA (relative to searches CMC and depression or social anxiety) yield few results. Of these few results, there are none that specifically pertain to motives for CMC use and the relation of these motives to PA and NA. Nonetheless, there have been some studies that have investigated the relations among PA, NA, and CMC use and from which motives for CMC use have been inferred.

Within the context of SNS uses, Lee, Lee, and Kwon (2011) reported a significant correlation between positive affect (PA) and the use of CyWorld (a popular Korean SNS). Using a sample of South Korean university students, Lee and colleagues found that PA was positively correlated with the amount of time spent online on CyWorld (i.e., intensity of CyWorld use). Negative Affect (NA) was not significantly correlated with intensity of use. Lee and colleagues (2011) did not identify motives for CyWorld use.

Seder and Oishi (2009), however, provided a possible explanation for observed links between positive affect (PA) and SNS use. Seder and Oishi (2009) identified that the ethnic compilation of one's Facebook friends network was associated with positive affect. These researchers investigated the homogeneity of new college students'

Facebook friends lists based on observed race or ethnicity. The researchers reviewed the

Facebook friends lists of their participants and categorized participants' friends into

dichotomous categories: "European American" or "Non-European American." The

PANAS was also administered to assess positive affect (PA) and negative affect (NA).

Seder and Oishi found that, for European American participants, the percentage of

European American Facebook friends was positively correlated with positive affect. They

attributed this finding to a similarity bias. That is, European American students were

presumed to identify themselves as more similar to their European American Facebook

friends. Seder and Oishi (2009) argued that "students may be more likely to form deeper

and more supportive friendships – and may be able to do so more quickly – with people

who are perceived to be most similar to them…" (p. 442). In other words, these

researchers suggested that a similarity bias may have allowed participants to establish

close and supportive relationships (i.e., satisfying the need to belong) with ethnically

similar Facebook friends. Accordingly, those with ethnically similar Facebook friends

experienced higher levels of PA. In this case, PA was conceptualized as an outcome

variable. If, however, there is a similarity bias in compiling a Facebook network, then it

leads suggests that people are motivated to use Facebook in a way that allows them to

feel deeply connected with their friends (i.e., to satisfy the need to belong).

On the basis of their findings, Seder and Oishi (2009) implied a motive for CMC

use. This motive was not specifically investigated. Moreover, PA was conceptualized as

an outcome variable as opposed to a motivating factor. In the CMC literature, symptoms

of social anxiety are often investigated as motivating factors as opposed to outcome

variables. Previous research with respect to CMC use and social anxiety symptoms will

be reviewed in the following section. Before reviewing this research, however, a cautionary note is outlined.

When investigating higher-order emotional constructs such as negative affect (NA) or positive affect (PA), individuals cannot be diagnosed with "having" NA or "having" PA. These variables are often conceptualized as falling on a continuum. Conversely, when investigating depression or anxiety, some researchers establish (or claim to establish) "clinical" groups when investigating CMC use motives. That is, on the basis of scores generated by self-report measures, diagnoses of depression or anxiety are assigned. Oftentimes, this is done without using samples from treatment settings. A diagnosis of mental illness, however, requires more information than a checklist of symptoms. Assessments that are limited to self-report checklists fail to take into account response bias, item comprehension, and the participants' personal and contextual information. The present study investigated the correlations between self-reported social anxiety and depression symptoms and motives for CMC use. The present study did not establish clinical or diagnostic groups (e.g., "socially anxious" and "not socially anxious" participants). Previous research with respect to computer-mediated communication (CMC) and social anxiety and depression symptoms will now be reviewed.

CMC and social anxiety symptoms. Stevens and Morris (2007) investigated the relation between social anxiety symptoms and the use of CMC for dating purposes in a college sample. They identified participants who "probably" had social anxiety and participants who were "unlikely" to have social anxiety on the basis of their scores on a measure of social anxiety. Stevens and Morris found that those who probably had social anxiety were significantly more likely to use web-cameras for dating and relationship

maintenance than those who were unlikely to have social anxiety. This appears

counterintuitive as web-cameras allow for simulated face-to-face communication. The

researchers hypothesized, however, that given the poor quality of digital transmission,

anxious users felt as though their partners were unable to detect anxiety reactions. These

results may not hold today given the high resolution of current digital cameras. In

addition to these results, Stevens and Morris (2007) also found that those who were

unlikely to have social anxiety were significantly more likely to make use of blogs (i.e.,

online diaries). Stevens and Morris (2007) did not find any significant differences

between the two groups with respect to use of online dating services or the use of chat

rooms or IM services. Similarly, there were no differences found between the two groups

with respect to the reported time spent online. This research indicated that when socially

anxious users were motivated to use CMC for dating, they were more likely to use web-

cameras. Socially anxious daters were not more motivated to use IM programs (e.g.,

MSN Messenger) compared to non-anxious individuals.

  Although Stevens and Morris (2007) identified CMC-use differences between

those reporting many and few symptoms of social anxiety, their research focused on the

use of computer tools for the purposes of developing or maintaining dating relationships.

Conversely, Madell and Muncer (2006) investigated different CMC uses for university

students who were socially anxious, regardless of the use (e.g., dating purposes). They

found that socially anxious individuals (defined by meeting a cut-off score on a measure

of social phobia) used chat rooms more frequently than those who were not socially

anxious. These researchers did not find any differences between those who were socially

anxious and those who were not with respect to the use of IM programs, e-mail, or the hours spent online.

More recently, Pierce (2009) investigated the use of CMC tools such as social networking sites (SNSs) and instant messaging (IM) programs and the relation between CMC use and social anxiety. Pierce used a sample of high school students. Although no established measure of social anxiety was administered to participants, Pierce asked the high school students about the comfort and discomfort they experienced when speaking with people online and offline. She identified that offline social discomfort was significantly positively correlated with reported comfort in communicating online. Like the present study, Pierce speculated that those with increasing levels of social anxiety were less likely to be satisfying their need to belong offline, resulting in increased use of the Internet and CMC tools to establish and maintain relationships. Similarly, Yen et al. (2012) found that individuals were more likely to report having higher levels of social anxiety in offline situations, relative to online situations and interactions. Although the framework to explain this difference was not provided, Yen and colleagues concluded that the experience of less anxiety in online interactions made it more suitable for online treatment protocols.

The results of Stevens and Morris (2007), Madell and Muncer (2006), Pierce (2009), and Yen et al. (2012) suggest that individuals with more symptoms of social anxiety are more likely to use chat rooms and are more likely to feel comfortable and less anxious when communicating online. Although these studies investigated various CMC uses among those with symptoms of social anxiety, the results are not causal. That is, these participants may have developed social anxiety subsequent to using CMC, that was

then amplified in offline situations. Within the context of the need to belong, however, it is suggested that having an unfulfilled need to belong would create affective distress and motivate social interactions. Although speculative, it seems appropriate to suggest that social anxiety would impede individuals from satisfying their need to belong offline, and perhaps prompt CMC use to establish or maintain relationships online.

In an attempt to explain why those with social anxiety would prefer to communicate online, McKenna, Green, and Gleason (2002) investigated the mediating role of developing one's "real self" through online channels. They investigated the relations between social anxiety and the use of Internet newsgroups. Newsgroups are online discussion forums in which users can post messages that are consistent with the scope of the group. Participants in the McKenna et al. study were current and active users of newsgroups. They were randomly selected to take part in the study. McKenna et al., assessed symptoms of social anxiety, the types of self-disclosures made in the newsgroups, and the types of relationships formed online. McKenna et al.'s (2002) structural equation model indicated that higher scores on a measure of social anxiety predicted more self-disclosures that the participants felt reflected their "real" selves. McKenna and colleagues argued that these self-disclosures coincided with the development of a "real self" which then predicted the development of close online relationships. These researchers explained that participants with social anxiety were not satisfying their need to belong through offline relationships and that this was due, in part, to not being able to express their true selves. McKenna et al. (2002) argued that the physical distance and anonymity of cyberspace allowed socially anxious participants to

openly express themselves. This then allowed these participants to express and develop their "real" selves and then go on to establish close online relationships.

Research pertaining to social and anxiety and CMC use has consistently suggested that social anxiety is a motivating factor for CMC use. Depression symptoms, however, were previously viewed as a negative consequence of CMC use (e.g., Kraut et al., 1998). More recently, however, researchers have begun to investigate the potential of depression symptoms to motivate CMC use. Research with respect to CMC and depression symptoms will now be reviewed.

CMC and depression symptoms. Ybarra, Alexander, and Mitchell (2005) investigated the relation between depressive symptoms and Internet use in youths aged 10-17 years. Participants were selected via a national phone screen and were classified as either having "major depressive-like symptomology" (i.e., when participants endorsed five or more DSM-IV symptoms of depression), "minor depressive-like symptomology" (i.e., when participants endorsed three or four DSM-IV symptoms of depression), and "mild or no depressive symptomology" (i.e., when participants endorsed two or fewer DSM-IV symptoms of depression). Ybarra and colleagues assessed CMC use via items with dichotomous responses (i.e., "yes/no"). Ybarra and colleagues found that youths who were classified as having major depressive-like symptoms were more likely to use the Internet for 3 or more hours once they were logged on. The youths in the major depressive-like symptoms category were more likely to use chat rooms and e-mail, reported greater intensity of Internet use, and reported that they were more likely to contact strangers online. Those in the mild depressive-like symptoms category were more likely to use IM programs. There were no differences among the groups with respect to

frequency of Internet use. Ybarra et al.'s (2005) results indicated that, for pre-adolescents and adolescents, more symptoms of depression were associated with use of chat rooms and e-mails, with more time spent online, and with communicating with strangers. With respect to this latter finding, Ybarra and colleagues speculated that increased contact with strangers was due, in part, to deficits in social knowledge in the depressed youths. That is, those with more depression symptoms were less likely to be socially aware and more likely to be socially awkward in offline settings. Ybarra et al. speculated that online communication provided opportunities for social interactions without needing to understand social cues (e.g., body language) and norms.

In a unique research design, Moreno et al. (2011) investigated disclosure of depression symptoms through the Facebook status update feature. Specifically, these researchers followed the profiles of 200 university freshmen and sophomore students, noting changes to status updates that referenced any of the DSM-IV diagnostic criteria for depression (APA, 2000). They also recorded whether these specific status updates were commented on by Facebook friends. These researchers developed criteria to categorize participants as having a major depressive episode (MDE). Specifically, participants who had five or more status updates referencing a symptom of depression in a two week period were coded as having an MDE. In order for participants to be categorized as having an MDE, at least one of the status updates had to reference depressed mood or loss of interest in formerly enjoyed activities (i.e., anhedonia). Given the prevalence of sleep disruption in college students, sleep was evaluated separately. Moreno and colleagues found that 25% of their sample reported one or more symptoms of depression over the course of a year. Of the total sample, five people posted five or

more status updates referencing depressed mood in a two week period, placing them in the category of having an MDE. These researchers also found that friends' comments on depressed status updates (i.e., status updates referencing one or more symptoms of depression) increased subsequent updates about depression symptoms. They found that for every friend comment on a depressed status update, participants subsequently posted twice as many status updates about their depression symptoms.

The results of Moreno et al. (2011) suggest that Facebook users with depression symptoms are motivated to use Facebook to express depressive symptoms. Additionally, their participants were found to go into further details if they received reinforcement from their Facebook network through comments on their depressed status updates. The motives of these particular Facebook users were not made explicit although. These results, however, suggest that social reinforcement increased participants' use of Facebook in a specific manner. It seems reasonable to speculate that Facebook users with depression symptoms may be more likely to use Facebook to receive supportive caring from their networks.

Although depression has previously been investigated as an outcome of CMC use, the studies of Ybarra et al. (2005) and Moreno et al. (2011) suggest that depression may, in fact, be a motivating factor of CMC use. These studies identified that depression symptoms were positively correlated with contacting strangers (e.g., Ybarra et al., 2005) and with seeking support from one's interpersonal network (e.g., Moreno et al, 2011). Both findings suggest that depression may be associated with CMC use motives related to having social support from one's network.

A review of the research with respect to social anxiety symptoms, depression symptoms, and CMC use suggests that motives to establish relationships or to receive support (i.e., maintain relationships) may be associated with these negative affect variables. This seems logical when one considers the difficulties that people with social anxiety and depression may have in establishing and/or maintaining offline relationships. A review of the self-reported motives of CMC use (regardless of negative affect symptoms) will now be reviewed.

Motives and CMC

Researchers have recently begun to appreciate and investigate the reasons why people use the Internet and its various communication tools. This research, however, is very new and more studies that focus on specific forms of computer-mediated communication (CMC) are required to expand this literature. With this growing knowledge base, researchers can begin to understand why individuals are drawn to online communication tools. Once the motives for specific forms of CMC are more clearly defined we can begin to better understand the outcomes associated with CMC usage.

Historically, McKenna and Bargh (2000) identified four "gating features" of online communication which they believed facilitated CMC use (e.g., that resulted in increased frequency and intensity of use). These gating features were: (a) the maintenance of anonymity while still connecting with others; (b) the ability to bypass physical distances and still develop relationships; (c) the avoidance of first-impression judgments based on visual characteristics; and, (d) the ability to edit oneself given that time could be a non-factor (i.e., one could communicate with others who were not online at the same time). McKenna and Bargh (2000) outlined how these gating features were

thought to be associated with increased intensity and frequency of use which makes these gating features one of the first conceptualizations of motives for CMC use.

Although McKenna and Bargh's (2000) gating features are still relevant in the domain of CMC motives research, the motivating force of these features is not as universal as was initially thought. Facebook, for example, is not typically used by anonymous individuals, but rather by offline acquaintances who then shift their relationships online (Ellison et al., 2007). Similarly, some Facebook features (e.g., the chat feature) and (most) MSN features require users to communicate in real-time. Individuals who are drawn to this type of feature have less time to be able to edit themselves (i.e., because someone is waiting for a real-time response). Moreover, the conceptualization of these features is now better described by the underlying theories of motivation that are currently used in the CMC motives literatures (see Nadkarni & Hofmann, 2012). For example, gating features (a) and (b) relate to the development and maintenance of online relationships. These are now typically described as being part of the need to belong. Conversely, gating features (c) and (d) would now fall within the framework of self-presentation motives for CMC use (Nadkarni & Hofmann, 2012).

The need to belong is the primary framework used to understand CMC use motives in the present study. Although it is important to have a framework like the need to belong to understand why people act the way they do, there can be multiple motives (e.g., pathways) to satisfy this need, including multiple motives associated with CMC use. It is these motives that are hypothesized to be related to variables such as negative affect.

Given that the present study investigated motives within the framework of the need to belong, a note with respect to gender is warranted given the different types of relationships that men and women value (e.g., Caldwell & Peplau, 1982). That is, men prefer and value relationships that allow them to engage in enjoyed activities and give and receive instrumental or practical support. Women, conversely, prefer and value relationships that involve communication and emotional support. This trend was identified in the content of CMC research by McKenna et al. (2002). They found that women reported establishing closer relationships than men through using CMC tools that promoted online conversation and chat. Given that men and women value different types of relationships, and given that the need to belong is considered a fundamental motive in CMC use, it follows that men and women may differ with respect to their specific reported motives for Facebook or MSN use. Accordingly, potential gender differences in motives were investigated in the present study. Current research with respect to motives for contemporary CMC use will now be reviewed.

There has been a recent surge in the research investigating motives for using social networking sites (SNSs). Given the inherent purpose of SNSs (i.e., social networking), all of this research has identified at least one motive related to interpersonal connection. Kim, Kim, and Nam (2010) investigated the social and non-social motives of Facebook users and the relation to Facebook use. These researchers used an American undergraduate sample. Kim et al., (2010) adapted a 21-item scale previously used to investigate the motives for using CyWorld (a Korean SNS) to assess the motives for using Facebook among their American participants. Kim and colleagues categorized the 21 items of this scale into either "social motives" or "non-social motives." The latter

category included items reflecting use of Facebook for enjoyment and searching for employment. Items for the social motives scale were not provided. Internal consistency coefficients were .81 for social motives and .79 for non-social motives. They used self-reports of intensity and frequency of use. Kim et al. found that the social motives scale was not correlated with frequency or intensity of use. Non-social motives, however, were positively correlated with frequency and intensity of use. Kim and colleagues did not find any gender differences with respect to the motivations for Facebook use. Kim et al.'s (2010) research found that only non-social motives were associated with frequency and intensity of use. Although these results are relevant with respect to the relations between motives and Facebook use, Kim et al.'s (2010) two motives did not specify the particular social and non-social reasons why their participants used Facebook.

Bonds-Raacke and Raacke (2010) investigated specific motives for SNS use. Earlier in their research program, Bonds-Raacke and Raacke investigated the motives for using "Friend Networking Site" by examining responses to single items. In their more recent work, Bonds-Raacke and Raacke (2010) stated that: "some of these reported reasons are actually assessing the same underlying dimension" (p. 28). Accordingly, they set out to find the underlying motives for Facebook and MySpace use by using data reduction analyses. Using university Facebook and MySpace users as participants, they administered the 11 self-report items previously used in their work. They used a principal component analysis and found three underlying motives: Information, Friendship, and Connection. Alpha levels for these factors were not reported. The Information dimension was related to posting information about the self as well as learning about events and people in one's SNS network. The Friendship dimension included three items which

reflected the need to stay in touch with old and new friends, and for finding old friends. The Connection dimension was related to establishing new relationships and feeling a sense of social connectedness. Bonds-Raacke and Raacke also investigated gender differences among the 11 self-report motive items. They found that men were more likely to use SNSs for dating purposes (an item of the Connection dimension) and were more likely to use SNSs to share personal information (this was an item of the Information dimension).

On the basis of the research by Kim et al. (2010) and Bonds-Raacke and Raacke (2010), it is clear that one motive for SNS use is social interaction. In other words, SNSs use is, for some people, motivated by the opportunity to establish or maintain interpersonal relationships. Kim et al. (2010) did not find any gender differences with respect to their motives for Facebook use, whereas Bonds-Raacke and Raacke (2010) found that men were more likely to use SNSs to find dates and to disclose personal information. Neither research team reported whether they found differences or similarities in motives for SNS use among ethnic groups.

Kim, Soh, and Choi (2011) investigated whether motives for using Social Networking Sites (SNSs) were similar across cultures. These researchers compiled a list of 20 SNS usage motives from previous research conducted with Korean and American samples. They recruited a total of 349 American and 240 Korean undergraduate students who responded to the 20-item motivation questionnaire. In both samples, factor analysis (type unspecified) revealed five motivational dimensions: Seeking Friends; Seeking Convenience; Seeking Social Support; Seeking Information; and Seeking Entertainment. Alpha coefficients for the American sample ranged from .79 to .92, and from .77 to .84

for the Korean sample. When Kim and colleagues compared the motives across the two samples, they found that Korean participants were more likely to use SNSs for social support purposes and for seeking information, whereas American participants were more likely to use SNSs for the purposes of entertainment. There were no cultural differences between the two samples with respect to using SNSs for convenience or seeking friendship. Using multivariate analyses of covariance, motivational predictors of SNS use were found. Specifically, the social support and information motives were predictors of intensity of use for the American sample. There were no motivational predictors of SNS use intensity for the Korean sample. A cautionary note is warranted about this study as the most popular SNSs in America and Korea are different (i.e., Facebook and CyWorld, respectively; Kim et al., 2011). Moreover, given that participants in the Kim et al., (2011) study were not asked to specify the SNS they used most frequently, the results of this study might be comparing two (or more) different tools to one another, which might adversely impact external validity.

In one of the first summary articles reviewing the psychological correlates of Facebook use, Nadkarni and Hofmann (2012) proposed a model of motivations for Facebook use. The two pillar model proposed that Facebook use was "primarily motivated by two basic social needs," (p. 245) which they identified as the need to belong and the need for selective self-presentation. The model was not empirically tested. Although the identified motivations (i.e., the need to belong and selective self-presentation) are important for understanding the theoretical underpinnings of the motivations to use Facebook, these fundamental needs generate specific motives, goals, and desires. Understanding individuals' specific motives for using tools such as Facebook

is just as important as understanding the theoretical underpinnings of their motivations. It is also notable that in their review of correlates of Facebook use, Nadkarni and Hofmann (2012) did not identify any primary affective variables (e.g., sadness or anxiety) associated with Facebook use, even within the context of the need to belong.

It is clear that social motivations are part of the reason why individuals are driven to use social networking sites (e.g., Bonds-Raacke & Raacke, 2010; Kim et al., 2010). Moreover, similar motivations have been observed across cultures (e.g., Kim et al., 2011). Nonetheless, given the great variability in the services offered by different computer-mediated communication (CMC) tools, one cannot infer that similar motives will extend to other genres of CMC. As such, research pertaining to motives for the use of instant messaging (IM) programs will now be reviewed.

Recognizing the need to specify motives for using IM programs, Leung (2001) investigated the motives associated with ICQ (i.e., 'I seek you') use with a sample of university students in Hong Kong. ICQ was an instant messaging program that predated MSN Messenger. After reviewing the traditional communication literature and conducting a focus group, a preliminary list of possible motives for ICQ use was developed. After the scale had been piloted and item selection was finalized, Leung administered it to 576 students, along with a measure of their ICQ usage patterns. Factor analysis of the questionnaire identified seven motives for ICQ use. These motives were Affection (when someone used ICQ to express affection for another person), Entertainment, Relaxation, Fashion (when an individual used ICQ to appear "cool" or stylish), Inclusion (when an individual used ICQ to feel deeply connected in a relationship), Sociability (when an individual used ICQ to meet new people), and Escape

(when an individual used ICQ to avoid other responsibilities). The internal consistency

reliabilities for these scales were .82, .76, .75, .88, .74, .72, and .67, respectively. Leung

found that Affection, Entertainment, Inclusion, Escape, and Sociability were all

significantly positively correlated with frequency of ICQ use (i.e., how many times a user

logged on). Leung also found that Affection, Entertainment, Inclusion, and Sociability

(not Escape) were significantly positively correlated with intensity of ICQ use (i.e., how

long users stayed active once logged on). Fashion and Relaxation were not correlated

with frequency or intensity of ICQ use.

  Leung's study suggests that there are various motives for using IM programs that

are also associated with frequency and intensity of IM use. Moreover, several of the

identified motives (e.g., Inclusion, Sociability, and Affection) can be understood within

the framework of the need to belong. Leung demonstrated that motives to establish and

maintain interpersonal relationships were associated with increased use of an IM

program. A cautionary note is warranted given that ICQ, although it is an IM program,

offered different (and fewer) features than MSN offered when the data were collected for

the present study. As such, it was unclear whether these motives would extend to MSN

use, or whether these motives would be associated with negative affect.

  As outlined above, significant positive correlations have been identified among

negative affect (including symptoms of social anxiety and depression) and frequency and

intensity of CMC use (e.g., McKenna et al., 2002; Moreno et al., 2011; Ybarra et al.,

2005). These researchers speculated that individuals with these symptoms were

motivated to use CMC because of the social difficulties caused by their symptoms. That

is, they hypothesized that individuals were motivated to use CMC to, in part, cope with

the negative emotions experienced due to having too few relationships. Bardi and Brady (2010) found support for this hypothesis within the context of IM use and shyness. Bardy and Bradi hypothesized that owing to a need for affiliation (i.e., a need to feel connected and associated with others) shy people would utilize IM programs in order to reduce their feelings of loneliness. Bardi and Brady organized a list of items into three groups, representing motives for IM use. These motives were: a Personal Contact motive (i.e., to feel a reciprocal relationship with others); a Decrease Loneliness motive; and a Social Ease motive (i.e., using IM for practical reasons or to feel comforted). The internal consistency reliabilities for these scales were .75, .83, and .76, respectively. These researchers found that Personal Contact was the most highly endorsed motivation for IM use, regardless of the degree of shyness. In addition, they found that increased intensity and frequency of IM use predicted increased scores on all three motives, including the Decrease Loneliness motive. Bardi and Brady found that age and gender did not influence these findings. These researchers, however, did not organize the items of their scales on the basis of factor analysis, but rather used colleagues to blindly group the items on the basis of similarity. Moreover, they did not report what IM programs their participants used. Therefore, it is unclear as to whether these motives would hold under data reduction analyses or if the application to the use of MSN would be the same.

Bardi and Brady (2010) demonstrated what other researchers (e.g., McKenna et al., 2002; Moreno et al., 2011; Ybarra et al., 2005) had speculated. That is, they demonstrated that shy individuals use CMC (and IM programs in particular) to reduce negative affect (including loneliness) and to establish close connections with others. Bardi and Brady (2010), however, investigated these motives within the context of

shyness. It is uncertain if these motives would be related to negative affect (NA), depression symptoms, or social anxiety symptoms.

One study, however, has been identified that investigated the relations between motives for improving or coping with negative affect and social anxiety. Shepherd and Edelmann (2005) conducted one of the first studies that investigated the Internet use motives of individuals with social anxiety symptoms. An initial scale (which was not described) was developed and administered to 169 undergraduate students in a battery of tests including a measure of social phobia (i.e., social anxiety) and a measure of social interaction anxiety (i.e., anxiety specific to face-to-face interaction). Analysis of the initial scale, however, yielded only one 10-item factor. The researchers took these 10 items and created the "Internet use to Regulate Social Fears Questionnaire" (IRSFQ). The sum total of this scale reflected a motive to use the Internet to reduce discomfort in offline interactions and to establish online relationships. Shepherd and Edelmann found that this 10-item scale was positively correlated with social anxiety ($r = .15$) and with social interaction anxiety ($r = .21$). They did not report any gender differences. Based on the obtained correlations, Shepherd and Edelmann (2005) concluded that those who were socially anxious used the Internet to cope with social anxiety.

Summary of CMC motives literature. The studies reviewed in the preceding section outline an array of motives for using computer-mediated communication (CMC) tools. Given that communication is an inherently interpersonal endeavour, it is logical that most of these studies identified motives pertaining to the development and maintenance of close and reciprocal relationships (i.e., Bardi & Brady, 2010; Bonds-Raacke & Raacke, 2010; Kim et al., 2011; and Leung, 2001). These findings are

commensurate with Baumeister and Leary's (1995) position that the need to belong is a fundamental human need and that people are motivated to establish and maintain interpersonal relationships in order to satisfy this need.

Another motive that was identified in the previous section was that of reducing negative affect. Bardi and Brady (2010) found a motive for CMC use pertaining to decreasing loneliness. Similarly, Shepherd and Edelmann (2005) found a motive for the reduction of social anxieties within the context of Internet use. This motive for Internet use was also found to be significantly positively correlated with measures of social anxiety. A motive to reduce negative affect is also consistent with the need to belong framework. That is, if individuals are unable to establish or maintain relationships offline, then they would not be satisfying their need to belong. Consequently, it would be expected that they would experience negative affect (Baumeister & Leary, 1995). The research of Bardi and Brady (2010) and Shepherd and Edelmann (2005) suggested that people experiencing negative affect are motivated to use CMC, in part, to alleviate this negative affect.

The present study investigated motives for Facebook and MSN use. On the basis of the research reviewed above, it was anticipated that motives for (a) establishing and maintaining relationships and (b) for reducing negative affect would be identified for both Facebook and MSN. The specific Research Objectives and hypotheses of the present study will now be outlined.

Research Objectives

The present study investigated the specific motives for Facebook and MSN use and the affective and usage correlates of these motives. As outlined above, previous

researchers have found motives for CMC use including motives to establish and maintain online relationships and motives to regulate negative affect. It was unclear, however, whether these motives would be identified in the present study for Facebook and MSN use. Accordingly, the first Research Objective was to identify the motives for Facebook use and for MSN use.

Research Objective I: Establish the factor structure of the Facebook Motives Questionnaire (FMQ) and MSN Motives Questionnaire (MMQ; both described below) to define the specific motives for Facebook and MSN use.

The present study also investigated the relations between the identified motives for Facebook use and for MSN use (identified in Research Objective I) and negative affect. In the present study, the negative affect variables included negative affect (NA; as conceptualized by Watson and colleagues, 1988), depression symptoms, and social anxiety symptoms. The negative affect variables also included low levels of positive affect (PA; as conceptualized by Watson et al., 1988). On the basis of the speculated motives for Facebook use and for MSN use, the following Research Objective and hypotheses were formulated:

Research Objective II: Investigate the relations between motives for Facebook use and motives for MSN use (i.e., as identified in Research Objective I) and negative affect variables including NA, PA, depression, and social anxiety symptoms. Within the context of this Research Objective, the following four hypotheses were formulated. These hypotheses were formulated around the speculated motives that would be derived from the analyses of the motives questionnaires in Research Objective I and were the same for both Facebook and MSN:

- H1: Negative affect (NA), depression symptoms, and social anxiety symptoms will be positively correlated with motives related to the establishment and maintenance of online social connections.

- H2: Negative affect (NA), depression symptoms, and social anxiety symptoms will be positively correlated with motives related to using CMC to reduce negative affect.

- H3: Positive affect will be negatively correlated with motives related to the establishment and maintenance of online social connections.

- H4: Positive affect will be negatively correlated with motives related to the reduction of negative affect.

Finally, the present study also investigated the relations among the motives for Facebook and MSN use and the frequency and intensity of Facebook and MSN use.

Research Objective III: Investigate the correlations between motives for Facebook and MSN use and frequency and intensity of their use.

CHAPTER II

METHOD

Participants

Participant recruitment. The advertisement for the present study was posted in four different venues in order to maximize participation by individuals who were likely to use Facebook and MSN. These venues included: the psychology participant pool of a large Canadian university; an Event posted on the Facebook page of the author (open to all Facebook users); the free advertisement website, Kijiji; and the electronic mailing list of the student section of the Canadian Psychological Association (CPA). The

advertisement was identical for all recruitment sources, with one exception. The advertisement for the participant pool indicated that participants would be compensated with partial course credit for their involvement. Participants recruited through the other three venues were not offered compensation for their participation.

Given that this study was hosted on a publicly available website, "survey access" and "survey participation" refer to different circumstances. "Survey access" refers to any time a new survey was opened (i.e., consent was given and the demographics webpage was viewed). Survey access does not imply that any of the survey was completed beyond the consent page. "Survey participation" refers to when a participant completed and submitted the first (demographics) survey page. If a participant did not submit the demographics page, the survey was considered to be insufficiently complete for the purposes of data analysis and was deleted.

The survey for this study was accessed 423 times. A total of 367 individuals participated in this study. Two hundred seventy-one individuals (73.8%) participated through the psychology participant pool, 85 participants (23.2%) were recruited through Facebook, eight participants (2.2%) were recruited through the CPA Student Section electronic mailing list, and three participants (0.8%) were recruited through Kijiji.

Recruitment issues. Kijiji yielded the fewest number of participants. This recruitment issue was, in part, due to changes in Kijiji's advertisement policy as of April 2009 which prohibited posting duplicate ads simultaneously in different cities. In an attempt to collect a cross-Canada sample, the advertisement was consecutively posted on the Kijiji sites of three major Canadian cities. The ad remained posted on each city's Kijiji site for four to five weeks, at which point it was removed and posted to another

city's Kijiji site. Given that simultaneous access to various cities was prohibited, the number of participants recruited through this website was substantially lower than anticipated

Similarly, the low number of participants recruited through the CPA Student Section e-mailing list was, in part, a function of administrative issues. Specifically, e-mails through this list are only issued once there are sufficient articles or advertisements to justify sending an e-mail. This decision is made by the manager of the e-mailing list. Although the advertisement for the present study was submitted at the same time as it was posted in the other forums, the e-mail was not sent to CPA student members until a month prior to the study's close-date.

Conversely, it should be noted that the number of individuals recruited through Facebook might be inflated. This is due to the fact that some participants became aware of this study through word-of-mouth and indicated an interest in participating. These individuals were provided with the study URL that was reserved for participants recruited through Facebook. Accordingly, if individuals were recruited through word-of-mouth, they would, for the purposes of the recorded data, be considered someone recruited through Facebook. These participants, however, would not have been identified as Facebook users unless they reported that they had used Facebook in the week prior to study participation.

Participant characteristics. The study advertisement indicated that men and women who were 17 years of age or older were invited to participate. The younger age limit was selected to ensure that parental permission would not be required for study participation. There was no upper age limit for participation. The age range of the entire

sample (i.e., regardless of CMC use) was 18 to 62 years ($M = 23.41$ years, $SD = 6.16$).

Two hundred ninety-six participants (80.7%) identified as women and one participant

(0.3%) identified as Transgender/Other. The majority of the sample ($n = 266$, 72.5%)

identified their ethnicity as "White," whereas 90 participants (24.5%) identified as being

of Asian descent (i.e., "Chinese" or "South Asian") and 10 participants (2.7%) identified

as "Black," "Filipino," or "Latin American." The majority ($n = 219$, 56.7%) of the

sample reported being involved in some form of a romantic relationship whereas 142

(38.7%) were either single or not dating. One person indicated that he or she was

divorced, although this did not communicate his or her current relationship status. There

were no critical demographic differences among the four recruitment sources. However,

participants were more likely to be single and Asian if they were recruited from the

participant pool, whereas Facebook-recruited participants were more likely to be White

and in romantic relationships.

Participants' scores on the negative affect questionnaires were calculated and

compared to other non-clinical populations reported in the literature. The negative affect

questionnaires will be described below. For a detailed analysis of the mean comparisons

between the present sample and previously reported samples, please see Appendix D.

Relative to other non-clinical samples, the present sample was found to have significantly

higher scores on the CES-D (i.e., the measure of depression), the LSAS-SR (i.e., the

measure of social anxiety), and on the NA subscale of the PANAS. Although the present

sample did not have mean scores as high as the reported mean scores for clinical and

psychiatric samples, the mean scores on the measures of negative affect were

significantly higher than was expected.

Participant CMC use. Although the above information is present for the entire sample, the present study did not set out to investigate motivations for CMC use for individuals who were not active CMC users. The present study investigated the motives for Facebook use and for MSN use separately (i.e., the purpose was not to identify a common set of motives). Accordingly, these groups were analyzed separately for all research objectives.

Of the entire sample ($N = 367$), 360 (98.1%) participants reported having used Facebook or MSN in the past week. Of this total (i.e., $N = 360$), 249 (67.8%) reported that they had used both Facebook and MSN in week prior to study participation, 10 (2.7%) reported having used only MSN in this time period, and 101 (29.5%) reported having used only Facebook. This resulted in a total of 350 participants who had used Facebook in the week prior to study participation (with or without also having used MSN), and 259 participants who had used MSN (with or without also having used Facebook). Seven participants reported that they had not accessed either Facebook or MSN in the past week. Given that the objectives of the present study were to investigate motives for Facebook and MSN use and their correlates, participants who indicated that they had not used these tools in the past week were removed from further analyses. Demographic information for Facebook users and MSN users are presented separately in Table 1. Again, these groups are not independent as 249 participants reported using both tools in the past week and, thus, are represented in each group.

Table 1

Demographic Data by CMC Tool

		Facebook Users ($N = 350$)	MSN Users ($N = 259$)
Age	n	347	257
	M_{years} (*SD*)	23.23 (5.73)	21.77 (4.35)
	Range$_{years}$	18 – 50	18 – 45
Gender	n	348	258
	Male	63 (18.0%)	45 (17.4%)
	Female	285 (81.4%)	212 (81.9%)
	Transgender/Other	0 (0.0%)	1 (0.4%)
Ethnicity*	n	349	258
	White	255 (72.9%)	181 (69.9%)
	Asian	84 (24.0%)	71 (27.4%)
	Other	10 (2.9%)	6 (2.3%)
Relationship Status**	n	345	255
	Coupled	206 (58.9%)	129 (49.8%)
	Single	139 (39.7%)	126 (48.6%)

Note. * "Asian" includes respondents endorsing "Chinese" or "South Asian"; "Other" includes respondents endorsing "Black," "Filipino," or "Latin American." **"Coupled" includes respondents endorsing "Dating," "Married," "Engaged," or "Common-law"; "Single" includes respondents endorsing "Single" or "Not Dating."

Materials

  Demographic questionnaire. The first page of the survey gathered information about four demographic variables: age; gender (male, female, transgender/other); ethnic identification (with categories that mimicked those used by the Canadian census); and current romantic relationship status (with categories for "Single," "Dating," "Married," "Engaged," "Common-law," "Divorced," "Widowed," "Not Dating," and "Other"). On this page, participants were also asked to indicate whether they had used Facebook or MSN in the week prior to survey administration. These items were included on the first page as they activated the computer script needed to activate and display the relevant survey pages, including those that assessed motivations for Facebook and MSN use and the Facebook and MSN usage questionnaires. All participants were asked to complete the negative affect questionnaires.

  Facebook Usage Questionnaire (FUQ). Participants who indicated that they had used Facebook in the week prior to beginning the survey were asked to complete the nine items of the Facebook Usage Questionnaire (FUQ). This questionnaire was developed by the author and can be found in Appendix B. This questionnaire assessed participants' frequency and intensity of Facebook usage.

  MSN Usage Questionnaire (MUQ). Participants who reported that they had used MSN Messenger in the week prior to study participation were directed to the MSN Usage Questionnaire (MUQ). The MUQ assessed frequency and intensity of MSN use. The MUQ was developed by the author and can be found in Appendix C.

  Motives for Facebook and MSN use. The items of the Facebook Motives Questionnaire (FMQ) and the MSN Motives Questionnaire (MMQ) were initially piloted

with 99 items and a sample of 368 university students. On the basis of the statistical results from that study and on the basis of rational selection, 41 items were retained for the FMQ and MMQ that were used in the present study. The FMQ and MMQ included items from the published works of Leung (2001) and Shepherd and Edelmann (2005). Leung's questionnaire was specific to motives for ICQ use, whereas Shepherd and Edelmann's questionnaire reflected the motives to use the Internet to regulate social anxiety. Items were also taken from Amiel and Sargent (2004). Amiel and Sargent created a motives questionnaire to investigate motives for Internet use within the context of personality traits. The items of the FMQ and the MMQ were identical and the questionnaires only differed in their instructions. The FMQ/MMQ can be found in Appendix A.

The items of the FMQ and MMQ were phrased as statements. Participants were asked to indicate the degree to which they felt that the items described their reasons for using Facebook or MSN on a five-point Likert scale (from *"1 – Strongly Disagree"* to *"5 – Strongly Agree"*). Participants were only directed to the FMQ if they had indicated that they had used Facebook in the week prior to study participation. Participants were only directed to the MMQ if they had indicated that they had used MSN in the week prior to study participation.

Centre for Epidemiological Studies – Depression Scale (CES-D). The CES-D (Radloff, 1977) is a 20-item self-report measure used to assess depressive symptoms that the test-taker may or may not have experienced in the week prior to completing the CES-D. Participants were asked to indicate how frequently these experienced each symptom using a four-point Likert scale (from *"0 – Rarely or None of the Time (Less than 1 day)"*

to *"3 – Most or All of the Time (5-7 days)"*). Total scores were then generated and could range from 0 to 60. The CES-D is not diagnostic of depression (Johnson, McLeod, Sharpe, & Johnston, 2008), but has been previously used in online surveys (e.g., Price, McLeod, Gleich, & Hand, 2006).

The CES-D has been shown to have convergent validity with a diagnostic interview (81% of sample who met a cut-off score for depression on the CES-D also had depression as measured by a clinical interview; Boyd, Weissman, Thompson, & Myers, 1982). It has also demonstrated factorial validity (all item-total correlations >.30; Orme, Reis, & Herz, 1986). The CES-D has been shown to have good test-retest reliability (.67 after four weeks with a non-clinical sample) and very good internal consistency reliability (.85 with a non-clinical sample and .90 in a clinical sample; Radloff, 1977).

Depressive Experiences Questionnaire (DEQ). The DEQ (Blatt et al., 1976) is a 66-item Likert style self-report measure developed to quantify traits that Blatt observed to be associated with depression (1974). These traits were not symptoms of the disorder but were commensurate with a psychoanalytic conceptualization of depression. The items of the DEQ were phrased as statements (e.g., "I urgently need things that only other people can provide") and participants indicated their agreement to each statement on a seven-point scale (from *"1 – Strongly Disagree"* to *"7 – Strongly Agree"*). The DEQ has three subscales: self-criticism, dependency, and self-efficacy (Zuroff, Quinlan, & Blatt, 1990), but only the dependency and self-criticism subscales were used in the present study. The dependency and self-criticism subscales captured Blatt's conceptualization of the dependent and the self-critical personality styles (1974). Standard scores were generated based on participants' responses, multiplied by a factor weight (determined by the

parameters established by Blatt et al., 1976), and then summed to produce a z-score for each of the three subscales (Nietzel & Harris, 1990).

The DEQ has demonstrated good test-retest reliability (.81 to .89 for the dependency subscale, .68 to .83 for the self-criticism subscale, using five week to 13 week delays, respectively; Zuroff, Moskowitz, Wielgus, Powers, & Franki, 1983). Convergent validity has been demonstrated wherein the Dependency and Self-Criticism subscales have been shown to positively correlate with scores on the Beck Depression Inventory and other measures of depressed affect (Nietzel & Harris, 1990; Zuroff et al, 1983). In their meta-analysis of questionnaires that assessed depression symptoms, Nietzel and Harris (1990) found that the effect size of the Dependency subscale/BDI correlation was .33. The effect size of the Self-Criticism subscale/BDI correlation was .36.

Although the dependency and self-criticism subscales of the DEQ are measures of personality styles, their use in the present study was not to assess relations between motives for CMC use and personality traits. The subscales of the DEQ were included to provide interpretative content for any relations identified between motives for CMC use and depression symptoms.

Liebowitz Social Anxiety Scale – Self Report (LSAS-SR). The LSAS-SR (Liebowitz, 1987) is a 24 item, self-report measure developed to assess social anxiety. It contained 13 items to assess performance anxiety and 11 items to assess social interaction anxiety. Participants were asked to indicate the frequency with which they experienced each item in the week prior to completing the LSAS-SR. All items were rated on two four-point Likert scales. The first Likert scale assessed the intensity of fear or anxiety

associated with the item (i.e., a performance or interaction situation) from *"0 – None"* to

"3 – Severe." The second rating assessed the percentage of time spent avoiding the item

(i.e., a performance or interaction situation) from *"0 – Never (0%)"* to *"3 – Usually (67-*

100%)" (Fresco et al., 2001). For the present study, three of the subscales of the LSAS-

SR were used: the Fear subscale (which combined scores for fear of performance and fear

of interactions); the Avoidance subscale (which combined scores for avoidance of

performance situations and avoidance of interactions); and the total score, which will be

called "Social Anxiety." This grand total combined the totals of the Fear and Avoidance

subscales. The range of possible scores on the Fear and Avoidance subscales was 0 to 72.

The range of possible scores on the Social Anxiety scale was 0 to 144.

The Fear subscale, Avoidance subscale, and Social Anxiety scales have

demonstrated internal consistency reliability with clinical samples (.90, .90, and .95,

respectively) and with non-clinical samples (.91, .85, and .94, respectively). These scores

have also been shown to correlate with the clinician-administered version of this scale

(Fresco et al., 2001). Fresco and colleagues (2001) demonstrated convergent validity of

the LSAS-SR. The three subscales used in the present study correlated well with three

measures of social anxiety for both clinical samples (rs = .56 to .72) and non-clinical

samples (rs = .53 to .72). Fresco et al. (2001) also demonstrated the discriminant validity

of the LSAS-SR. The three subscales were found to correlate to a lesser extent with

depression questionnaires in both clinical samples (rs = .17 to .34) and non-clinical

samples (.35 to .46; Fresco et al., 2001).

Positive and Negative Affect Schedule (PANAS). The PANAS (Watson et al.,

1988) is a scale that was developed to quantify positive affect (PA) and negative affect

(NA). To develop the PANAS, Watson et al., examined factor and principal component analyses of emotion words (for a complete review of the development of the PANAS, please see Watson et al.,1988). In order to select items for the positive affect (PA) or negative affect (NA) subscales, items had to load strongly on one factor and were not able to load on the other factor with a loading of +/- .25 or higher. This yielded 10 PA and 10 NA items, which together, created the PANAS.

The PANAS asked participants to indicate the frequency with which they experienced each emotion in the specified time-frame. The PANAS has been administered to samples using many time-frame variations. In the present study, participants were asked to indicate how frequently they felt each emotion "within the past week." This time-frame was selected in order to promote consistency among the instructions of the other questionnaires. Each emotion was assessed on a 5-point Likert scale from *"1 – Very slightly or not at all"* to *"5 – Extremely."* Total scores for the NA and PA subscales can range from five to 50.

The PANAS is a widely used measure of affect, and has been cited in over 2000 published scholarly articles (Thompson, 2007). The PANAS has been shown to have high internal consistency reliabilities for both the NA and the PA subscales with student, non-student, and inpatient samples (ranging from .84 and upward for the NA scale, and .85 and upward for the PA scale; Watson et al., 1988). More recently, Crawford and Henry (2004) found similar alpha values using a non-clinical sample (i.e., $\alpha = .88$ for both the NA and PA subscales). Test-retest reliability has also been demonstrated after an eight-week delay in test administration using student samples (.47 for both the NA and PA subscales when using the "within the past week" instructions; Watson et al., 1988).

With respect to validity, Watson and colleagues (1988) demonstrated factorial validity of the PANAS scale when, with repeated administrations to various samples, they consistently obtained the PA and NA subscales. Moreover, convergent and discriminant validity were demonstrated when the pattern of item-scale loadings revealed that each item loaded only on its appropriate factor. Watson et al. (1988) also demonstrated discriminant validity given that the PA and NA scales were minimally negatively correlated with one another ($r = -.22$). The PANAS has correlated with other measures of mood, demonstrating external validity. For example, Watson and colleagues (1988) demonstrated that the NA subscale was positively correlated with two depression inventories (rs = .56 and .58) and a measure of state anxiety ($r = .51$). Conversely, Watson et al., (1988) found that the PA subscale was negatively correlated with the depression inventories (rs = -.35 and -.36) and the measure of state anxiety ($r = -.35$; Watson et al., 1988).

Administered measures not reported. Additional measures were administered to the present sample that will not be discussed in this document. Participants were asked to complete a series of questionnaires assessing their motives for avoiding specific computer-mediated communication (CMC) tools and a depression inventory that is less frequently used relative to the CES-D. The reasons for dropping these questionnaires will be discussed.

Motives for avoiding CMC. Participants who indicated that they had not used Facebook in the week prior to study participation were directed to a survey that assessed their motives for having avoided Facebook. Participants who indicated that they had not used MSN were directed to a similar questionnaire regarding motives for avoiding MSN.

Since they were beyond the scope of the present study, the results pertaining to these questionnaires are not reported in this document.

Zung Self-Rating Depression Scale (SDS). The SDS (Zung, 1965) was also included in the initial battery of tests administered to participants as a measure of depressed affect. It was not, however, included in the final analyses as its relations to other questionnaires appeared to be inconsistent with an outcome expected of a depression inventory. For example, the SDS total score positively correlated with the PA subscale ($r = .36$, $p < .001$) and with a measure of self-efficacy (i.e., a subscale of the DEQ not used in the present study; $r = .23$, $p < .001$). In addition, the SDS total score did not correlate with the NA subscale or any of the social anxiety variables. For these reasons, it was dropped from further analyses.

It should also be noted that the battery of presented questionnaires asked about the motives for using World of Warcraft (WoW; a massive multiplayer online role-playing game) as well as the frequency and intensity of WoW use. However, the sample of WoW users who participated in this study was very low ($n = 8$), and therefore all analyses pertaining to motivations for WoW use and their correlates were dropped.

Procedure

The present study was conducted online. As noted above, participants were recruited through the following sources: the university psychology participant pool of a south-western Ontario university; an open Events function through the Facebook page of the author; through the Canadian Psychological Association (CPA's) Student Section e-mailing list; and through the free advertisement site, Kijiji. The study was advertised as an online study that would assess the reasons why people do and do not use computer-

mediated communication (CMC). Although the advertisement indicated that participants would be asked about their use of Facebook, MSN, and World of Warcraft, it was also indicated that they did not have to be users of these tools to take part.

Interested individuals were asked to click on a link (or to enter the study URL into their browser). This link directed them to a website owned and operated by the University of Windsor's Computer-Mediated Communication Workgroup. The initial page of the survey asked participants to indicate whether they were "new" or "returning" participants (i.e., whether they had previously completed part of the survey).

"New" users were asked to provide their e-mail address. They were subsequently provided with a unique identifying code that would allow them to access a new survey. This exchange ensured that questionnaire data would remain anonymous (i.e., participant's data was connected to the unique alpha-numeric access code and not to identifying information). The access codes were paired with e-mail addresses in a separate database. Participants were encouraged to contact the research team to retrieve a forgotten identifying code. After providing an e-mail address and receiving an access code, new survey participants were directed to the Letter of Consent which they were asked to electronically sign. They were also prompted to print a copy of the Letter of Consent. Participants who consented to participation were directed to the first page of the survey. Individuals who indicated that they did not consent to their participation were re-directed to a page thanking them for their time. Their involvement was subsequently terminated. The first page of the survey was a demographics questionnaire which contained questions about which CMC tools (i.e., Facebook, MSN, and/or World of Warcraft) they had used in the "past week." Responses to these items generated an

internal script which determined the subsequent (and relevant) pages that the participants

would access and be asked to complete. For example, participants who indicated that they

had used MSN and Facebook in the past week would be shown the MSN and Facebook

motivation and usage questionnaires (i.e., the MMQ, FMQ, MUQ, and FUQ), and shown

the World of Warcraft (WoW) avoidance questionnaire. Again, information related to use

of WoW and motives for avoiding CMC tools will not be discussed in this document. All

participants were directed to the questionnaires assessing affective symptoms. After the

demographic questionnaire, all surveys were presented in a random order. Participants

who indicating that they were "returning" (i.e., not "new" participants) were asked to

input their access code and were returned to the last completed questionnaire from their

previous session.

CHAPTER III

RESULTS

The results presented below are organized into sections corresponding to the three

research objectives. The first section corresponds to Research Objective I and identifies

the motives for Facebook and MSN use. The second section corresponds to Research

Objective II and outlines the relations between the motives identified in Research

Objective I and negative affect. Finally, the third section addresses Research Objective

III, outlining the relations between the motives identified in Research Objective I and the

frequency and intensity of Facebook and MSN use.

Given that there were several Research Objectives and numerous planned

analyses for the present study, the significance level was reduced to $p \leq .001$ for all mean

comparisons and correlational analyses. The purpose of this was to reduce the family-wise error rate.

Research Objective I: Analyses of the Motives Questionnaires.

Research Objective I was "Establish the factor structure of the Facebook Motives Questionnaire (FMQ) and MSN Motives Questionnaire (MMQ) to define the specific motives for Facebook and MSN use."

Principal Component Analyses (PCA) were planned for the Facebook Motives Questionnaire (FMQ) and for the MSN Motives Questionnaire (MMQ) in order to establish the factor structure of the questionnaires and identify the motives for using Facebook and MSN. Recall that the FMQ and MMQ had identical items. The instructions between the questionnaires differed (i.e., "For each of the following statements, please indicate the degree to which you agree that these motives describe your reasons for using Facebook *or* MSN Messenger"). Accordingly the items were the same, but the instructions with which they were administered changed the context of participants' responses.

Analysis of the Facebook Motives Questionnaire (FMQ). A preliminary Principal Component Analysis (PCA) with a correlation matrix analysis was conducted with the 41 items of the FMQ. The correlation matrix method of analysis was utilized to examine the data for latent components. This method was selected because it standardizes the item matrix, accounting for any extreme variances. An orthogonal Varimax rotation was applied to the data. A review of the Component Transformation Matrix (which conveys the degree to which each component had to be rotated) suggested that an

orthogonal rotation was appropriate for this data (i.e., there were similar numbers above and below the diagonal; Field, 2009).

The KMO Measure of Sampling Adequacy was .91, suggesting that the sample size was appropriate for the analysis. Similarly, the KMO values of the individual items (obtained from the diagonal of the Anti-Image Correlation matrix) were all well above the minimum recommended value (i.e., .50; Field, 2009). Bartlett's Test of Sphericity was significant ($\chi^2(820) = 7035.80$, $p \leq .001$) indicating that the correlations between the items of the FMQ were large enough to conduct the analysis. A review of the correlation matrix indicated that there was a variety of correlations among the items. This further supported PCA as an appropriate analysis.

Initially, a total of seven components were identified with eigenvalues greater than one. A review of the scree plot, however, identified that there were four components before the point of inflection. The first four components accounted for 53.88% of the variance in the model (46.71% after rotation) while the next three components accounted for a 8.45% of the variance (15.62% after rotation). A review of the Reproduced Correlations Matrix indicated that the component structure produced 20.0% non-redundant residuals. This statistic reflected that only 20.0% of the correlations obtained from the model had differences greater than 0.05, relative to the initially observed correlations. This suggested that the components obtained from this model were very good at predicting the correlations that were initially observed (Field, 2009). A review of the Rotated Component Matrix indicated that there were five components on very few items loaded at 0.4 or greater (a loading cut-off recommended by Stevens, 2002). Items with content that related to avoiding offline responsibilities loaded on the fifth

component. The fifth component accounted for 7.43% of the variance in the rotated

model. Accordingly, it was decided that further analyses would include a fifth

component.

The final analysis of the Facebook Motives Questionnaire (FMQ) was a PCA

(with a correlation analysis method). A Varimax rotation was used and five components

were forced. Again, the KMO statistic indicated that the sample size was adequate (.91)

and a review of the individual KMO values (obtained from the Anti-Image Correlation

Matrix) indicated that all values were .834 or greater. This value was well above the

recommended minimal level (i.e., 0.5; Field, 2009). Bartlett's Test of Sphericity (χ^2(820)

= 7035.80, $p \leq .001$) confirmed that the correlations between the questionnaire items

were high enough to warrant PCA.

With the forced five-component model, the five components accounted for

56.90% of the variance of the model after rotation. The items of the first component

accounted for 16.42% of the variance in the model and reflected a tendency to use

Facebook to establish relationships and to decrease social worries. This motive was titled

"Regulation of Social Anxieties." The second component accounted for 14.04% of the

variance. Its items reflected a desire to give or receive social support and to express

oneself. This motive was titled "Social Expression." The third component accounted for

13.12% of the variance and reflected the use of Facebook as an enjoyable means to spend

free time. This component was titled "Enjoyable Distraction." The fourth component

accounted for 7.91% of the variance in the rotated model. This component included three

items related to using Facebook to actively avoid offline pressures and responsibilities. It

also included the item: *"Feel like I'm included in my offline friends' plans."* This

particular motive is also a means to avoid offline stressors as it circumvents the need to

contact friends offline. This motive was titled "Active Avoidance." The final component

accounted for 5.42% of the variance of the rotated solution and reflected motivations to

use Facebook for its communication features. This motive was titled "Ease of

Communication." A summary of the PCA component loadings for the FMQ are

presented in Table 2.

Table 2

Rotated Component Loadings for the Facebook Motives Questionnaire

Item	Rotated Component Loadings (N = 293)				
	1	**2**	**3**	**4**	**5**
3. I'm more comfortable talking to people online	**.76**	.05	.09	.06	.11
8. The offline world is too stressful	**.74**	.06	-.05	.33	.00
28. I can be less inhibited when I chat with strangers online	**.73**	.31	.03	.12	-.16
7. I can avoid meeting/talking to people offline	**.73**	.03	.07	.18	.04
20. Avoid having others see how awkward I am in person	**.71**	.17	-.00	.22	-.13
15. It's easier than talking to people in person	**.67**	.12	.15	.00	.18
9. Cope with being alone in my offline life	**.62**	.09	-.12	**.46**	-.05
44. I can say things online I wouldn't normally say	**.60**	.35	.06	.14	-.13
4. It makes me feel less tense	**.60**	.21	.07	.24	-.06
29. Feel empowered	**.54**	**.46**	.04	.26	-.13
36. Make friends of the same sex online	**.49**	**.43**	.06	.10	-.19
11. It allows me to do things without leaving my home	**.42**	.18	.31	.24	.17
21. It makes me feel less lonely	**.41**	.33	-.03	**.41**	.00
34. I am concerned about others	.10	**.74**	.05	.18	.05
31. Let people know what I think	.19	**.70**	.24	.07	.27
35. Talk about my problems with others	.33	**.67**	.12	.11	-.02
32. Share who I am with others	.28	**.66**	.22	-.01	.22
13. Let others know I care about their feelings	.12	**.65**	.10	.19	.27
42. Show others encouragement	.01	**.63**	.07	.35	.35
33. It's a comfortable environment	.26	**.61**	.25	-.06	.18
27. Express myself freely	.35	**.58**	.21	.03	.16
22. See how others may have dealt with issues and problems I face	.39	**.55**	-.01	.35	-.05
5. It gives me something to do	.11	-.06	**.77**	.04	.11
18. Stop my boredom	.29	.03	**.75**	-.04	.01

12. Kill time	.21	-.12	**.74**	.01	.16
16. I have nothing better to do	.36	-.05	**.67**	-.05	-.20
43. I enjoy it	-.21	**.44**	**.65**	.01	.13
17. It's fun	-.11	**.40**	**.64**	.02	.11
30. It's entertaining	-.12	**.41**	**.63**	.04	.09
26. Put off something i should be doing	.13	.08	**.62**	.26	.11
1. I just like to use it	-.16	.29	**.62**	.10	.05
19. It's free (or cheap) to talk to people this way	.02	.32	**.49**	.02	.35
6. Read what other users have to say	-.03	.26	**.49**	.18	.24
39. Forget about my problems	.34	.10	.17	**.80**	-.04
38. Get away from my pressures and responsibilities	.34	.17	.20	**.73**	.07
10. I just want to get away from everything	**.46**	.05	.10	**.65**	-.13
40. Feel like I'm included in my offline friends' plans	.28	.34	.02	**.63**	.23
37. I can speak easily to people who live far away	-.02	.17	.07	.09	**.69**
24. Communicate with family and friends	-.18	.21	.27	-.07	**.66**
14. Leave messages	.01	.20	.38	-.04	**.58**
2. Control what others know about me	.31	.30	.23	.10	-.03
Initial Eigenvalues	12.01	5.59	2.85	1.64	1.24
% of Variance (after rotation)	16.42	14.04	13.12	7.91	5.42

Note. 1 = Regulation of Social Anxieties; 2 = Social Expression; 3 = Enjoyable Distraction; 4 = Active Avoidance; 5 = Ease of Communication. Item loadings above .39 are in bold. Item 2 ("*Control what others know about me*") did not load on any components above .39.

Factor scores were calculated in order to address the remaining research objectives and hypotheses. Factor scores indicate the degree to which each item contributes to a given component, with higher scores indicating that an item has greater importance to a specific component. The Bartlett method was selected as the method for calculating factor scores because it provides unbiased scores, which increases the accuracy of the factor score based on the rotated model (DiStefano, Zhu, & Mîndrilă, 2009). A weighted score is generated for each item with respect to all factors (or components) so that each item contributes to each component. The weighted scores are

such that they correlate only with the component on which the item loads (based on the orthogonal rotation). This is an appropriate factor score calculation method when an orthogonal rotation is used and factors (or components) are not intended to overlap.

In summary, the analysis of the FMQ identified five motives for Facebook use. The first motive was Regulation of Social Anxieties. This motive reflected the desire to use Facebook establish online relationships while coping with anxieties associated with offline interactions. The second motive was Social Expression and reflected the desire to give and receive social support to online peers and to express one's self. Given the content that loaded on these two motives, it was concluded that the establishment of relationships and the maintenance of relationships were separate functions for Facebook users. The Enjoyable Distraction motive reflected the desire to use Facebook to enjoyably spend free time whereas the Active Avoidance motive reflected the desire to use Facebook to deliberately avoid offline responsibilities. The Ease of Communication motive reflected the desire to use Facebook for the communicative features it provided.

Analysis of the MSN Motives Questionnaire (MMQ). As with the FMQ, an initial Principal Component Analysis (PCA) with a correlation analysis method was conducted with the items of the MSN Motives Questionnaire (MMQ). A Varimax rotation was used. The KMO statistic indicated that the sample size was adequate for this analysis (i.e., .91). Bartlett's Test of Sphericity was significant (χ^2 (820) = 5898.37, $p \leq$ .001), indicating that there was enough variation in the correlation matrix to warrant a PCA. A review of the correlation matrix did not reflect any pattern of consistently high or low correlations between the questionnaire items, suggesting that there was enough variability for a PCA. Moreover, a review of the values of the Anti-Image Correlation

Matrix suggested that data reduction was an appropriate statistical approach (i.e., all values > .05).

The initial PCA generated eight components with eigenvalues greater than one. These eight components accounted for 68.28% of the explained variance. This was considered an overestimate of the number of components that should be considered, based on the following reasons. The scree plot indicated that there were only three or four components that should be considered. In addition, there were very few items that initially loaded on the 6th, 7th, and 8th components. There was also a diffuse pattern of component-loadings for some of the MMQ items. For example, one item (*"It's entertaining"*) loaded on three components with weights of .40, .43, and .47.

In order to try to improve the interpretation of this PCA five factors were forced. The items that loaded of the fourth and fifth components, however, seemed to be similar in content. Given that five forced components produced two components with similar content, the PCA was repeated, forcing only four factors. This provided a more interpretable Rotated Component Matrix and was commensurate with the number of components recommended for extraction by the scree plot.

The final analysis was a PCA (with a correlation analysis method) of the 41 MMQ items. Four factors were forced and a Varimax rotation was used. The KMO statistic for the entire sample was very good (i.e., .91) and the KMO statistics for the individual items were all very good (i.e., above .80, which is well above the recommended .50; Field, 2009). Bartlett's Test of Sphereicity was significant, supporting PCA as an appropriate analysis for the dataset ($\chi^2(820) = 5898.37$, $p \leq .001$).

The four components in the model accounted for 56.73% of the variance in the model after rotation. The first component was the "Offline Stress Reduction" motive and accounted for 22.17% of the variance. This component appeared to be an amalgam of both the Regulation of Social Anxieties and the Active Avoidance motives of the FMQ. This analysis of the MMQ revealed that components two, three, and four very closely resembled the Enjoyable Distraction, Social Expression, and Ease of Communication motives of the FMQ. Accordingly, the names and definitions were retained for the equivalent motives of the MMQ. The Enjoyable Distraction motive of the MMQ, accounted for 14.30% of the variance. The Social Expression motive of the MMQ accounted for 13.45% of the variance. The Ease of Communication motive was the fourth motive and accounted for 6.82% of the variance in the rotated model. A summary of the MMQ components and item loadings are presented in Table 3.

Table 3

Rotated Component Loadings for the MSN Motives Questionnaire

Item	Rotated Component Loadings (*N* = 212)			
	1	**2**	**3**	**4**
8. The offline world is too stressful	**.80**	.07	.16	-.12
9. Cope with being alone in my offline life	**.77**	.02	.21	-.09
20. Avoid having others see how awkward I am in person	**.74**	.02	-.01	-.06
7. I can avoid meeting/talking to people offline	**.73**	.10	.11	.17
28. I can be less inhibited when I chat with strangers online	**.72**	.13	.17	-.23
44. I can say things online I wouldn't normally say	**.70**	.05	.06	.27
3. I'm more comfortable talking to people online	**.69**	.23	.07	.11
4. It makes me feel less tense	**.68**	.01	.19	-.04
10. I just want to get away from everything	**.67**	.12	.23	-.13
29. Feel empowered	**.67**	.13	.36	-.12
39. Forget about my problems	**.66**	.21	.35	-.16
15. It's easier than talking to people in person	**.66**	.17	.05	.27
22. See how others may have dealt with issues and problems I face	**.62**	-.07	.38	.12
21. It makes me feel less lonely	**.60**	.02	.18	.15
36. Make friends of the same sex online	**.57**	.15	.29	-.16
2. Control what others know about me	**.53**	.13	.27	-.09
40. Feel like I'm included in my offline friends' plans	**.52**	.09	**.42**	-.05
38. Get away from my pressures and responsibilities	**.49**	.32	.36	-.16
18. Stop my boredom	.19	**.80**	.22	.03
12. Kill time	.14	**.79**	.16	.06
5. It gives me something to do	.12	**.74**	.06	.19
16. I have nothing better to do	.33	**.73**	-.02	.02
17. It's fun	.08	**.67**	.32	.29
43. I enjoy it	-.01	**.65**	.29	.29
26. Put off something i should be doing	.15	**.65**	.22	.06
30. It's entertaining	.09	**.64**	**.42**	.24

1. I just like to use it	-.07	**.62**	.06	.17
34. I am concerned about others	.16	.20	**.76**	.08
13. Let others know I care about their feelings	.24	.09	**.75**	.11
42. Show others encouragement	.23	.08	**.74**	.21
31. Let people know what I think	.29	.33	**.64**	.27
35. Talk about my problems with others	.27	.24	**.62**	.14
32. Share who I am with others	.38	.36	**.62**	.18
27. Express myself freely	**.41**	.32	**.58**	.15
6. Read what other users have to say	.32	.26	**.55**	.13
33. It's a comfortable environment	.33	.33	**.48**	.32
24. Communicate with family and friends	-.18	.30	.05	**.74**
19. It's free (or cheap) to talk to people this way	-.03	**.44**	.15	**.64**
37. I can speak easily to people who live far away	-.09	.24	.22	**.63**
14. Leave messages	.02	.10	.27	**.56**
11. It allows me to do things without leaving my home	.39	.31	.25	.32
Initial Eigenvalues	14.24	5.40	2.14	1.47
% of Variance (after rotation)	22.17	14.30	13.45	6.82

Note. 1 = Offline Stress Reduction; 2 = Enjoyable Distraction; 3 = Social Expression; 4 = Ease of Communication. Item loadings above .39 are in bold. Item 11 ("*It allows me to do things without leaving my home*") did not load on any components above .39.

Bartlett factor scores were generated for the motives of the MMQ. These scores were used in analyses below to address the research objectives and hypotheses.

The analysis of the MMQ identified four motives for MSN use. The first motive was Offline Stress Reduction. This motive reflected the desire to use MSN to reduce offline stress and to establish online relationships. The third motive was Social Expression which, like the FMQ motive of the same name, reflected the desire to give and receive social support to online friends and to express one's self. These two motives suggested that the establishment of relationships and the maintenance of relationships were separate functions for MSN users. The second motive was the Enjoyable Distraction

motive, which reflected intent to use MSN to casually pass the time. Finally, the fourth

motive was the Ease of Communication motive. This motive reflected the desire to use

MSN because it was easy and accessible for the purposes of communication.

Demographic variables and Research Objective I. Research Objective I was

"Establish the factor structure of the Facebook Motives Questionnaire (FMQ) and MSN

Motives Questionnaire (MMQ) to define the specific motives for Facebook and MSN

use." Potential demographic differences in the identified motives for Facebook and MSN

use were investigated.

With respect to the motives for Facebook use, age was found to be negatively

correlated with the Regulation of Social Anxieties motive ($r(292) = -.34$, $p \leq .001$) and the

Enjoyable Distraction motive ($r(292) = -.29$, $p \leq .001$). Women had higher scores on the

Enjoyable Distraction motive ($t(290) = 4.57$, $p \leq .001$) and the Active Avoidance motive

($t(290) = 2.96$, $p \leq .001$). With respect to self-reported ethnicity, Asian participants had

higher scores on the Regulation of Social Anxieties motive ($t(282) = 3.63$, $p \leq .001$).

There was unequal variance between single and coupled participants with respect to the

Regulation of Social Anxieties motive. After accounting for this unequal variance, single

people were found to be more likely to use Facebook to regulate social anxieties than

coupled participants, $t(264.86) = 3.28$, $p \leq .001$.

Of the four factors identified in the analysis of the MMQ, age was significantly

negatively correlated with the Enjoyable Distraction motive ($r(212) = -.31$, $p \leq .001$).

With respect to ethnicity, Asian participants were found to be more likely to use MSN for

the purposes of Offline Stress Reduction ($t(204) = -3.62$, $p \leq .001$). There were no gender

or relationship status differences with respect to any of the MSN use motives.

In summary, with respect to demographic differences among the motives for Facebook use, individuals who were younger, of Asian descent, and single were more likely to report using Facebook to regulate their social anxieties. Individuals who obtained higher scores on the Enjoyable Distraction motive for Facebook use were more likely to be younger and female. Women also had significantly higher scores on the Active Avoidance motive for Facebook use. With respect to the motives for MSN use, individuals with higher scores on the Enjoyable Distraction motive were more likely to be younger. Asian participants had higher scores on the Offline Stress Reduction motive. The results pertaining to Research Objective II will now be reported.

Research Objective II: Relations Among Motives for CMC Use and Negative Affect.

Relations among the negative affect variables (for the entire sample of CMC users) can be found in Table 4.

Table 4

Correlation Matrix for Negative Affect Variables for all CMC Users

	1	2	3	4	5	6	7	8
1. Positive Affect (PA)	1.00	-.23*	-.29*	-.23*	-.20*	-.21*	-.11	-.33*
2. Negative Affect (NA)		1.00	.61*	.34*	.38*	.40*	.25*	.55*
3. Depression (CES-D)			1.00	.24*	.31*	.31*	.26*	.43*
4. Social Fear (LSAS-SR)				1.00	.80*	.95*	.34*	.34*
5. Social Avoidance (LSAS-SR)					1.00	.95*	.23*	.34*
6. Total Social Anxiety (LSAS-SR)						1.00	.29*	.36*
7. Dependency (DEQ)							1.00	.15
8. Self-Criticism (DEQ)								1.00

* $p \leq .001$.

Research Objective II was "Investigate the relations between motives for Facebook use and motives for MSN use (i.e., as identified in Research Objective I) and negative affect variables, including NA, PA, depression, and social anxiety symptoms." Results pertaining to Research Objective II will be presented for Facebook first, followed by the results for MSN.

Motives for Facebook use and negative affect. The five motives obtained from the analysis of the Facebook Motives Questionnaire (FMQ) data were: Regulation of Social Anxieties, Social Expression, Enjoyable Distraction, Active Avoidance, and Ease of Communication. Bivariate correlations were calculated to investigate the relations between motives for Facebook use and negative affect. These correlations can be found in Table 5. Recall that the level of significance was reduced to .001 for all correlational analyses.

Table 5

Correlations among Facebook Motives and Negative Affect

	Motives					
	1	**2**	**3**	**4**	**5**	***n***
Positive Affect (PA)	-.24*	.15	-.01	-.21*	.09	281
Negative Affect (NA)	.30*	-.03	.10	.32*	-.11	282
Depression						
CES-D	.16	-.01	.10	.28*	-.05	264
Social Anxiety						
Fear	.25*	-.07	.21*	.18	.16	269
Avoidance	.33*	-.13	.20*	.11	.09	256
Total	.31*	-.11	.20*	.15	.12	254
Dependency						
DEQ-Dpc[a]	.06	.14	.25*	.18	.14	283
Self-Criticism						
DEQ-SC[b]	.37*	.02	.08	.25*	-.00	283

Note. 1 = Regulation of Social Anxieties; 2 = Social Expression; 3 = Enjoyable Distraction; 4 = Active Avoidance; 5 = Ease of Communication; [a] = Dependency subscale of the DEQ; [b] = Self-Criticism subscale of the DEQ. * $p \leq .001$.

Hypothesis 1 was "Negative affect (NA), depression symptoms, and social anxiety symptoms will be positively correlated with motives related to the establishment and maintenance of online social connections." Hypothesis 3 was "Positive affect will be negatively correlated with motives related to the establishment and maintenance of online social connections." It should be noted, however, that establishment of relationships and maintenance of relationships seemed to be separate functions after the analysis of the FMQ. The Regulation of Social Anxieties motive for Facebook included motives for establishing online relationships. This motive was positively correlated with NA and the three social anxiety variables (i.e., Avoidance, Fear and total Social Anxiety). It was not,

however, significantly correlated with depression scores. Accordingly, there was only partial support for Hypothesis 1. The Regulation of Social Anxieties motive was negatively correlated with positive affect (PA), thus supporting Hypothesis 3.

Hypothesis 2 was "Negative affect (NA), depression symptoms, and social anxiety symptoms will be positively correlated with motives related to using CMC to reduce negative affect" and Hypothesis 4 was "Positive affect will be negatively correlated with motives related to the reduction of negative affect." The Regulation of Social Anxieties motive also included specific items regarding the reduction of offline social anxieties. This motive was positively correlated with NA, social avoidance, social fear, and the total Social Anxiety score. It was not correlated with depression. Accordingly, there was only partial support for Hypothesis 2. The Regulation of Social Anxieties motive was negatively correlated with PA, providing support for Hypothesis 4.

The Regulation of Social Anxieties motive was also positively correlated with self-critical personality traits. The self-criticism subscale of the DEQ was included in the present study to provide interpretative content for correlations involving depression scores. Depression, however, was not correlated with the Regulation of Social Anxieties. Accordingly, no further analysis of the relation between this motive and the self-critical personality traits was undertaken.

Given that negative affect (NA) can explain much of the variance in scores generated by depression and anxiety questionnaires, partial correlations were used to investigate the influence of NA on the relations among the motives for Facebook use and the negative affect variables. The effects of NA on these correlations can be found in Table 6.

Table 6

Partial Correlations among Facebook Motives and Affective Symptoms (Controlling for NA)

| | **Motives** | | | | | |
	1	**2**	**3**	**4**	**5**	**n**
Depression						
CES-D	.01	.04	.10	.15	-.05	253
Social Anxiety						
Fear	.17	-.06	.19	.08	.22	260
Avoidance	.25*	-.12	.16	-.01	.13	246
Total	.23*	-.09	.16	.03	.17	245

Note. 1 = Regulation of Social Anxieties; 2 = Social Expression; 3 = Enjoyable Distraction; 4 = Active Avoidance; 5 = Ease of Communication. * $p \leq .001$.

After controlling for the influence of negative affect (NA), Fear was no longer significantly correlated with the Regulation of Social Anxieties motive ($p = .007$). Conversely, this motive remained significantly correlated with Social Avoidance and the Total Social Anxiety score at the $p \leq .001$ level.

The remainder of the significant correlations identified in Table 5 will now be reviewed. The Enjoyable Distraction motive was initially positively correlated with all three social anxiety variables. All three correlations, however, became non-significant at the $p \leq .001$ level after controlling for negative affect (NA; see Table 6). The Enjoyable Distraction motive was also initially significantly correlated with dependent personality traits (see Table 5). The dependency subscale of the DEQ was included in the present study to provide interpretative content for correlations involving depression scores. Given that the Enjoyable Distraction motive was not correlated with depression after controlling for NA, it suggested that the initial correlation was due to affective distress (i.e., NA)

rather than the unique properties of depression. Accordingly, no further analyses or investigation of the relation between this motive and dependent personality traits was undertaken.

The Active Avoidance motive for Facebook use was negatively correlated with positive affect (PA), and positively correlated with negative affect (NA) and depression symptoms (see Table 5). The observed correlation between the Active Avoidance motive and depression was no longer significant at the $p \leq .001$ level after controlling for NA (see Table 6). Although the Active Avoidance motive was also positively correlated with self-critical personality traits, this motive was no longer correlated with depression after controlling for NA. Accordingly, the significance in this score was due mostly to affective distress and, thus, self-critical personality traits were not used for any further interpretive content.

In summary, the Regulation of Social Anxieties motive for Facebook use included items reflecting the use of Facebook to establish relationships and reduce offline social anxieties. Maintenance of relationships appeared to be a separate function (i.e., better accounted for by the Social Expression motive for Facebook use). Given that the Regulation of Social Anxieties motive was positively correlated with NA, and the three social anxiety variables, but did not correlate with depression, there is partial support for Hypotheses 1 and 2. Given that the Regulation of Social Anxieties motive was negatively correlated with PA, there was support for Hypotheses 3 and 4.

After controlling for negative affect (NA), the Fear subscale was no longer significantly correlated with the Regulation of Social Anxieties motive for Facebook use. This motive remained significantly correlated with the Avoidance and total Social

Anxiety scales after controlling for NA. Similarly, after controlling for NA, there were no significant correlations between the Enjoyable Distraction motive and the negative affect variables. Although the Active Avoidance motive was positively correlated with depression, this correlation was no longer significant after controlling for NA. Active Avoidance was also positively correlated with NA and negatively correlated with PA. The relations between the motives for MSN use and negative affect will now be outlined.

Motives for MSN use and negative affect. The four motives identified in the analysis of the MSN Motives Questionnaire (MMQ) were Offline Stress Reduction, Enjoyable Distraction, Social Expression, and Ease of Communication. Bivariate correlations were calculated to investigate the relations between these motives for MSN use and negative affect. These correlations are in Table 7.

Table 7

Correlations between MSN Motives and Negative Affect

	Motives				
	1	**2**	**3**	**4**	*N*
Positive Affect (PA)	-.32*	.01	-.03	.09	197
Negative Affect (NA)	.43*	.03	.10	-.03	200
Depression					
CES-D	.27*	.02	.01	.03	193
Social Anxiety					
Fear	.28*	.00	.00	.17	197
Avoidance	.33*	-.07	-.04	.16	188
Total	.32*	-.04	-.03	.19	187
Dependency					
DEQ-Dpc[a]	-.00	.15	.08	.19	204
Self-Criticism					
DEQ-SC[b]	.48*	-.08	.04	.04	204

Note. 1 = Offline Stress Reduction; 2 = Enjoyable Distraction; 3 = Social Expression; 4 = Ease of Communication; [a] = Dependency subscale of the DEQ; [b] = Self-Criticism subscale of the DEQ. * $p \leq .001$.

The Offline Stress Reduction motive for MSN use included items that pertained to the development of relationships, the reduction of negative affect caused by offline stressors, and the avoidance of offline stressors. Analysis of the MMQ identified that establishment and maintenance of online relationships were separate functions. The Offline Stress Reduction motive included items with content related to establishing relationships. Items related to maintaining online relationships loaded on the Self Expression motive for MSN use. Only the Offline Stress Reduction motive was correlated with any of the negative affect variables.

The hypotheses outlined above were the same for both Facebook and MSN as they were made based on speculated motives as opposed to specific CMC tools. Hypothesis 1 was "Negative affect (NA), depression symptoms, and social anxiety symptoms will be positively correlated with motives related to the establishment and maintenance of online social connections" and Hypothesis 2 was "Negative affect (NA), depression symptoms, and social anxiety symptoms will be positively correlated with motives related to using CMC to reduce negative affect." All negative affect variables were positively correlated with the Offline Stress Reduction motive. Accordingly, Hypotheses 1 and 2 were supported. Similarly, positive affect (PA) was negatively correlated with the Offline Stress Reduction motive, providing support for Hypothesis 3 ("Positive affect will be negatively correlated with motives related to the establishment and maintenance of online social connections") and Hypothesis 4 ("Positive affect will be negatively correlated with motives related to the reduction of negative affect").

Given the influence of negative affect (NA) on scores generated by depression and anxiety questionnaires, partial correlations were used to investigate the influence of NA on the correlations among the motives for MSN use and the affective symptom questionnaires. The results of these partial correlations can be found in Table 8.

Table 8

Partial Correlations among MSN Motives and Affective Symptoms (Controlling for NA)

	Motives				
	1	**2**	**3**	**4**	*N*
Depression					
CES-D	.09	.05	-.06	.07	179
Social Anxiety					
Fear	.18	-.01	-.03	.21	186
Avoidance	.25*	-.10	-.08	.19	177
Total	.23	-.06	-.06	.22	176

Note. 1 = Offline Stress Reduction; 2 = Enjoyable Distraction;
3 = Social Expression; 4 = Ease of Communication. * $p \leq .001$.

After controlling for NA, the correlation between Offline Stress Reduction and depression became non-significant. Similarly, the relation between the Offline Stress Reduction motive and the Fear and Total Social Anxiety subscales became non-significant after controlling for NA (ps = .015 and .002, respectively). The correlation between the Avoidance subscale of the LSAS-SR and the Offline Stress Reduction motive remained significant after controlling for NA at the $p \leq .001$.

The Offline Stress Reduction motive was also positively correlated with self-critical personality traits. Given that Offline Stress Reduction was no longer correlated with depression after controlling for NA, self-criticism was not used for its possible interpretive content (i.e., given that depression was no longer significantly correlated with any motives).

In summary, there were four motives for MSN use that were identified in Research Objective I. Of these motives, only Offline Stress Reduction was positively correlated with measures of negative affect. It was positively correlated with negative

affect (NA), depression symptoms, and social anxiety symptoms. It was also negatively

correlated with positive affect (PA). These results supported the hypotheses. After

conducting partial correlations to control for the variance of negative affect (NA) in the

depression and social anxiety scores, however, only social avoidance (as measured by the

LSAS-SR Avoidance subscale), NA, and PA remained significantly correlated with the

Offline Stress Reduction motive.

Demographic variables and Research Objective II. Research Objective II was

"Investigate the relations between motives for Facebook use and motives for MSN use

(i.e., as identified in Research Objective I) and negative affect variables, including NA,

PA, depression, and social anxiety symptoms." The influences of the demographic

variables on the correlations used to address Research Objective II were investigated. To

do so, partial correlations were used to control for the variance associated with age,

gender, ethnicity (i.e., Asian or White), and relationship status (i.e., single or coupled).

All of the significant correlations among the motives for Facebook use and the

negative affect variables (i.e., identified in Table 4) remained significant after controlling

for demographic variables, with three exceptions. Specifically, the correlation between

the Enjoyable Distraction motive for Facebook use and the Fear subscale of the LSAS-

SR was no longer significant at the $p \leq .001$ level after controlling for gender and age.

The relations between the Avoidance subscale of the LSAS-SR and the Enjoyable

Distraction motive and between the total Social Anxiety score and the Enjoyable

Distraction motive were no longer significant after controlling for age, gender, and

relationships status.

All of the significant correlations among the motives for MSN use and negative affect (i.e., identified in Table 5) remained significant after controlling for the four demographic variables.

In summary, the relations between the Enjoyable Distraction motive for Facebook use and the social anxiety variables were somewhat sensitive to the variance of the demographic variables. The relation between the Enjoyable Distraction motive and social fear (as measured by the Fear subscale of the LSAS-SR) was no longer significant after controlling for the variance of gender and age. Similarly the remaining two social anxiety variables (i.e., Avoidance and total Social Anxiety score) were no longer significantly correlated with the Enjoyable Distraction motive after controlling for age, gender, and relationship status. It should also be noted that the relations between the Enjoyable Distraction motive and the three social anxiety variables were previously found to be non-significant after controlling for the variance of negative affect (NA). Accordingly the relations between this motive for Facebook use and the social anxiety variables appear largely to be due to the variance of other variables, rather than due to the variance contributed by the latent content of the variables themselves. There were no significant influences of demographic variables on the motives for MSN use.

Research Objective III: Relations Among Motives for CMC Use, the Frequency of CMC Use, and the Intensity of CMC Use.

Research Objective III was "Investigate the correlations between motives for Facebook and MSN use and frequency and intensity of their use." Frequency of Facebook and MSN use was assessed by asking participants to indicate how many times ("daily, weekly, monthly, *or* yearly") they logged in to these tools. Some participants

responded to more than one option. In these cases, the response from the shortest time period was used (e.g., the "daily" response was used rather than the "weekly" response; the "monthly" response was used rather than the "yearly" response, etc.). Subsequently, all scores were converted into a daily value by dividing the number reported by the number of days in that time period. For example, individuals indicating that they logged on twice weekly would have a daily frequency score of .29. For the purposes of this analysis, a month was considered to have 30 days and there were 365 days in a year. Intensity was measured by having participants guesstimate how many minutes they typically spent on Facebook or MSN per session.

Motives for Facebook use, frequency of Facebook use, and intensity of Facebook use. Only items 1, 2, 3, and 4 from the Facebook Usage Questionnaire (FUQ) will be discussed owing to the scope of the present study. These items assessed the frequency and intensity of Facebook use. A review of these four items of the FUQ indicated that there were some outliers. One participant reported logging on to Facebook more than 100 times daily (the next closest response was 20 times daily) and two participants reported using Facebook 200 minutes or more per session.

With respect to Facebook use in the week prior to taking the survey, three people reported logging on over 500 times. It also appeared as though some of the participants may not have understood the wording of the question assessing average intensity over the past week (i.e., item 4). The range of responses to this item suggested that some participants provided a response that would be the weekly total. An upper limit of 360 minutes was selected for this item. Participants identified as an outlier for a particular usage variable were excluded from analyses involving that variable. They were not,

however, deleted from the dataset, and were used in analyses not involving the variable

on which they were an outlier.

Descriptive statistical information for Facebook use is displayed in Table 9.

Table 9

Descriptive Statistics for Facebook Usage Variables

	Mean	**SD**	**Min.**	**Max**	*N*
Frequency (Typical/Average)	4.94	4.05	.03	20	313
Intensity (Typical/Average)	26.03	25.93	1	180	317
Frequency (Past Week)	26.97	25.01	1	140	318
Intensity (Past Week)	86.78	89.38	0	360	281

Note. Frequency is the number of times logged into Facebook. Intensity is the average number of minutes spent per one logged-in session.

In order to assess whether there were changes in intensity and/or frequency from

what participants described as their average/typical use of Facebook, and their use within

the past week, dependent t-tests were conducted. The Frequency (Past Week) variable

was first converted to a daily value. It was found that this variable was significantly lower

relative to the frequency reported as "typical" ($t(309) = 6.80$, $p \leq .001$). In other words,

these participants reported logging on less frequently in the week prior to study

participation, relative to what was typical of them. With respect to intensity of use,

however, participants reported spending significantly more time on Facebook in the week

prior to study participation, relative to what they typically spent online ($t(174) = 7.26$, p

$\leq .001$). Accordingly, participants were logging on less frequently, yet spending

significantly more time on Facebook in the week prior to study participation.

To investigate the relations between the motives of the FMQ and the intensity and frequency of Facebook use, correlational analyses were conducted. The results of these analyses can be found in Table 10.

Table 10

Correlations between Facebook Motives and Facebook Usage Variables

	Motive					
	1	**2**	**3**	**4**	**5**	*N*
Frequency (Typical/Average)	.06	.13	.24*	.10	.02	277
Intensity (Typical/Average)	.09	.11	.18	.07	-.02	279
Frequency (Past Week)	.01	.10	.22*	.07	.06	280
Intensity (Past Week)	-.03	.12	.28*	-.08	-.06	244

Note. 1 = Regulation of Social Anxieties; 2 = Social Expression; 3 = Enjoyable Distraction; 4 = Active Avoidance; 5 = Ease of Communication. *$p \leq .001$.

Of the five motives for Facebook use, Enjoyable Distraction was the only motive to be correlated with usage variables. It was significantly positively correlated with frequency and intensity of Facebook use in the week prior to study participation. It was also positively correlated with typical frequency of use. The Enjoyable Distraction motive was not, however, correlated with typical intensity of use.

The analyses of the FUQ questionnaire identified that participants in the present study reported using Facebook less frequently but more intensely in the week prior to study participation, relative to what is typical for them. Moreover, frequency and intensity of use (in the past week) as well as typical frequency were correlated with the Enjoyable Distraction motive for Facebook use. There were no other significant correlations among the motives for Facebook use and the usage variables.

Motives for MSN use, frequency of MSN use, and intensity of MSN use. Only items 1, 2, 3, and 4 from the MSN Usage Questionnaire (MUQ) will be discussed owing

to the scope of the present study. These items assessed the frequency and intensity of

MSN use as was typical for the participants and the frequency and intensity of their MSN

use in the week prior to study participation. A review of these four items indicated that

there were outliers on several variables. One participant reported spending an average of

600 minutes using MSN once logged on. Although this might be reasonable for someone

in a business setting, this response was 240 minutes more than the next closest participant

and, thus, was excluded as an outlier. Some participants seemed to misunderstand the

item assessing intensity of MSN use in the week prior to study participation, with some

of these individuals reporting that they spent upwards of 28 hours using MSN when

logged on. Two hundred and forty minutes was selected as the upper limit for this item.

Participants identified as outliers on a particular variable were only excluded from

analyses involving that variable. They were not deleted from the dataset and were used in

analyses that did not include on the variable on which they were an outlier. Descriptive

statistical information with respect to MSN use is presented in Table 11.

Table 11

Descriptive Statistics for MSN Usage Variables

	Mean	**SD**	**Min.**	**Max**	*N*
Frequency (Typical/Average)	2.49	2.90	*	24.00	230
Intensity (Typical/Average)	47.26	48.67	1	360	236
Frequency (Past Week)	10.81	12.65	0	100	246
Intensity (Past Week)	66.85	64.50	1	240	192

Note. Frequency is the number of times logged into MSN. Intensity
is the average number of minutes spent per one logged-in session.
*Minimum reported frequency of MSN use was once monthly.

In order to assess whether there were changes to frequency and/or intensity between what participants described as average/typical use and their use in the week prior to study participation, dependent t-tests were conducted. Frequency (Past Week) was converted to a daily value and compared to the Frequency (Typical/Average). The mean difference between these variables was significant, indicating that participants reported that they were logging on less often in the week prior to taking part in the study, relative to their typical frequency of use ($t(229) = 6.31$, $p \leq .001$). Even though participants were logging on less frequently, they reported using MSN for significantly longer periods of time in the week prior to study participation, relative to what was typical for them ($t(190) = 6.61$, $p \leq .001$).

Correlational analyses were conducted between the frequency and intensity items of the MUQ and the motives derived from the MMQ. These correlations are presented in Table 12.

Table 12

Correlations between MSN Motives and MSN Usage Variables

	Motive				
	1	**2**	**3**	**4**	*N*
Frequency (Typical/Average)	.12	.19	.05	-.04	198
Intensity (Typical/Average)	.20	.35*	.05	.06	203
Frequency (Past Week)	.05	.17	.02	.10	211
Intensity (Past Week)	.03	.32*	.10	.07	169

Note. 1 = Offline Stress Reduction; 2 = Enjoyable Distraction; 3 = Social Expression; 4 = Ease of Communication. *$p \leq .001$.

Of the four motives for MSN use, Enjoyable Distraction was the only motive correlated with any of the MSN use variables. The Enjoyable Distraction motive was

positively correlated with intensity of MSN use (both on average and in the week prior to study participation).

With respect to the frequency and intensity of use, participants in the present study were found to report logging on less frequently in the week prior to participating, although the intensity of their MSN use increased. That is, they were logging on less frequently than was typical of them, although they were staying online on MSN longer than they normally would. Of the four motives for MSN use, Enjoyable Distraction was the only motive to correlate with any usage variables. The Enjoyable Distraction motive for MSN use was significantly positively correlated with intensity of MSN use (both in the past week and on average).

Demographic variables and Research Objective III. Research Objective III was "Investigate the correlations between motives for Facebook and MSN use and frequency and intensity of their use." The influences of demographic variables on the analyses used to address Research Objective III were investigated by partialling out the variance due to age, gender, ethnicity (i.e., Asian or White) and relationship status (i.e., single or coupled).

With respect to the significant correlations observed between motives for Facebook use and the Facebook usage variables (see Table 7), all correlations remained significant after controlling for the four demographic variables. Similarly, the significant correlations between the Enjoyable Distraction motive for MSN use and the intensity of MSN use (both on average and in the week prior to study participation; see Table 9) remained significant after controlling for the four demographic variables.

The significant correlations between the Enjoyable Distraction motive for Facebook use and the Facebook usage variables were unaffected by demographic variables. Similarly, the significant correlations between the Enjoyable Distraction motive for MSN use and the MSN usage variables remained significant after controlling for demographic variables.

CHAPTER IV

DISCUSSION

In the continually growing domain of computer-mediated communication (CMC), tools like Social Networking Sites (SNSs) or Instant Messaging (IM) programs are often either heralded or vilified for the effects that they have on CMC users. Indeed, a recent report concluded that using SNSs such as Facebook contributes to the development of "Facebook depression" (Brent, 2011). Although media outlets (and some past research in this domain) have focused on the outcomes of CMC use, researchers are now beginning to investigate the motivations for using tools such as Facebook and MSN Messenger (henceforth be referred to as MSN). Rather than assuming that all users of Facebook and MSN are motivated in the same way, researchers have begun to investigate the various reasons why people use these tools. They have also begun to investigate the characteristics of CMC users and how these characteristics may be associated with self-reported motivations.

The present study conceptualized motives as the pathways through which fundamental needs are satisfied. Maslow (1943a, 1943b) argued that there can be single, several, or many motivated behaviours used to satisfy needs, but that these needs were fundamentally part of being human. Maslow's famous hierarchy of needs organized the

different needs into a five-step pyramid. He argued that lower level needs (i.e.,

physiological and safety needs) had to be satisfied before engaging in motivated

behaviours to satisfy a higher-level need. Maslow believed that belongingness needs (i.e.,

needs for love and relationships) were higher-levels needs. Baumeister and Leary (1995)

argued, however, that belongingness needs were more fundamental. They argued that

individuals have a fundamental need to have close relationships with a reciprocal

exchange of love and warmth. They noted that disruptions to this need (i.e., the need to

belong) will result in negative affect and will motivate behaviours intended to satisfy the

need to belong.

Previous research in the domain of motivations for CMC use has demonstrated

that motives for social connection are, almost always, partly associated with the use of

tools such as Facebook and MSN. Some researchers have found that people who struggle

with offline social relationships (e.g., because they are shy or because of social anxieties)

have reported that they use CMC to establish relationships and to reduce the negative

affect that they experience offline (e.g., Bardi & Brady, 2010; Shepherd & Edelmann,

2005).

The present study investigated the motives for Facebook and MSN use and the

affective and usage correlates of these motives. The first research objective was to

identify the motives for Facebook use and the motives for MSN use. The second research

objective was to identify the affective correlates of the identified motives for Facebook

and MSN use. It was hypothesized those with higher levels of negative affect (including

negative affect [NA], depression symptoms, social anxiety symptoms, and low levels of

positive affect [PA]) would be more likely to report using Facebook and MSN for the

purposes of establishing and maintaining online relationships. It was also hypothesized that those with high levels of negative affect would be more likely to endorse CMC use motives related to the reduction of negative affect. The third and final objective of the present study was to evaluate the usage correlates (i.e., frequency and intensity of CMC use) of the motives for Facebook and MSN use. The results addressing the research objectives and hypotheses will be presented for Facebook first. Subsequently, the results addressing the research objectives and hypotheses will be presented for MSN.

Motives for Facebook Use and Their Correlates.

  Facebook motives. The analysis of the Facebook Motives Questionnaire (FMQ) revealed five motives for Facebook use: Regulation of Social Anxieties; Social Expression; Enjoyable Distraction; Active Avoidance; and Ease of Communication. The Regulation of Social Anxieties motive included items with content related to establishing online relationships and reducing discomfort experienced offline. This motive was similar to the motive identified by Shepherd and Edelmann (2005) pertaining to Internet use. Shepherd and Edelmann (2005) identified a motive for using Internet use in order to regulate social fears and establish online connections. In the present study, the Regulation of Social Anxieties motive for Facebook use included items pertaining to the development of online relationships and also the regulation of social anxieties or worries.

  Items reflecting intent to maintain relationships appeared to load on the Social Expression motive for Facebook use. Specifically, this motive included items reflecting desires to give and receive social support, as well as to express one's self (i.e., behaviours that would be used to maintain relationships). Although it was anticipated that a single motive would be identified for the establishment *and* maintenance of online relationships,

these appeared to be separate functions for Facebook users. It was not entirely

unexpected, however, that a separate motive was identified for expressing one's self (i.e.,

the Social Expression motive for Facebook use). McKenna et al. (2002) identified that

some users (particularly those who are socially anxious) are motivated to use CMC to

develop and express their real selves.

The three remaining motives for Facebook use were Enjoyable Distraction,

Active Avoidance, and Ease of Communication. The items of the Enjoyable Distraction

motive contained content pertaining to the use of Facebook to casually spend free time.

This motive also included items reflecting enjoyment in using Facebook. The Enjoyable

Distraction motive is similar to the Entertainment motives that other researchers have

identified with respect to SNS use (e.g., Kim et al., 2011). Conversely, the Active

Avoidance motive reflected content associated with using Facebook to deliberately avoid

offline responsibilities. Items that loaded on the Ease of Communication motive reflected

content pertaining to using the features of Facebook to communicate with others.

Some demographic differences were identified with respect to the motives for

Facebook use. Individuals who obtained higher score on the Regulation of Social

Anxieties motive were younger and more likely to be single and of Asian descent. The

latter result is somewhat inconsistent with the results of Kim et al., (2011). Kim et al.

(2011) reported that there were no significant differences on a motive for seeking

friendship through SNS use between American and Korean participants. This discrepancy

may be due to the fact that although these two motives (i.e., Regulation of Social

Anxieties in the present study and Seeking Friendship in the Kim et al. study) were both

related to establishing relationships, they had very different item content. There were no

gender differences for scores on the Regulation of Social Anxieties motive. Individuals

who obtained higher scores on the Enjoyable Distraction motive were more likely to be

female. This motive was also negatively correlated with age. There were no differences

between ethnic groups on the Enjoyable Distraction motive. This is inconsistent with

Kim et al.'s (2011) research as they identified that American participants (relative to

Korean participants) had higher scores on an Entertainment motive for SNS use. As

above, this is likely due, in part, to different item content between the Enjoyable

Distraction motive of the present study and Kim et al.'s (2011) Entertainment motive.

Finally, those who obtained higher scores on the Active Avoidance motive for Facebook

use were more likely to be female.

It was somewhat surprising that there was no gender difference in the Social

Expression motive for Facebook use. This motive contained items pertaining to giving

and receiving social support and expressing one's sense of self. As noted by Caldwell and

Peplau (1982), men and women value different elements of their interpersonal

relationships: men prefer relationships with people with whom they have shared interests

and whom they can use for instrumental support; women prefer relationships that focus

on communication and emotional support. Given these differences, it might have been

expected that women would obtain higher scores on a measure of self-expression and

social support. The absence of gender differences on the Social Expression motive,

however, may be due to the fact that this motive contained items reflecting both

emotional and instrumental support. That is, this motive included items that would appeal

to the types of social relationships that men prefer (e.g., *"See how others may have dealt*

with issues and problems I face") *and* the types of social relationships that women prefer

(e.g., *"Let others know I care about their feelings"*). Similarly, there was an absence of ethnic group differences on the Social Expression motive. Kim et al., (2011), conversely, found that Asian participants were more likely to endorse a social support motive for SNS use, relative to American participants. Although the Social Expression motive in the present study included items pertaining to social support, it was not exclusively a social support motive. It also contained items with content reflecting a motive to express one's self. Accordingly, the discrepancy between these similar motives is likely due to the variety in item content that loaded on them.

Baumeister and Leary's (1995) theory suggests that those whose need to belong is not satisfied will experience negative affect and endeavour to find other means to establish close and reciprocal relationships. The Regulation of Social Anxieties motive for Facebook suggests that some people use Facebook to establish online friendships *and* to compensate for the negative affect. The following section will review the correlations between the motives for Facebook use and negative affect.

Facebook motives and negative affect. To address the second research objective, correlations between the motives for Facebook use and negative affect were conducted. The hypotheses outlined in Research Objective II speculated that motives for (a) establishing and maintaining relationships and (b) for reducing negative affect would both be positively correlated with negative affect (including negative affect [NA], depression symptoms, and social anxiety symptoms) and negatively correlated with positive affect (PA). As identified in the analysis of the FMQ, however, the Regulation of Social Anxieties was both a motive for establishing relationships and a motive for reducing negative affect. The Regulation of Social Anxieties motive was positively

correlated with the three social anxiety scales (i.e., Fear, Avoidance, and a total Social Anxiety score) and with negative affect (NA). This motive was also negatively correlated with positive affect (PA). Given that this motive was positively correlated with NA and the social anxiety variables, but not depression, there was partial support for Hypotheses 1 and 3. Given that the Regulation of Social Anxieties motive was negatively correlated with PA, there was support for Hypotheses 2 and 4.

As noted by Watson and colleagues (1988), emotional distress (or negative affect [NA]) often accounts for much of the variance in scores on depression and social anxiety measures. Accordingly, once NA (as conceptualized by Watson et al., 1988) was partialled out of the relations between the Regulation of Social Anxieties motive and the social anxiety variables, the correlation between the Fear subscale and the motive was no longer significant. The relation between the Avoidance subscale and the Regulation of Social Anxieties, however, remained significant. This may, in part, be due to the fact that social avoidance is a behavioural symptom as opposed to an emotion. Accordingly, controlling for NA did not remove much of the variance between the Regulation of Social Anxieties motive and the Avoidance subscale. This may, however, also be due to the fact that people with social anxieties are less likely to put themselves in offline interaction situations, yet will still desire social contact. Accordingly, their avoidance of social situations continues to reinforce using Facebook to regulate social anxieties. Although this is a causal statement, it is also possible that using Facebook to regulate social anxieties also mitigates the need to engage in more effortful face-to-face interactions, resulting in social avoidance.

After controlling for NA, the correlation between the Regulation of Social Anxieties motive and the total Social Anxiety score also remained significant. Given that the total Social Anxiety score is a sum total of the Fear and Avoidance subscales, it is likely that this correlation remained significant due to the variance contributed by the Avoidance subscale. The relations among the Regulation of Social Anxieties motive and NA, PA, the social Avoidance subscale, and the total Social Anxiety score remained significant after controlling for demographic variables.

The correlations observed among the social anxiety variables and the motive for regulating social anxieties is consistent with previous research. As argued by McKenna and Bargh (2000), those who struggle to make or sustain relationships offline will be more likely to try to establish relationships online. Doing so allows these individuals to regulate their social anxieties. Shepherd and Edelmann (2005) illustrated this premise when they identified a motive for Internet use for the purposes of regulating social fears. This motive was also correlated with social anxiety and interaction anxiety. These researchers, however, did not control for negative affect (NA) in their social anxiety variables. The results of the present study suggest that avoiding social situations, NA (not necessarily fear), and low levels of positive affect (PA) are more significant in terms of affect variables related to motives to reduce social anxiety. That is, these variables remained significantly associated with the Regulation of Social Anxiety motive for Facebook use after controlling for NA, whereas social fear did not.

These findings correspond with Baumeister and Leary's need to belong theory. That is, this subset of people (i.e., those with higher scores on the Regulation of Social Anxieties motive) were more likely to be avoiding social situations (i.e., not satisfying

their need to belong) and were also experiencing higher levels of NA and lower levels of

PA. Although no formal measure of the need to belong was administered, these scores

could all be considered indicators of an unfulfilled need to belong (Baumeister & Leary,

1995). It is logical, then, that individuals with these symptoms were more likely to

endorse a motive for Facebook use related to establishing social relationships and

regulating social worries.

As noted above, the Social Expression motive for Facebook use better captures

the intent of people to use Facebook to maintain and cultivate their interpersonal

relationships. This motive was not correlated with any of the affective variables,

suggesting that although some people may be motivated to use Facebook to give and

receive social support, this motivation is not associated with better or worse affect. This

finding is not consistent with the research of McKenna et al. (2002) who found that a

motive for expressing one's real self in newsgroups was positively correlated with social

anxiety. This contradiction is likely explained by the fact that the participants in

McKenna et al.'s (2002) study were newsgroup users who were unknown (offline) to

their CMC network. This cloak of anonymity may have provided comfort that the

socially anxious participants needed to use the newsgroups as a means of self-expression.

Facebook users in the present study, conversely, were more likely to have a Facebook

network of people whom they knew offline (Ellison et al., 2007). Therefore, participants

with social anxiety symptoms in the present study may have been less motivated to use

Facebook for self-expression.

The absence of significant correlations among the negative affect variables and

the Social Expression motive is also discrepant from the findings of Moreno et al. (2011).

Moreno et al. (2011) found that depression symptoms were positively correlated with disclosures on Facebook. This led to an assumption that people with depressive symptoms were motivated to use Facebook to self-disclose. The present study, however, found no affective correlates associated with a motive for Social Expression. The discrepancy between these two findings is likely associated with the content of the disclosures. Moreno et al. (2011) investigated specific disclosures about depression-related symptoms which, the researchers argued, implied a self-disclosure motive. This motive, logically, was correlated with depression symptoms. The Social Expression motive for Facebook use in the present study included many types of disclosures such as giving and receiving social support and expressing one's true self. This motive was not correlated with negative affect including depression.

Interesting patterns emerged with respect to the other three motives for Facebook use and their affective correlates. The Enjoyable Distraction motive was, initially, positively correlated with the three social anxiety variables. These correlations became non-significant after controlling for negative affect, and also after controlling for certain demographic variables. Specifically, the relation between Enjoyable Distraction and Fear was no longer significant after controlling for the variance accounted for by age and gender. This suggests that gender and age accounted for more of the variance in the scores on the Enjoyable Distraction motive (demographic groups differences in this motive are reported above) and (potentially) for much of the variance in the social Fear score. Accordingly, after controlling for these variables, there remained no significant relation between Enjoyable Distraction and social Fear. The Avoidance subscale and the total Social Anxiety score were no longer significant after controlling for age, gender,

and relationship status. After these correlations became non-significant, there remained no affective correlates of the Enjoyable Distraction motive. The Active Avoidance motive for Facebook use was negatively correlated with positive affect (PA), and positively correlated with negative affect (NA) and depression symptoms. The latter correlation became non-significant after controlling for NA. None of these correlations changed after controlling for demographic variables. The Ease of Communication motive for Facebook use was not correlated with any of the affective variables.

The dependency and self-criticism subscales of the DEQ were included in the present study to help clarify significant results among motives for CMC use and depression. The Regulation of Social Anxieties and Active Avoidance motives for Facebook use were positively correlated with self-critical personality traits, whereas the Enjoyable Distraction motive was positively correlated with dependent personality traits. None of these variables, however, were either (a) initially correlated with depression, or (b) correlated with depression after controlling for NA. These depressive personality traits were assessed to help interpret results pertaining to depression. Given that none of these motives were correlated with both depression and the depressive personality traits, there will be no further discussion of the relations among these traits and the motives for Facebook use.

In summary, there was a consistent pattern with respect to the motives for Facebook use and the negative affect correlates. All initial correlations among motives and the depression or social anxiety symptoms became non-significant after controlling for negative affect (NA) with the exception of two. Specifically, the Regulation of Social Anxieties motive for Facebook use remained significantly positively correlated with the

Avoidance subscale and with the total Social Anxiety score. The total Social Anxiety score, however, is the sum of the Avoidance and Fear subscales and its correlation with the Regulation of Social Anxieties motive was likely an artefact of the variance of the Avoidance subscale.

Both the Regulation of Social Anxieties and Active Avoidance motives were positively correlated with NA and negatively correlated with positive affect (PA). This suggests that those participants who were motivated to use Facebook for these purposes were more likely to be experiencing high levels of NA and low levels of PA. In addition, those with higher scores on the Regulation of Social Anxieties motive were more likely to be avoiding social situations. In all, this suggests that participants reporting these motives were quite significantly distressed. The significant correlations among the motives for Facebook use and the frequency and intensity of Facebook use (i.e., Research Objective III) will now be discussed.

Facebook motives and Facebook use. A consistent pattern emerged in the relations among the motives for Facebook use and the patterns of use. Only the Enjoyable Distraction motive was correlated with frequency of use (i.e., the number of separate times logged on) and intensity of use (length of time spent using Facebook once logged in). The Enjoyable Distraction motive was positively correlated with typical frequency of Facebook use and frequency of Facebook in the week prior to study participation. Enjoyable Distraction was significantly positively correlated with intensity of Facebook use in the week prior to participating in the study; the correlation with typical intensity of use was also positive, but not significant.

These results indicated that participants who were motivated to spend their free time doing something that was enjoyable were more likely to use Facebook with greater frequency and intensity. As noted above, the Enjoyable Distraction motive was unrelated to affective variables including NA, depression, or (after controlling for NA) anxiety. This suggests that participants who were using Facebook to casually pass the time were not necessarily experiencing symptoms of negative affect but that they were increasingly likely to log on and they were spending more time on Facebook. This result is consistent with other research in the domain of SNS motives and usage patterns. Specifically, Kim et al. (2010) found that it was non-social motives (which included enjoyment/entertainment motivations) as opposed to social motives that were positively correlated with frequency and intensity of SNS use.

The present study also investigated the motives for MSN use and their correlates. These results will be reviewed and discussed in the same manner as the results were presented for Facebook. The analyses which determined the motives for MSN use will first be described, followed by a discussion of the correlations among these motives and the negative affect variables. Finally, the correlations among the motives for MSN use and the frequency and intensity of MSN use will be reviewed and discussed.

Motives for MSN Use and Their Correlates.

MSN motives. Analysis of the MSN Motives Questionnaire (MMQ) revealed four motives for MSN use: Offline Stress Reduction, Enjoyable Distraction, Social Expression, and Ease of Communication. The latter three motives were very similar in item-loading content when reviewed and compared to the Facebook motives of the same names. Accordingly, the same names and definitions of these motives were retained for

the MSN use motives. Conversely, items that loaded on the Offline Stress Reduction motive had content that pertained to reducing stress (including social anxieties), avoiding offline responsibilities, and establishing relationships. The items of the Offline Stress Reduction motive for MSN use were ostensibly the items from the Regulation of Social Anxieties motive and the Active Avoidance motive for Facebook use. It was unclear as to why these motives would be explicit for Facebook users and not for MSN users. Establishing relationships and maintaining relationships appeared to be separate functions for MSN users. Items reflecting intent to establish relationships on MSN loaded on the Offline Stress Reduction motive and items with content reflecting use of MSN to maintain relationships loaded the Social Expression motive.

The Offline Stress Reduction motive for MSN use is consistent with the theory of Baumeister and Leary (1995). That is, individuals who are struggling to establish relationships in offline settings experience affective distress and attempt to establish relationships through other means. The Offline Stress Reduction motive suggests that some people are motivated to use MSN to establish online relationships and also to cope with the negative affect or stress that they experience offline. Motives for the reducing negative affect and for establishing relationships have previously been identified within the context of IM use (e.g., Bardi &Brady, 2010).

With respect to demographic variables, the Offline Stress Reduction motive for MSN use was negatively correlated with age and Asian participants were found to have higher scores on this motive. Scores on the Enjoyable Distraction motive were negatively correlated with age and White participants were found to have higher scores on this motive. Female participants had significantly higher scores on the Ease of

Communication motive for MSN use. There were no significant gender differences with

respect to the Social Expression motive for MSN use (i.e., that which pertains to social

support in relationships). The absence of a gender difference in the Social Expression

motive for MSN use is likely explained by the fact that this motive included items with

content reflecting both instrumental support and emotional support. If there were

different motives for these two types of social support, there may have been gender

differences identified (i.e., consistent with the differences that men and women place on

interpersonal relationships; Caldwell & Peplau, 1982). Given that examples of both types

of social support loaded on the same motive, it is not surprising that there were no gender

differences identified. The following section will review the correlations among the

motives for MSN use and negative affect (i.e., Research Objective II).

MSN motives and negative affect. Initial analyses among the motives for MSN

use and the negative affect variables revealed that only the Offline Stress Reduction

motive was significantly correlated with negative affect. This motive was positively

correlated with negative affect (NA), depression symptoms, and all three social anxiety

subscales (i.e., Fear, Avoidance, and total Social Anxiety). In addition, the Offline Stress

Reduction motive was also negatively correlated with positive affect (PA). The

hypotheses outlined in Research Objective II speculated that motives for establishing

relationships and motives for reducing negative affect would be distinct. Hypotheses 1

and 2 speculated that these two motives would be positively correlated with negative

affect (including NA, depression symptoms, and social anxiety symptoms) and

Hypotheses 3 and 4 hypothesized that these two motives would be negatively correlated

with positive affect (PA). Analysis of the MMQ, however, revealed that the Offline

Stress Reduction was a motive for both establishing relationships and reducing negative affect. Given that the Offline Stress Reduction motive was positively correlated with NA, depression symptoms, and social anxiety symptoms, and was negatively correlated with PA, all four hypotheses were supported.

Watson et al., (1988) argued that negative affect (NA) often accounts for the majority of variance in scores on depression and anxiety measures. Accordingly, the variance associated with NA was partialled out of the correlations among the Offline Stress Reduction motive and the depression and social anxiety scores. After controlling for NA the correlations between the Offline Stress Reduction motive and depression, social fear, and total Social Anxiety score were no longer significant. The correlation between the Offline Stress Reduction motive and the Avoidance subscale of the LSAS-SR remained significant after partialling out the variance due to negative affect. These correlations were unaffected after controlling for demographic variables.

These findings are consistent with the framework provided by Baumeister and Leary's (1995) need to belong theory. Higher levels of NA, lower levels of PA, and high scores on a measure of social avoidance could all be considered indicators that participants were not satisfying their need to belong. It is logical, then, that these variables were all correlated with using MSN for the purposes of establishing online relationships, avoiding offline stressors, and coping with stress.

As noted above, the dependency and self-criticism subscales of the DEQ were included in the present study to help clarify significant results among motives for CMC use and depression. The Offline Stress Reduction motive was, initially, positively correlated with self-critical personality traits and depression. After controlling for NA,

however, the Offline Stress Reduction motive was no longer correlated with depression. Given that Offline Stress Reduction was no longer correlated with depression after controlling for NA, there will be no further discussion of the relation between self-critical personality traits and motives for MSN use. There were no other correlations identified among motives for MSN use and the negative affect variables. The correlations among the motives for MSN use and the frequency and intensity of MSN use (i.e., Research Objective III) will now be discussed.

MSN motives and MSN use. To address Research Objective III, correlations were calculated among the motives for MSN use and frequency and intensity of MSN use. Of the four motives for MSN use, only the Enjoyable Distraction motive was significantly correlated with any of the usage variables. Specifically, it was positively correlated with intensity of MSN use (both typical intensity of use and intensity of use in the week prior to study participation). The Enjoyable Distraction motive was not correlated with frequency of MSN use. This indicated that participants who were motivated to use MSN as an enjoyable way to spend their free time were more likely to spend longer periods of time using MSN. These participants were not, however, logging on to MSN more frequently. These correlations remained significant after controlling for the variance associated with demographic variables.

These results are somewhat consistent with past research in the domain of motives for IM use and the frequency and intensity of IM use. Leung (2001) found that an entertainment motive (similar to the Enjoyable Distraction motive) for ICQ use was correlated with intensity of ICQ use. Leung, however, also found that the entertainment motive was correlated with frequency of ICQ use. Moreover, both frequency and

intensity of ICQ use was correlated with various other motives, including motives to establish relationships, maintain relationships, and avoid stressors. Similarly, Bardi and Brady (2010) found that frequency and intensity of IM use was positively correlated with IM use motives including motives for maintaining relationships, reducing social discomfort, and decreasing loneliness. Accordingly, it is somewhat surprising that the Offline Stress Reduction and Social Expression motives in the present study were not correlated with frequency and intensity of MSN use. The discrepancies between the present study and the literature may be explained, in part, by the decreasing popularity of IM programs, and MSN in particular. Programs are developing that are just as instantaneous as MSN (e.g., Twitter, and the Facebook instant messaging feature). Moreover, many of these programs and features are easily accessible and mobile with the benefit of cell phone applications. Another possible explanation for the discrepancy between the present study and the research of Bardi and Brady (2010) may be due to the fact that the measurement of frequency and intensity of use differed. The present study asked participants to guess their frequency and intensity of use (as was the methodology of Leung, 2001), whereas Bardi and Brady (2010) asked participants to assess these variables on Likert scales.

With the research objectives of the present study addressed and discussed in comparison to previous research, the important findings of the present study will be outlined and possible future directions will be discussed. Subsequently, the limitations of the present study will be reviewed.

Important Findings and Future Directions

The present study investigated the motives for Facebook use and for MSN use. Although Facebook users and MSN users were considered two independent samples in the present study, the majority (i.e., 249) of the participants were represented in both samples. It is acknowledged that the overlap of 249 participants may, in part, be responsible for the similarities between the analyses of the FMQ and the MMQ, which is why quantitative comparisons were not made between the two groups. With that cautionary note in mind, it is important to highlight that both the motives of the FMQ and the motives of the MMQ and their affective correlates were well explained by the framework of Baumeister and Leary's (1995) need to belong theory.

The need to belong is often used in computer-mediated communication (CMC) research to explain the motivations for CMC use (Nadkarni & Hofmann, 2012). Nadkarni and Hofmann argued that need to belong theory is one of the two 'pillars' of theoretical foundations used in CMC motives research. The majority of studies investigating motives for CMC use have identified motives that are social in nature (e.g., associated with establishing relationships, maintaining relationships, interacting with friends, etc.). However, as first identified by McKenna and Bargh (2000) there are always some individuals who have and will struggle to satisfy their need to belong in offline settings (e.g., those who are shy, those with social anxiety, etc.). These individuals experience negative affect in accord with having fewer relationships than they desire. McKenna and Bargh (2000) argued that the Internet provided channels through which these individuals could establish relationships while also regulating their social anxieties. Researchers have also begun to identify CMC usage motives related to establishing relationships and

improving negative affect (e.g., Bardi and Brady's Decrease Loneliness Motive;

Shepherd and Edelmann's Internet use to Regulate Social Fears Questionnaire).

Consistent with previous findings, the present study identified a motive for establishing

relationships while regulating social anxieties for both Facebook users and for MSN users

(the Regulation of Social Anxieties motive for Facebook use and the Offline Stress

Reduction motive for MSN use). Moreover, these motives were positively correlated with

negative affect (NA) and social avoidance, and negatively correlated with positive affect

(PA). No formal measure of the need to belong was administered in the present study.

The correlations among these motives and these affect variables, however, suggests that

participants who were motivated to use Facebook and MSN for these purposes were, at

the time of the study not satisfying their needs to belong.

It is acknowledged that the present study can only infer that those who were

motivated to use Facebook and MSN to establish relationships and regulate social

anxieties had not fulfilled their need to belong through offline channels (i.e., a measure of

the need to belong was not administered). Similarly, the present study cannot speak to the

motives of participants who, at the time of this study, had sated their needs to belong. In

order to directly address the speculated relationships among motives, negative affect, and

the need to belong, future CMC motives researchers are encouraged to include more

direct assessment measures of the need to belong. This will help to clarify whether the

need to belong (in its fulfilled or unfulfilled state) is, in part, responsible for the emotion

regulation motives that are now being identified in the CMC use literature. Until such

research has been conducted, researchers should be mindful that there are likely to be

differences among individuals for whom the need to belong is and is not satisfied in offline domains.

Future researchers will no doubt be interested in exploring the outcomes of these affective improvement motives. That is, do people who use Facebook to regulate their social anxieties actually experience a reduction in these social anxieties? Do their anxieties persist? Do these anxieties worsen? Given the nature of the present analyses (i.e., correlational analyses), it cannot be determined whether the affective correlates identified were precipitants, outcomes, or moderating variables. Nonetheless, the present study identified that only specific motives are associated with negative affect for both Facebook users and for MSN users. Not all CMC use motives are associated with negative affect.

The next important finding of the present study pertains to the importance of assessing negative affect (NA) within the context of CMC research. As Watson and colleagues (1988) identified, a core construct underlying self-report measures of depression and anxiety is negative affect (NA). Negative affect (NA) played a significant role in the present study. Although the participants of the present study were found to have high levels of depression and social anxiety compared to normative samples (see Appendix D), it was found that specific symptoms of depression and social anxiety were often unrelated to CMC usage motives after controlling for NA. This suggests that symptoms of depression and social anxiety were not the key features that were associated with motives for CMC use, but rather it was affective distress that was most important in generating these significant correlations. On the basis of these findings, future researchers

would be encouraged to use measures such as Watson and colleague's (1988) PANAS in order to assess negative affect (NA).

The last important finding that will be discussed relates to the frequency and intensity of CMC use. For both Facebook and MSN, frequency and intensity of use was only related to a motive to casually pass free time (i.e., Enjoyable Distraction). The Enjoyable Distraction motive was positively correlated with frequency of use (for Facebook) and intensity of use (for both Facebook and MSN). These findings, however, are correlational and it cannot be concluded that this motive caused greater CMC use or vice versa. Given these relations, however, it would appear as though this motive may be more likely to be associated with addiction or overuse of CMC, relative to other motives. Future researchers interested in CMC addiction may wish to include an assessment of a motive akin to the Enjoyable Distraction motive (or, similarly, entertainment motives). The present study identified that, for both Facebook and MSN users, only the Enjoyable Distraction motive was associated with CMC usage. There were no other motives associated with CMC use.

The present study is a correlational study and not longitudinal in design. As such, comments on outcome variables (e.g., the mental health of participants who are motivated to regulate negative affect) cannot be made at this time. Nonetheless, this impresses as a very important line of research, especially given that some media sources vilify CMC tools for their adverse effects without proper empirical research. Future researchers who are interested in outcomes of CMC use are strongly encouraged to utilize motives as predictor variables in their studies.

As a final possibility for future research, researchers may be interested in how context shapes CMC use its motives. As an example, Pollet, Roberts, & Dunbar (2011) investigated CMC use differences among different levels or "layers" of SNS friendships (i.e., a support layer, a sympathetic layer, and an outer layer). Pollet and colleagues did not find significant differences in intensity of SNS use among participants who reported being closer to their "outer layer" relative to their "support" or "sympathetic" layers. Nonetheless, motives for SNS use may vary for SNS users who report being closer to some friends, relative to others. Similarly, it is very possible that there are different "typologies" of CMC users. That is, there may be people who often use CMC tools (e.g., Facebook) for a particular motive (e.g., Enjoyable Distraction) and for whom there are certain affective and personality correlates. Such typologies were not investigated in the present study, but it is interesting to note that there was a clear differentiation between the motive correlates for the affect variables and for the usage variables. Perhaps this differentiation suggests that there are different types of CMC users and for whom motives will differ. Nonetheless, it should also be noted that motives to use CMC are likely to vary based on the current offline situations in which CMC users are immersed. Accordingly, motives may change day-by-day or moment-to-moment based on the life circumstances of the CMC users.

Limitations of the Present Study

Four limitations of the present study will be highlighted. The first limitation will outline issues associated with the recruitment methods. The second limitation will outline odd sample characteristics. The third will address limitations of the self-report data. The fourth limitation will outline issues associated with replication.

The primary recruitment methods of the present study (i.e., the Facebook account of the author and a psychology participant pool) significantly favoured selection of university students. Moreover, given that one recruitment method solicited participation through Facebook, recruitment also favored the selection of Facebook users over MSN users. This may, in part, explain the differences in the sample sizes of unique Facebook users ($n = 101$) and unique MSN users ($n = 10$). This may also explain why the motives were more differentiated for Facebook users (i.e., five motives) than the MSN users (i.e., four motives). Nonetheless, the majority of the participants ($n = 249$) reported using both Facebook and MSN. Accordingly, there were a total of 350 Facebook users and 259 MSN users. Given that a total of 249 participants were represented in both groups, cross sample comparisons were not made.

The second limitation pertains to some odd characteristics that were identified in the present sample. The present sample, relative to normative samples in the literature, had significantly higher scores on measures of negative affect (NA), depression, and social anxiety. These specific differences can be found in Appendix D. It is unclear as to what may have resulted in having such a distressed sample, although it may, in part, be due to when the majority of the data were collected. Specifically, many participants were recruited through a psychology participant pool and the Facebook account of the author (herself a student). This study was posted toward the end of the winter semester and, consequently, levels of exam- and school-related stress may have been elevated. Moreover, there were oddities with respect to changes in the typical/average use of Facebook and MSN and the use of these tools in the week prior to study participation. Both Facebook and MSN users reported that they were logging in less frequently, yet

using these tools more intensely in the week prior to participation. If the majority of participants were involved in exams, it would make sense that they would be logging on to CMC tools less frequently. It is unclear, however, why they would be using Facebook and MSN for longer periods of time. These results may be due to self-report error (to be discussed below).

These results, in conjunction with the first limitation outlined above, highlight the importance of investigating motivations and their correlates outside of a university sample. Given that the public is increasingly concerned about the impact of CMC use on the mental health of children and adolescents, it is important to conduct similar studies with these populations. The results of the present study apply to individuals over the age of 17 (i.e., the lower age limit of the study) and thus cannot be generalized to children or adolescents. Moreover, given that the majority of the sample came from a university participant pool, the results can only tentatively be applied to non-student adults.

The third limitation that will be outlined is that the data in the present study were collected online via self-report. Accordingly, there were no specific safeguards to make sure that participants understood the nature of the questions being asked. Moreover, participants were asked to input the values for their frequency and intensity of CMC use. These variables may have been inaccurate on the basis of their estimates or due to typing errors. In order to account for the challenges in working with self-report online data, all variables were carefully reviewed with respect to the range of responses. The patterns of responses on the Likert-style questionnaires were also reviewed. When participants were determined to have responded to an item that was likely inaccurate (on the basis of the nature of the question being asked) they were removed from analyses that involved that

variable. There were a few cases that appeared to have systematic bias throughout the majority of the questionnaires. These cases were removed from the dataset altogether.

It should also be noted that, in using self-report data, only the conscious motives of CMC users were assessed in the present study. That is, participants could only respond to the items assessing their motives for using Facebook and MSN as they were aware of their motives. It is possible that some motives may have been operating for participants outside of their awareness. This was first identified as an obstacle to assessing human motivations by Abraham Maslow (1943b). In order to investigate motives for CMC use that may be outside of participants' awareness, experimental manipulations of situations and the impact on CMC use can be employed. Given that the present study only assessed self-report motives, however, it can only be stated that the motives identified in the present study were conscious motives for CMC use.

Finally, replication of the present study findings will be difficult owing to changes in the popularity and function of Facebook and MSN since the present data were collected. Since August 2010 (when the last of the data for the present study were collected), significant changes have occurred to Facebook. These include a mass marketing campaign associated with the "Like" feature, the integration of the instant messaging program and the private messaging program, and, most recently, the phasing out of the Facebook wall for the new feature, the "Timeline." Although the present study did not assess the relations between CMC features and motives for CMC use, it is likely that changes to CMC features have some impact on the motives of CMC users and/or their use of same. Moreover, as noted above, the popularity of MSN Messenger (similar to its predecessor, ICQ) seems to be on the decline. This is not surprising given that cell

phone applications now provide CMC users access to their Facebook and Twitter profiles at all times. Accordingly, MSN users may find themselves drawn to other forms of CMC that are equally (if not more) accessible for them to satisfy their CMC-use motivations.

Given the ever-changing nature and popularity of computer-mediated communication (CMC) tools such as Facebook and MSN, it is not surprising that changes in motivations and their correlates occur often. Nonetheless, the need to belong provides a consistent framework for understanding CMC use motives (Nadkarni & Hofmann, 2012). Although differences in specific motivations and their correlates can be difficult to track over time (i.e., given the rapid pace with which CMC changes) this remains an important area of research. This research is especially important given that tools such as Facebook are often blamed for adverse outcomes. The impact of CMC use and its effects on mental health can only, however, be understood within the context of what motivates CMC use in the first place. To claim that Facebook causes depression without understanding the motivations of the depressed Facebook users is, in essence, putting the cart before the horse.

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APPENDIX A

FACEBOOK MOTIVES QUESTIONNAIRE (FMQ)/
MSN MOTIVES QUESTIONNAIRE (MMQ)

For each of the following statements, please indicate the degree to which you agree that these motives describe your reasons for using Facebook/MSN.

"I use Facebook/MSN to/because..."

[Note: Response key is: Strongly Agree
                            Agree
                            Neutral
                            Disagree
                            Strongly Disagree]

1. I just like to use it [e]
2. Control what others know about me [e]
3. I'm more comfortable talking to people online [ab]
4. It makes me feel less tense [bc]
5. It gives me something to do [e]
6. Read what other users have to say [e]
7. I can avoid meeting/talking to people offline [d]
8. The offline world is too stressful [d]
9. Cope with being alone in my offline life [d]
10. I just want to get away from everything [d]
11. It allows me to do things without leaving my home [d]
12. Kill time [c]
13. Let others know I care about their feelings [c]
14. Leave messages [a]
15. It's easier than talking to people in person [d]
16. I have nothing better to do [e]
17. It's fun [ac]
18. Stop my boredom [e]
19. It's free (or cheap) to talk to people this way [a]
20. Avoid having others see how awkward I am in person [d]
21. It makes me feel less lonely [a]
22. See how others may have dealt with issues and problems I face [e]
23. Communicate with family and friends [e]
24. Put off something I should be doing [c]
25. Express myself freely [b]
26. I can be less inhibited when I chat with strangers online [c]
27. Feel empowered [e]
28. It's entertaining [c]

29. Let people know what I think [a]
30. Share who I am with others [e]
31. It's a comfortable environment [b]
32. I am concerned about others [c]
33. Talk about my problems with others [c]
34. Make friends of the same sex online [c]
35. I can speak easily to people who live far away [e]
36. Get away from my pressures and responsibilities [bc]
37. Forget about my problems [c]
38. Feel like I'm included in my offline friends' plans [e]
39. Show others encouragement [c]
40. I enjoy it [c]
41. I can say things online I wouldn't normally say [d]

Note. a Taken or adapted from Amiel & Sargent (2004); b. Taken or adapted from Shepherd & Edelmann (2005); c. Taken or adapted from Leung (2001); d. Developed by the author to reflect possible motives for CMC use by individuals with depression and social anxiety symptoms; e. Developed by the author and her research team to reflect the use of CMC for its features and based on personal observations of motives for CMC use.

APPENDIX B

FACEBOOK USAGE QUESTIONNAIRE

1. How often do you log in to Facebook? (*Please respond to one of the following*):
      a) In a typical day: ___
      b) In a typical week: ___
      c) In a typical month: ___
      d) In a typical year: ___

2. On average, how many minutes do you spend actively using Facebook (re: not leaving it on in the background) when you are logged on? (*Please put your response in minutes*): ___

3. How often have you logged on to Facebook within the past week? ___ times.

4. Within the past week, how much time have you spent, on average, actively using Facebook (re: not leaving it on in the background) when you are logged on? (*Please put your response in minutes*): ___

5. How long have you had your Facebook account? (*Please put your response in months*): ___

6. How many people do you have on your Facebook Friends list? *(Please be as specific as you can)*: ___

7. Of your Facebook Friends, how many of their profiles do you check regularly on Facebook?___

8. How often do you utilize the Facebook Chat function? (*Please respond to one of the following*):
      a) In a typical day: ___
      b) In a typical week: ___
      c) In a typical month: ___
      d) In a typical year: ___

9. On a scale of 1-7, how close would you characterize your relationships with those on your Facebook Friends list?

1	2	3	4	5	6	7
Not at all Close						Extremely Close

APPENDIX C

MSN USAGE QUESTIONNAIRE

1. How many times do you log on to MSN? (*Please respond to one of the following*):
     a) In a typical day: ___
     b) In a typical week: ___
     c) In a typical month: ___
     d) In a typical year: ___

2. On average, how many minutes do you spend actively using MSN (re: not leaving it on in the background) when you are logged on? (*Please put your response in minutes*): ___

3. How often have you logged on to MSN within the past week?___ times.

4. Within the past week, how much time have you spent, on average, actively using MSN (re: not leaving it on in the background) when you are logged on? (*Please put your response in minutes*):___

5. How long have you had your MSN account? (*Please put your response in months*): ___

6. How many people do you have on your MSN contact list? (*Please be as specific as you can*):___

7. Of your MSN contacts, how many do you converse with regularly, via MSN? ___

8. Consider a typical session when you would log on to MSN. How long would you leave MSN running in the background (i.e., when you are not using it actively)? (*Please put your response in average minutes per logged-on session*) ___

9. On a scale of 1-7, how often do you initialize conversations on MSN (i.e., where you are not responding to a friend who messages you first)?

1	2	3	4	5	6	7
Never			About Half the Time			Always

10. On a scale of 1-7, how close would you rate your relationships with those on your MSN contact list?

1	2	3	4	5	6	7
Not at all Close						Extremely Close

APPENDIX D

DATA PROPERTIES OF NEGATIVE AFFECT QUESTIONNAIRES

Outliers, descriptive statistics, and the internal consistency reliabilities of the symptom questionnaires were reviewed prior to conducting the analyses that would address the research objectives. Given that the research objectives pertained to relations among motives for CMC use and negative affect, only data from CMC users are evaluated in the following analyses (i.e., $N = 360$).

Outliers

The range, standard deviations, and histograms for all questionnaires were reviewed for all negative affect questionnaires. Those cases with very high or very low scores (i.e., on any measure) were examined for response bias. The majority of participants appeared to respond in a manner that was free of systematic response bias. Two participants, however, appeared to have used a specific response set (i.e., all or almost all responses of "1") on the DEQ. These two participants, however, appeared to have responded in a bias-free manner to other questionnaires. Accordingly, they were only dropped from analyses involving the DEQ data.

Descriptive Statistics

Descriptive statistics for the negative affect questionnaires are presented in Table I for both Facebook users and MSN users. The means between these groups are not compared as some cases are represented in both data (i.e., they were both Facebook and MSN users). The data is also presented for CMC users (i.e., data that was collapsed, regardless of reported CMC use).

Table I

Descriptive Statistics for Negative Affect Questionnaires

	Facebook Users (N = 350)	MSN Users (N = 259)	CMC Users (N = 360)
CES-D			
M	19.15	19.55	19.17
SD	6.86	6.95	6.82
n	299	220	307
Range	3 – 49	3 – 46	3 – 49
PANAS – NA			
M	21.32	21.39	21.28
SD	7.47	7.44	7.44
n	319	235	328
Range	10 – 45	10 – 45	10 – 45
PANAS – PA			
M	32.97	32.68	33.00
SD	7.66	7.75	7.64
n	317	231	326
Range	12 – 50	12 – 49	15 – 50
LSAS-SR – Fear			
M	19.25	19.42	19.34
SD	10.23	10.20	10.23
n	308	228	316
Range	0 – 50	0 – 50	0 – 50
LSAS-SR – Avoidance			
M	18.08	18.55	18.24
SD	10.4	10.24	10.53
n	293	215	301
Range	0 – 51	0 – 51	0 – 51
LSAS-SR – Total Score			
M	37.65	38.21	37.90
SD	19.63	19.39	19.68
n	291	214	299

Range	0 – 99	0 – 93	0 – 99
DEQ – Dependency*			
M	-0.53	-0.51	-0.54
SD	0.78	0.75	0.77
n	319	235	329
Range	-3.20 – 1.86	-3.20 – 1.54	-3.20 – 1.86
DEQ – Self-Criticism*			
M	-0.29	-0.31	-0.30
SD	0.99	1.01	0.98
n	319	235	329
Range	-2.93 – 2.15	-2.93 – 2.15	-2.93 – 2.15

Note. * presented as *z*-scores.

Descriptive Statistics and Previous Research

Mean scores and standard deviations on the negative affect questionnaires were compared to the descriptive information reported by researchers who developed or had previously used these questionnaires. This information will be presented in tables and described in text in the paragraphs that follow.

Radloff (1977) presented descriptive information for the Centre of Epidemiological Studies – Depression (CES-D) scale for two independent, non-psychiatric samples. Radloff also reported CES-D descriptive data for a sample of participants who were clinically depressed. In a more recent study, Johnson, McLeod, Sharpe, and Johnston (2008) used a Canadian sample to investigate the psychometric properties of the CES-D across gender and age groups. Johnson and colleagues (2008) presented data separately for men and women and reported standard errors in lieu of standard deviations. The means and standard deviations (or standard errors) of these samples, as well as data from CMC users in the present study are presented in Table II.

Table II

Descriptive Statistics for the CES-D from Three Studies

	M	*SD (SE)*	*N*
Radloff (1977) Psychiatric Sample	24.42	13.51	70
Radloff (1977) Non-Psychiatric Sample 1	9.25	8.58	2514
Radloff (1977) Non-Psychiatric Sample 2	8.17	8.23	1060
Johnson et al. (2008) Non-Psychiatric, Female Sample	8.37	(0.21)	1580
Johnson et al. (2008) Non-Psychiatric, Male Sample	6.68	(0.21)	1555
Present Study	19.17	6.82	307

Note. SE = Standard Error.

A comparison of the CES-D descriptive statistics displayed in Table II indicated that the present sample had a much higher score on the CES-D relative to other non-psychiatric samples. The mean CES-D score obtained in the present study was significantly higher than all means reported for non-clinical samples and significantly lower than the means for the clinical samples (one sample t-test values ranging from $t(306) = 13.47$ to 37.07, all *p*s ≤.001).

Watson and colleagues (1988) reported descriptive statistics for both the Positive Affect (PA) and Negative Affect (NA) subscales of the PANAS with a student sample. More recently, Crawford and Henry (2004) reported means and standard deviations for the PANAS subscales using a normal adult population from the United Kingdom. The PANAS descriptive statistics for these two samples and for the present study are presented in Table III.

Table III

Descriptive Statistics for the PANAS from Three Studies.

	Positive Affect (PA)			**Negative Affect (NA)**		
	M	*SD*	*n*	*M*	*SD*	*n*

Watson et al. (1988)	33.3	7.2	1002	17.4	6.2	1002
Crawford & Henry (2004)	31.72	7.38	2527	17.04	6.68	2527
Present Study	33.00	7.64	326	21.28	7.44	328

The mean PA subscale score from the present study was significantly higher than the mean obtained by Crawford and Henry (one sample $t(325) = 3.03$, $p = .003$) but was not significantly different from the mean obtained by Watson and colleagues (one sample $t(325) = 0.71$, $p = .479$). The NA mean score from the present study was significantly higher than the mean report by Crawford and Henry (one sample $t(327) = 10.32$, $p \leq .001$) and from the mean reported by Watson and colleagues (one sample $t(327) = 9.44$, $p \leq .001$).

Fresco and colleagues (2001) reported mean LSAS-SR subscale scores for two independent samples: non-anxious controls and patients who were seeking treatment for social anxiety. The descriptive statistics for the Fear and Avoidance subscales, and the total Social Anxiety score for both Fresco et al.'s samples as well as the present sample are presented in Table IV.

Table IV

Descriptive Statistics for the LSAS-SR from Three Samples

	Fear			**Avoidance**			**Social Anxiety**		
	M	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*
Fresco et al. (2001) Patient Sample	38.72	11.29	99	35.90	12.66	99	74.53	23.31	99
Fresco et al. (2001) Non-Patient Sample	7.49	7.21	53	6.00	6.16	53	13.49	12.70	53
Present Study	19.34	10.23	316	18.24	10.53	301	37.90	19.68	299

Based on these values, participants in the present study had significantly higher scores on the Fear subscale relative to Fresco's non-patient sample (one sample $t(315) = 20.60$, $p \leq .001$) and a significantly lower Fear subscale score compared to the patient sample (one sample $t(315) = 33.67$, $p \leq .001$). Similarly, participants from the present study were found to have lower Avoidance subscale scores compared to the patient sample (one sample $t(300) = 29.11$, $p \leq .001$) and significantly higher scores on the Avoidance subscale relative to Fresco et al.'s non-patient sample (one sample $t(300) = 20.17$, $p \leq .001$). Participants from the present study also generated higher Social Anxiety total scores relative to Fresco et al.'s non-patient sample (one sample $t(298) = 21.45$, $p \leq .001$) and significantly lower scores relative to the patient sample (one sample $t(298) = 32.18$, $p \leq .001$).

Zuroff, Quinlan, and Blatt (1990) reported descriptive information in relation to the DEQ subscales using a college sample. They presented their data for the mean Dependency and Self-Criticism subscales separately for men and women. This information is displayed in Table V along with descriptive data for the present study.

Table V

Descriptive Statistics for the DEQ from Two Studies

| | **Zuroff et al. (1990)** | | **Present Study** | |
	Men	**Women**	**Men**	**Women**
Dependency				
M	-0.54	-0.10	-0.89	-0.45
SD	0.80	0.83	0.69	0.77
n	373	779	64	263
Self-Criticism				
M	-0.04	-0.19	-0.24	-0.32
SD	0.86	0.87	0.86	1.01

n	373	779	64	263

Note. All values are presented as z-scores.

Men in the present study were found to have significantly lower z-scores on the Dependency subscale (one sample $t(63) = 4.12$, $p \leq .001$) compared to the Zuroff et al. sample. Women from the present study were also found to have significantly lower mean z-scores on the Dependency subscale compared to the women in Zuroff et al.'s study (one sample $t(262) = 7.27$, $p \leq .001$). Men from the present study did not have a significantly different Self-Criticism subscale mean z-score when compared to the Zuroff et al. sample (one sample $t(63) = 1.86$, $p = .067$). Similarly, women from the present study had mean z-scores for the Self-Criticism subscale that did not significantly differ from the mean z-score for the Zuroff et al. sample (one sample $t(262) = 2.11$, $p = .036$).

Internal Consistency Reliability

Internal consistency reliability was reviewed for all negative affect questionnaires to assure that interpretation of the results were not confounded by poor psychometric properties. High internal consistency reliability suggests that the items of a scale are measuring the same construct. Internal consistency reliability of .70 or greater is considered good internal consistency reliability and is indicative of scales with items that are strongly correlated with one another (Field, 2009).

There were four items on the CES-D that were reverse scored. These reversed items, along with the remaining unadjusted 16 items had good internal consistency reliability ($\alpha = .76$). The deletion of any of the reversed scored items would have improved the reliability of this scale, ranging from $\alpha = .79$ to $\alpha = .80$. The CES-D showed good internal consistency reliability for both Facebook users ($\alpha = .76$) and MSN users ($\alpha = .77$).

The Positive Affect (PA) and Negative Affect (NA) subscales of the PANAS had very good internal consistency for the entire sample of 360 CMC users ($\alpha = .90$ for PA and .88 for NA). The deletion of specific items would not have improved the reliability for either scale. The PA subscale showed very good internal consistency reliability for both Facebook and MSN users ($\alpha = .90$ for both groups). The NA subscale also showed very good internal consistency reliability for Facebook and MSN users ($\alpha = .88$ for both groups).

When using the entire sample of CMC users (i.e., $N = 360$,) internal consistency reliabilities for the Fear and Avoidance subscales, and the total Social Anxiety score of the LSAS-SR were all very good ($\alpha s = .90, .88,$ and .94, respectively). Internal consistency reliabilities were also very good for these three subscales for both the Facebook users (ranging from $\alpha = .88$ to .94) and MSN users (ranging from $\alpha = .88$ to .94).

The individual items of the DEQ are standardized. They are subsequently multiplied by factor weights. The weighted items are not unique to each of the DEQ subscales as every item contributes, to some degree, to each of the subscales (S. Blatt, personal communication, 8 May 2011). Given that these scores are standardized and based on a normative sample, the skewness and kurtosis of the Dependency and Self-Criticism subscales were reviewed. The distribution of the Dependency subscale scores was normal ($z_{skewness} = -0.46, z_{kurtosis} = 1.47$). Similarly, the Self-Criticism subscale was also normal ($z_{skewness} = -0.34, z_{kurtosis} = -1.21$). The Dependency and Self-Criticism subscales were also normal for both Facebook users and MSN users when analyzed separately.

VITA AUCTORIS

Name: Emily S. Orr

Place of Birth: Wolfville, Nova Scotia

Year of Birth: 1983

Education: Central Kings Rural High School, Cambridge, Nova Scotia
1996 – 2001
Mount Allison University, Sackville, New Brunswick
2001 – 2005 B.Sc. (Hons)
University of Windsor, Windsor, Ontario
2005 – 2007 M.A.
University of Windsor, Windsor, Ontario
2007 – 2012 PhD.