

Antioch University

AURA - Antioch University Repository and Archive

Antioch University Full-Text Dissertations &
Theses

Antioch University Dissertations and Theses

2012

Perceived Stress and the Buffering Hypothesis of Perceived Social Support on Facebook

John G. Lynch

Follow this and additional works at: <https://aura.antioch.edu/etds>



Part of the [Clinical Psychology Commons](#)

Perceived Stress and the Buffering Effect of Perceived Social Support on Facebook

by

John G. Lynch

B.S. Ithaca College, 1995

M.S. Antioch University New England Graduate School, 2010

DISSERTATION

Submitted in partial fulfillment of the requirements for the degree
of Doctor of Psychology in the Department of Clinical Psychology
of Antioch University New England, 2012

Keene, New Hampshire



Department of Clinical Psychology

DISSERTATION COMMITTEE PAGE

The undersigned have examined the dissertation entitled:

PERCEIVED STRESS AND THE BUFFERING EFFECT OF PERCEIVED SOCIAL
SUPPORT ON FACEBOOK

presented on May 29, 2012

by

John G. Lynch

Candidate for the degree of Doctor of Psychology

and hereby certify that it is accepted*.

Dissertation Committee Chairperson:
Susan E. Hawes, PhD

Dissertation Committee members:
William Slammon, PhD
Dean Hammer, PsyD

Accepted by the
Department of Clinical Psychology Chairperson

Kathi A. Borden, PhD

on 5/29/12

* Signatures are on file with the Registrar's Office at Antioch University New England.

Acknowledgements

It is with great and enduring humility that I submit this document for the fulfillment of my academic requirements. I stand on the shoulders of giants and am a product of all those who have touched my life. I could easily fill chapters acknowledging all those owed gratitude. Were it not for the steadfast belief of those mighty bastions of support that I consider friends, colleagues, role models, and family, I am confident that this day would have passed, like so many others, unnoticed and uneventful.

I would like to thank Dr. Susan Hawes for her consistent support and validation as I struggled through this and many other graduate school trials and tribulations. I would also like to extend my sincere appreciation to Dr. William Slammon for countless supportive gestures, friendship, and collegiality from my first day at Antioch through my last. Additionally, while our interactions may have been fewer in number, every moment spent with Dr. Dean Hammer provided evidence of his integrity, compassion, and strong moral compass. Each of you has come through for me at a moment's notice and have bolstered a belief in myself that was, at times, a precious commodity. Each of you has consistently approached me from a place of respect and embodies what I hold dear about the profession of psychology. I hope only to serve others with the integrity, forthrightness, and love that each of you has shown me throughout this process.

My parents deserve laud, not only for their love and support, but also for their belief in my academic abilities despite all early evidence to the contrary. Mom and Dad: please read this as permission to inform those early educators who decided I was not worth their effort about the successes of your son, the doctor. I love you and owe you everything.

To my sister, Dr. Elizabeth Lynch, who worked tirelessly to help me understand multiple hierarchical regression, statistics, mediation, and scientific writing: while your academic assistance kept this project moving forward, it was your love, support,

encouragement, and belief in my abilities that kept me afloat, both professionally and personally.

And, most importantly, to my brilliant, beautiful wife (my dear, sweet, and gentle person): without you none of this would be possible. Without you, none of this is worth a thing. Without you, I would not be in this place at this time. No one could possibly understand the sacrifices that you have made to give me the opportunity to be at this stage in my professional development. The strain that partners of graduate students endure is grueling and mostly goes unrecognized. There are no words to adequately express the respect, admiration, gratitude, and love that I have for you. You were the one that bolstered my confidence to even *apply* to graduate school, never mind finish it. You have been there to celebrate my successes and to hold me through my darkest of days. You have kept our marriage, sometimes single-handedly, the solid home where I will forever feel safe and understood. This is ours and I love you with all of my being. Wawowee.

Table of Contents

Acknowledgements.....	iii
List of Tables	viii
List of Figures	ix
Abstract	1
Chapter 1	3
Rationale	3
Stress	3
Social Support as a Mediator of Perceived Stress	4
Online Social Networking and Social Support	5
Social Networking and Stress	8
Statement of Purpose	9
Hypotheses	10
Chapter 2: Review of the Literature.....	11
The Damaging Effects of Stress	12
Stress is Subjective	12
Stress and Coping Theory Accounts for Subjectivity	13
Chronic Stress Can Be Toxic	17
Social Support Protects Against Stress	20
Social Support Leads to Internal Chemical Changes.....	21
Nonverbal Means for Establishing Social Support.....	22
The Social Support Concept Gets Specific	24
Perceived Social Support is Consistently Related to Well-being.....	25
The Stress-buffering Hypothesis of Social Support.....	26
The Strength of Weak Ties Theory.....	27
Social Networking Has Changed	28
Social Networking Site Use is Increasingly Prevalent	31
Facebook – the Most Popular Social Networking Site	39
Chapter 3: Method	44
Hypotheses	44
Sampling Procedures	44
Participants.....	44
Sample Size and Power Estimates	45

Perceived Social Support and Perceived Stress	45
Facebook Use and Perceived Social Support.....	45
Sample Size Calculation	46
Measures	47
Demographic Information.....	47
Preference for Online Communication	47
Perceived Social Support	48
Perceived Stress	48
Facebook User Variables	49
Procedures.....	51
Data Collection	51
Ethics.....	51
Risks.....	53
Confidentiality	53
Analytic Design	54
Chapter 4: Results.....	56
Research Questions.....	56
Participant Demographics.....	57
Descriptive Data.....	63
Facebook Use Intensity and Stress-buffering Hypothesis	60
The Stress-buffering Hypothesis.....	60
Facebook Use and Perceived Stress (Testing Step #1).....	61
Facebook Use and Perceived Social Support (Testing Step #2).....	61
Testing for Mediation and Significance (Testing Step #3).....	61
Communication Preference and the Stress-buffering Hypothesis	61
Communication Preference and Perceived Stress (Testing Step #1).....	61
Communication Preference and Perceived Social Support (Testing Step#2).....	62
Testing for Mediation and Significance (Testing Step #3).....	63
Chapter 5: Discussion	64
Facebook Use, Perceived Social Support and Perceived Stress	64
Preference for Computer-Mediated Communication and the Buffering Hypothesis	73
Limitations of the Study.....	75
Conclusion	76
References.....	80

Appendix A: Multidimensional Scale of Perceived Social Support.....	107
Appendix B: The Perceived Stress Scale.....	108
Appendix C: Survey of Facebook Use.....	109
Appendix D: Informed Consent Form.....	116

List of Tables

Table 1. Sample Group Demographics	58
Table 2. Variable Descriptors Chart	59
Table 3. Intensity of Facebook Use Model.....	60
Table 4. Communication Preference Model	62

List of Figures

Figure 1. Diagram of Initial Path in Mediation Model (Frazier et al., 2004)	54
Figure 2. Diagram of Remaining Paths in Mediation Model (Frazier et al., 2004).....	55

Abstract

Online social networking sites have experienced a surge in popularity since their inception. Serving as a hub for communities of all ages, Web sites such as MySpace, Friendster and Facebook bridge geographic and time limitations and offer their members the opportunity to connect with anyone on the Internet at any time. The growing accessibility of technology for computer-mediated communication, outside of such Web sites offers similar opportunities. Although critics share concern over potential for the loss of intimacy, the possibility for increased levels of perceived social support through limitless networking options should not be overlooked. When we consider the strong connection between perceived social support and perceived stress, which are linked to physical and mental symptomatology, the possible benefits are worthy of inquiry. This study explores the constructs of perceived social support and perceived stress and examines the impact of online social networking sites and computer-mediated communication upon a person's experience of them. Results supported Cohen's Stress-buffering hypothesis. A significant negative correlation was found for the association between reported levels of perceived social support and levels of perceived stress. Facebook use was not significantly related to perceived social support. This finding failed the second step for establishing mediation and disproved the hypothesis that perceived social support mediates a negative correlation between Facebook use and perceived stress. Further exploration revealed a significant relationship between respondent preference for computer-mediated communication, perceived social support, and perceived stress, however. The more that respondents preferred online communication to face-to-face or telephone communication, the greater the level of stress they perceived. Also, respondents who reported a preference for computer-mediated communication reported lower levels of perceived social support. A regression analysis was performed on these two relationships and perceived social

support was found to mediate the relationship between a preference for computer-mediated communication and higher levels of perceived stress.

Keywords: computer-mediated communication, Facebook, perceived social support, perceived stress, social networking sites, mediation

Chapter 1

Online social networking sites have surged in popularity since their inception. Serving as a hub for communities of all ages, Web sites such as MySpace, Friendster and Facebook bridge geographic and time limitations and offer their members the opportunity to connect with anyone on the Internet at any time. While critics of online social networking identify the potential risks for loss of intimacy, proponents argue the possibilities for increased levels of perceived social support through limitless networking options. The foundation for this research is the strong negative correlation between perceived social support and perceived stress, in conjunction with social networking's potential as a source of social support. This study explores the constructs of perceived social support and perceived stress and examines the impact of online social networking sites upon a person's experience of them.

Rationale

Stress

From physical maladies, such as heart disease and attack, stroke, cancer, peptic ulcer, asthma, diabetes, hypertension, headache, back pain, and arthritis, to psychological disorders, including burnout, family problems, anxiety disorders, sleep disturbances, sexual dysfunction, depression, and psychogenic disability, stress is related to a variety of ailments that pose lasting implications for both the individual and society (Groër, Meagher, & Kendall-Tackett, 2010; Ng & Jeffery, 2003; Quick, Quick, Nelson, & Hurrell, 1997). Evidence suggests that people engage in unhealthy behaviors to manage stress (i.e., over-eating unhealthy foods, tobacco use, and alcohol and drug use; Ng & Jeffery, 2003; Quick et al., 1997; Schooler, Dougall, & Baum, 2000), which further adds to the toll stress takes on their health and well-being. Stress also has important economic consequences due to rising medical costs and loss of workplace productivity due to stress-related illnesses and behaviors (Spielberger, Vagg, & Wasala, 2003).

The prominent model of stress describes it as the result of environmental demands that exceed an individual's coping ability (Groer et al., 2010; Stroebe, Stroebe, Abakoumkin, & Schut, 1996). Or, as Taylor (2010) writes, stress is "a negative emotional experience accompanied by predictable biochemical, physiological, cognitive, and behavioral changes that are directed either toward altering the stressful event or accommodating to its effects" (p. 8507). In order for a stress response to be activated, then, an environmental stimulus must be regarded by the individual as threatening (Speisman, Lazarus, Mordkoff, & Davison, 1964). Therefore, the impact of a potentially stressful event on an individual's health relies more on the individual's perception of stress and his or her ability to cope with it than the nature of the actual event itself.

Social Support as Mediator of Perceived Stress

Clinical researchers have long recognized the protective nature of social support against both physical and mental maladies (Barrera, 1986; Cohen & Williamson, 1988; Uchino, 2009; Zimet, Dahlem, Zimet, & Farley, 1988). First referred to as 'the buffering hypothesis' by Cohen (1985), the evidence indicates that social support provides a shield against individuals' experience and/or appraisal of stressful situations (Chakradhar, Raj, & Raj, 2009; Cohen & McKay, 1984; Kikusui, Winslow, & Mori, 2006). From postpartum depression (Meyer, Arnold, & Pascali-Bonaro, 2001) and elder mistreatment (Dong & Simon, 2008) to protection against strokes (Nauert, 2008) and posttraumatic stress disorder (Charuvastra & Cloitre, 2008), the relationship between low levels of support from one's social network and emotional and physical disorders has been established in "hundreds, if not thousands, of studies" (Rhodes & Lakey, 1999, p. 281).

Social support is experienced through participation in social networks and is linked to an individual's level of overall perceived stress. Numerous studies have provided empirical evidence that social participation leads to improved social support, more fulfilling personal

relationships, increased sense of purpose, higher levels of self-esteem, greater commitment to social norms and communities, and both psychological and physical well-being (Cohen & Wills, 1985; Diener, Suh, Lucas, & Smith, 1999; Uchino, 2009).

All social support derives from social networks, but it is only the individual's perception of support as available that is consistently linked with positive health outcomes (Haber, Cohen, Lucas, & Baltes, 2007). Perceived social support refers to the "perceived availability and adequacy of supportive ties" (Barrera, 1986, p. 416) and is bolstered through communication and visual reminders of one's community (Kikusui et al., 2006). Thus, the literature indicates that participation in social networks provides the perception of social support that buffers the impact of perceived stress.

Online Social Networking and Social Support

Given its relative youth in society, researchers disagree about the psychological impact of Internet socializing. Critics espousing the displacement hypothesis (also referred to as the hydraulic or crowding-out effect of Internet use) argue that online interactions do not share fundamental qualities inherent to more traditional interactions (i.e., tactile and subtle cues interpreted in face-to-face communication), that time spent online detracts from time spent interacting with others face-to-face, and, as a result, interpersonal relationships suffer (Huang, 2010; Meerkerk, 2007; Shaw & Gant, 2002; Shklovski, Kiesler, & Kraut, 2006). Others suggest that increased Internet use will lead to greater feelings of isolation (Stepanikova, Nie, & He, 2010; Zhao, 2006). Supporting this claim, early research into online communication revealed the Internet Paradox: users simultaneously experienced greater feelings of loneliness despite reporting an increased number of people with whom they were communicating (Brenner, 1997; Engelberg & Sjöberg, 2004; Kraut et al., 1998; Turkle, 1996).

Others, however, disagree. The augmentation hypothesis (Huang, 2010) holds that Internet-based communication tools supplement connectivity by offering additional tools for interaction and maintaining contact (Shklovski, Kraut, & Rainie, 2004). For example, Sheldon (2008) determined that Facebook users who were uncomfortable with face-to-face interaction successfully utilized the Facebook platform as an alternative form of communication. Similarly, social networking sites (SNSs) allow individuals to interact with likeminded others instantaneously despite being geographically distant (Andreatos, 2007) and provide a platform for both active communication and passive observation of social ties, which strengthens existing offline social networks (Burke, Marlow, & Lento, 2010).

Through the near-universal acceptance and use of the Internet (Tufekci, 2008) and the increased opportunities for interpersonal connection that it provides, the term “social networking” has newly added implications. Specifically, social network websites (SNSs) such as MySpace, LinkedIn, and Facebook create opportunities for computer-mediated relationships and the online maintenance of offline relationships. Boyd and Ellison (2007) define SNSs as:

web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. (p. 1)

They note that the primary motivation for SNS users is to communicate with others already in their extended social network. This appears especially true for the popular site, Facebook.

Research has determined that, rather than seeking new relationships, Facebook members use the site to maintain and reestablish relationships that began offline, indicating an offline-to-online trend (Dwyer, Hiltz, & Passerini, 2007; Lampe, Ellison, & Steinfield, 2006; Lampe, Ellison, & Steinfield, 2008; Ross et al., 2009). Therefore, while users of other SNSs tend to

use the technology for “social browsing,” Facebook users are more inclined towards “social searching” for others with whom they have already established an offline connection (Lampe et al., 2006, 2008).

Whether determined to be a positive or negative influence on users, people are joining SNSs at an exponential rate. Currently, the most popular of these sites, by far, is Facebook. According to the website (Zuckerberg, 2011a), membership grew from nearly 1 million active users in 2004 to 100 million active users in 2008. As of July 2010, Facebook boasted over 500 million active users worldwide (Zuckerberg, 2011a), 50% of whom log on to the website each day (Zuckerberg, 2011b), eclipsing all other SNSs in terms of membership. In fact, as Facebook grows in popularity, MySpace, the second largest SNS, membership is in sharp decline, falling from 73 million visitors to 63 million visitors between January and February of 2011 (Arrington, 2011). With more reported visits than the search engine Google, the former record-holder for the most popular website on the Internet (Mui & Whoriskey, 2010), Facebook appears to have capitalized on, or potentially created, the general shift in perception of the Internet as mainly a source for information gathering to a source for relationship maintenance (Valkenburg & Jochen, 2007).

The Facebook platform appears ideally suited to increase users’ perception of social support. While many question the value of the Internet’s influence on social functioning, to date there has been little investigation into whether and how Facebook in particular influences perceived social support. Studies reporting that Internet use is either insignificant or harmful frequently cite data on general Internet use, email, chat rooms, and listservs (e.g., Cummings, Butler, & Kraut, 2002; Engelberg & Sjöberg, 2004; Kraut, Mukhopadhyay, Szczypula, Kiesler, & Scherlis, 1999; Schiffrin, Edelman, Falkenstern, & Stewart, 2010). Facebook, however, appears to have successfully combined these functions into a single

application; a combination that could impact users' experience differently than when divided into its previously studied parts.

Using the above definition of perceived social support, it is plausible that access to a single Internet site, such as Facebook, with lists and photos of an individual's supportive ties, combined with the opportunity to connect through numerous channels using numerous methods (e.g., posting to Walls, through instant message, or through private messages), could provide the perception of not only available, but also adequate sources of support (Sas, Dix, Hart, & Su, 2009).

Facebook could present opportunities for the enhancement of perceived social support. However, there are attributes of computer-mediated social networks that could nullify or undermine one's perception of support. In addition to the arguments that Internet use leads to increased isolation and loneliness noted above, researchers have argued that curiosity and excitement, rather than social interaction, is the main motivation for visiting the site (Hart, Ridley, Taher, Sas, & Dix, 2008) and that users consider online support less useful than support provided face-to-face (Schiffirin et al., 2010). Researchers have also espoused the "poor get poorer" model, which states that those without offline social support experience a decrease in psychological well-being when they turn to the Internet (Meerkerk, 2007). Thus, potential exists for some Facebook users to experience decreased social support.

Social Networking and Stress

Certain factors of Facebook use might also lead to increased stress. Numerous authors cite privacy concerns (Chakradhar et al., 2009; Gross & Acquisti, 2005; Hart et al., 2008; Tokunaga, 2011), the overlapping of social spheres (Binder, Howes, & Sutcliffe, 2009), and emotional burnout (Abbasi, 2008; Walther & Boyd, 2002) as potentially stress-inducing aspects of SNS use. Additionally, Hart et al. (2008) report that Facebook users cited "stalking" or "being nosey"—termed "lurking" in the literature (Walther & Boyd, 2002)—as

one of the most frequent uses (Hart et al., 2008; Preece, Nonnecke, & Andrews, 2004).

Lurking was reported to have taken place in secret and that intrusion into friends' privacy led to feelings of guilt. Because guilt is an example of emotional distress, (Baumeister, Stillwell, & Heatherton, 1994), Facebook lurkers could, indeed, perceive increased levels of stress in relation to their use of the platform.

In sum, research is inconclusive about whether the use of Facebook is beneficial, neutral, or detrimental to perceived social support and perceived stress. Further, researchers have yet to explore the consequences of SNS influences on social support in the stress-buffering model. The proposed study is designed to address these important questions.

Statement of Purpose

Investigation into opportunities to increase perceived social support is relevant and important for health professionals to understand and utilize because perceived social support buffers the impact of life events, decreasing the perception of stress, and, therefore, provides protection against the development of both physical and mental disorders. This study was designed to address the question of the relationship between Facebook use and both perceived social support and perceived stress.

The benefits of determining whether the use of Facebook is related to greater levels of perceived social support are far-reaching. SNSs represent a new horizon for mental health professionals, most who have yet to realize the potential value of their use (Gonchar & Adams, 2000). Research has indicated the importance of increasing perceived social support as a preventive strategy for those at risk for psychological disorder (Heller, Thompson, Trueba, Hogg, & Vlachos-Weber, 1991). A positive correlation between the use of SNSs and perceived social support could signal a protective effect of SNSs on health. SNSs have the potential to impact health care by offering new tools for health care workers to more efficiently and effectively care for their clients, and for clients to better care for themselves.

Additionally, better understanding the relationship between perceived social support and SNS use could improve our understanding of the buffering nature of social support and its online application.

Hypotheses

1. Individuals regularly engaged in Facebook-based communication would experience lower degrees of perceived stress.
2. More intense use of Facebook would be associated with increased perceived social support.
3. The negative association between Facebook use and perceived stress would be partially mediated by the positive association between Facebook use and perceived social support.

Chapter 2: Review of the Literature

The incredible popularity of Facebook has just begun to catch the attention of the research community. Facebook use spans age, gender, culture, socioeconomic status, and national borders (Boyd & Ellison, 2007). Membership in this free social networking website (SNS) has increased sharply, far surpassing that of any other SNS to date, making it a cultural phenomenon. It is unclear, however, how the site affects the millions of people who use it. In particular, it raises the question of how social support experienced through online interaction compares to that experienced through in-person contact. This literature review will summarize the extensively documented link between in-person social support and reduced perceived stress, to lay the foundation for a study of whether we can demonstrate a similar impact of Facebook-mediated social support. Additionally, a relatively large body of work has been produced that explores Internet use, computer-mediated communication, and SNS use. Authors have been unable to reach consensus about whether social uses of the Internet are beneficial or detrimental. Literature specific to Facebook use is limited, does not include measures of perceived stress or perceived social support, and consists mainly of college sample groups.

Using the stress-buffering model of perceived social support, this study utilized a relatively broad sample group and was the first, to this author's knowledge, to explore the relationship between Facebook use and stress, Facebook use and perceived social support, and if the relationship between Facebook use and stress is mediated by perceived social support. Potential existed for this study's findings to fall on either side of the debate given the lack of agreement and strong arguments among researchers studying the psychological impact of Internet use.

I first reported on the stress literature, briefly describing the development of stress research, detailing the commonly cited stress and coping theory, and providing an overview

of the relationship between stress and disorder. Following this, I detail the concept of social support and its benefits as discussed in the literature. Once the concepts of stress and social support were documented, I described the theory upon which this study rests: the stress-buffering model. Finally, I summarized the existing literature on SNSs, focusing particularly on the debate about the value of SNS use. Included in this report of SNSs is a detailed description of Facebook.

The Damaging Effects of Stress

There is strong evidence for the negative impact of stress upon peoples' physical and psychological well-being. First, this section will define stress as a concept and describe the theoretical approach that serves as the basis for this study. Second, the study will explore the connection between stress and disorder.

Stress is Subjective

Stress researchers have long struggled to accurately define stress. Initial investigations focused on threatening or challenging environmental stimuli as the defining feature of stress (i.e., stimulus theory; Lazarus, 1961; Moore & Cooper, 1998). Later, theorists shifted their emphasis to define stress by the body's sympathetic nervous system response to maintain homeostasis (i.e., response theory; Martin & Brantley, 2004; Selye, 1973). Neither model of stress satisfactorily addressed the variability in responses to seemingly similar environmental stimuli (Lazarus & Folkman, 1984). A synthesis emerged to define stress by the interaction between environmental events and individual responses, such that a stressor requires a stimulus event that is perceived by an actor as requiring greater coping resources than are readily available to the individual (Grant et al., 2003). In this model, the actor's appraisal of his or her coping resources, rather than an "objective" assessment of those resources, dictates the stress response (Martin & Brantley, 2004).

Stress and Coping Theory Accounts for Subjectivity

Stress and coping theory (Lazarus & Folkman, 1984) is a generalizable framework for studying stress that is founded on relational theory and applies to a broad range of stressful experiences (Folkman, 2010). The stress and coping theory serves as the basis of this study because of its broad applicability, frequent citation in the stress literature, and popularity as a model of stress response (Harvey, Nathens, Bandiera, & LeBlanc, 2010). According to stress and coping theory, two processes mediate the outcomes of stressful situations: cognitive appraisal and coping (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986).

How we think about events matters. From an evolutionary perspective, the development of a highly refined process for quickly judging situations as threatening, inconsequential, or nurturing served an important adaptive function for the survival of most species (Lazarus & Folkman, 1984). Cognitive appraisal is this process; it is a method of meaning making used to determine whether a situation is expected to have a positive, neutral, or negative outcome (Martin & Brantley, 2004). Holroyd and Lazarus (1982) note that individuals are not passive agents in their perception of situations as stressful. Rather, they actively imbue personal meaning with their experiences and then struggle to control and master them. Specifically, “a cognitive appraisal reflects the unique and changing relationship taking place between a person with certain distinctive characteristics (values, commitments, styles of perceiving and thinking) and an environment whose characteristics must be predicted and interpreted” (Lazarus & Folkman, 1984, p. 24).

Stress and coping theory posits that humans evaluate all situations in terms of expected or potential outcomes and, thus, give meaning to their experiences (Martin & Brantley, 2004). Through this process events are assessed as positive, negative, or neutral depending on the individual’s previous experience, learning, personality and the availability of internal or external resources (S. Cohen, 1992; Folkman et al., 1986; Martin & Brantley, 2004). The

subjective nature of the appraisal process explains the differences in perception of stress between people (Folkman, 2010) and, thus, accounts for critiques of stimulus theory. Indeed, research findings suggest that subjective assessment of the demands of challenging and threatening situations are strongly related to both subjective and physiological stress responses (Harvey et al., 2010). This highlights the importance of perception to the stress concept and identifies the rationale for using the perceived stress scale (S. Cohen, 1992; Cohen, Kamarck, & Mermelstein, 1983) in this study.

Folkman (2010) describes two stages of cognitive appraisal, primary and secondary, that determine the degree to which a situation is perceived as threatening, harmful, or challenging. During the primary appraisal process, an individual evaluates an event's potential to impact the individual's self-esteem, health, or well-being (Folkman et al., 1986; Harvey et al., 2010). The individual's beliefs, values, and goals shape this subjective determination (Folkman, 2010). Following primary appraisal, the person begins the process of secondary appraisal, wherein he or she considers how the event might be managed to either reduce or avoid harm or to increase the likelihood of benefit accounting for the individual's available resources (Folkman et al., 1986). Whether the individual considers available coping resources to be sufficient for managing the event determines whether the situation is judged to be stressful (Harvey et al., 2010). It is during this secondary appraisal stage that the concept of coping is introduced.

Coping defies stressors. Coping refers to the resources that mediate the appraisal of a situation as stressful. The most commonly referenced definition of coping (Martin & Brantley, 2004; O'Brien et al., 2009) is that of Folkman et al. (1986), who defined coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding [a] person's resources" (p. 993). Studies have repeatedly affirmed that coping strategies impact hormonal responses to

stressors (Aldwin & Yancura, 2004) and numerous authors have argued that health outcomes are more a product of effective coping resources than simply the absence of stress (Holroyd & Lazarus, 1982). Initially, researchers identified two types of coping: problem-focused coping and emotion-focused coping. Later, a third and fourth type, relationship-focused (Holtzman, Abbey, Singer, Ross, & Stewart, 2011) and meaning-focused coping (C. Park, 2008), were introduced. And, most recently, the concept of proactive coping has been posited (Schwarzer & Knoll, 2003).

Problem-focused coping. Problem-focused coping is similar to problem solving and refers to strategies for changing the problematic environment (Kramer, 1993). Research findings suggest that problem-focused forms of coping are more frequently used when the challenging situation are viewed as changeable (Folkman et al., 1986). Strategies for this type of coping “are often directed at defining the problem, generating alternative solutions, weighing alternatives in terms of their costs and benefits, choosing among them, and acting” (Lazarus & Folkman, 1984, p. 152).

Emotion-focused coping. Emotion-focused coping focuses efforts not on changing the environment, as in problem-focused coping, but rather on attempts to alter one’s internal emotional experience of events. Specifically, it refers to strategies employed to regulate emotions and occurs most often when an individual determines that a threatening environmental condition cannot be altered (Folkman, 2010; Lazarus & Folkman, 1984) or, “palliating negative emotions that arise as a result of stress” (Compas, Connor-Smith, Saltzman, Thomsen & Wadsworth, 2001, p. 87). Unlike problem-focused coping, this form of coping is used more frequently when the challenging situation is viewed as unchangeable (Folkman et al., 1986). Examples of emotion-focused coping strategies include distraction or avoidance (i.e., shifting attention away from the problematic situation), and seeking social support (Folkman, 2010; Richard S. Lazarus & Folkman, 1984).

Relationship-focused coping. Research into caregiver support and stress has long identified the protective nature of social relationships during stressful encounters (Holtzman et al., 2011; Kramer, 1993; O'Brien et al., 2009). Researchers developed the concept of relationship-focused coping in response to growing evidence that relatedness to others is as crucial to coping as problem and emotion management during times of stress (O'Brien et al., 2009). Additionally, relationship-focused coping acknowledges that, within close relationships, stress is often a shared venture experienced by multiple, intimately bound individuals (Coyne & Smith, 1991). This form of coping refers to interpersonal processes used by individuals to either enhance and sustain or damage social relationships during stressful events or situations (O'Brien et al., 2009). Whereas emotion-focused coping refers to intrapsychic processes, relationship-focused coping refers to interpersonal processes (Kramer, 1993). Kramer (1993) categorized relationship-focused coping into two modes: positive (relationship-enhancing) and negative (relationship-damaging) relationship-focused coping. Examples of relationship sustaining coping are empathizing, negotiation and compromise, and examples of coping that might damage relationships include criticizing, confrontation, isolation, and ignoring (Kramer, 1993).

Meaning-focused coping. Researchers recognize meaning making as influential to individuals' adjustment to stressful situations (Park & Folkman, 1997). Park and Folkman (1997) identified two different levels of meaning: global meaning and situational meaning. Global meaning refers to an individual's deeply held, enduring beliefs, schemas, or assumptions about how the world operates, whereas situational meaning refers to the personal significance of a particular stressful encounter in relation to the individual's global meaning (Schwarzer & Knoll, 2003). The extent to which an individual's appraised situational meaning is discrepant with her or his global meaning determines the extent to which the event is deemed stress inducing (Park, 2008).

Proactive coping. Some theorists recently expanded the definition of coping to encompass not only how we react to distress, but also how we prepare for it. For example, Schwarzer and Knoll (2003) note that, rather than being limited as a response to an event, coping can also include proactive approaches to “self-imposed goals and challenges” (p. 2). The investigation into this concept has revealed numerous positive functions of coping (Greenglass & Fiksenbaum, 2009). Indeed, individuals holding positive beliefs that are associated with optimism, self-esteem, and mastery tend to exhibit lower biological stress responses (Taylor, 2010).

Proactive coping does not rely on threatening or harmful appraisals. Instead, it describes efforts to strengthen resources that promote personal growth and the establishment of challenging goals (Schwarzer & Knoll, 2003). Proactive coping strategies have been related to the promotion of motivational states, positive mood, and a focus on goal setting and efficacious belief systems, which lead to the perception of events as challenging rather than stressful (Greenglass & Fiksenbaum, 2009). Through this lens, coping is seen as a potential motivator that offers the promotion of a positive mood in place of distress (Greenglass & Fiksenbaum, 2009).

Debate lingers, however, about whether proactive coping occurs in isolation from stress or in response to potential future threats as defined by an individual’s global meaning processes (Folkman, 2010). Schwarzer and Knoll (2003) counter this argument, noting that those who employ proactive coping tend to see potential future risks and demands as personal challenges rather than threats. Regardless of this distinction, the concept of proactive coping brings to light important factors of coping, including the maintenance of systems of social support and the preparatory acquisition of resources, skills, and strategies, for example.

Chronic Stress Can Be Toxic

From an evolutionary perspective, stress is an adaptive reaction to a threat: the

biological result of an activated central nervous system that heightens the individual's acuity and capacity for response (Schooler et al., 2000). While the engagement of the fight or flight response could prove necessary given certain, sudden environmental demands, many modern day, chronic triggers for this response (i.e., job interviews, arguments, traffic) and false alarms do not necessitate such a reaction. As a result, people frequently experience similar rushes of stress hormones in response to daily, often inconsequential, stressors that were intended to prepare our ancestors to fight through or flee from life and death situations (Taylor, 2010).

While taxing life events are easily classified as stressors, less frequently considered is the impact of chronically occurring, frustrating demands and difficult relationships that plague us each day (Lazarus & DeLongis, 1983). Researchers argue that these daily events are more predictive of adaptational outcomes (e.g., impacting morale, psychological symptoms, and somatic illness) than are more isolated traumatic life events (DeLongis, 1982). While many live lives devoid of singular traumatic events, the body's response to the daily hum of negatively perceived chronic environmental interactions can have damaging implications for an individuals' health.

It is a long-held, empirically supported notion that exposure to both acute and chronically stressful environments can lead to profound psychological and physical symptoms in otherwise healthy individuals (Cohen, Sherrod, & Clark, 1986; Green & Kimerling, 2004; Schnurr & Green, 2004; Taylor, 2010). Stress has been linked to many health problems, including infectious diseases, cancer, cardiovascular disease, diabetes, arthritis and back pain, heart disease, stroke, asthma, peptic ulcers, hypertension, and gastrointestinal disorders (Martin & Brantley, 2004; Quick et al., 1997). Individuals who regularly experience stress also demonstrate "abnormal glucose and insulin responses and increased vascular reactions" to stress, which lead to weight gain and obesity (Martin &

Brantley, 2004, p. 240). In fact, stress impacts nearly all of the body's biological systems (Schooler et al., 2000).

Changes to the endocrine, cardiovascular, and immune systems are tied to tissue damage resulting from repeated exposure to hormones released under threatening situations (Kibler, Joshi, & Hughes, 2010; Lazarus & DeLongis, 1983; Quick et al., 1997; Schooler et al., 2000). Studies of immunity suggest that prolonged stress can directly impact individuals' vulnerability to both acute and chronic illnesses (Groër et al., 2010; Kibler et al., 2010). Immune cells are regulated by cytokines, which are produced by the sympathetic nervous system. Because stress hormones inhibit the sympathetic nervous system's production of cytokines, stress is linked to lowered immune system functioning (Kibler et al., 2010).

Distressed individuals also demonstrate vulnerability to disease through the increase of health-compromising behaviors related to maladaptive coping strategies (Ng & Jeffery, 2003; Quick et al., 1997; Schooler et al., 2000). A study of 7066 women and men found support for this claim, which determined that individuals reporting high levels of stress were less likely to quit smoking, less likely to be physically active, and more likely to drink alcohol to excess than their less-stressed peers (Rod, Gronbaek, Schnohr, Prescott, & Kristensen, 2009). Indeed, temporary relief from stress-induced anxiety is commonly found through the consumption of tobacco products, alcohol, drugs, and unhealthy fat-, sugar-, and salt-rich foods (Groër et al., 2010; Ng & Jeffery, 2003). These stress-induced behavior changes, coupled with the inhibition of the body's natural immunological functions and the likelihood of addiction that results from choices of this nature, make clear the potentially devastating results of poorly managed stress.

In addition to the impact on the body's systems and the increase in unhealthy behaviors, Schooler et al. (2000) also cite a reduction in health-protective behaviors as a common response to stress. Researchers argue that many manage the experience of stress by

prioritizing immediately pleasurable (which, unfortunately, is often synonymous with unhealthy) activities (Ng & Jeffery, 2003).

Finally, well documented psychological consequences of stress include burnout, family problems, anxiety disorders, disrupted sleep, sexual dysfunction, depression, mood disturbance, and psychogenic disabilities (DeLongis, Folkman, & Lazarus, 1988; Friedman & McEwen, 2004; Quick et al., 1997). The stress-disorder interaction could result in a troubling cycle wherein stress leads to disease and disease leads to further stress. Given the impact of stress not only on the individual but also on the healthcare system charged with her or his care, the importance of bolstering individuals' coping resources is clear.

Social Support Protects Against Stress

Evolutionarily speaking, the importance of a supportive community is easily recognized. Throughout history, those who joined and worked together were better able to combat environmental threats and to support each other to find sustenance and care for offspring, for example. Because individuals involved in communities were better equipped to survive, their inclinations lived on throughout the generations and carried a message that companionship was beneficial and that isolation was to be avoided. Social support adds to our resources for instrumental (problem-focused) coping, emotional coping, relationship-focused coping, meaning-making coping, and proactive coping rendering otherwise stressful events more manageable.

Like stress, social support is socially constructed and subjective. Though many definitions have been proposed throughout the history of social support research, Haber et al. (2007) indicate that the term social support includes a variety of characteristics unique to each individual's social world that has the potential to decrease vulnerability to disease and promote well-being. Social support is also referred to as "the functional component of relationships" (Bastardo & Kimberlin, 2000, p. 675). And S. Cohen (2004), a leader in the

social support research field, describes social support as a coping resource resulting from a social network's provision of both psychological and material resources that are intended to assist the individual in his or her attempts to manage stress. It is not simply the intention that matters, however. In order for an interaction to be meaningfully supportive for a recipient, he or she must be confident about the motive for the support offering and not perceive a shift in the power dynamics of the relationship as a result of it (i.e., feeling indebted to the provider for her or his support; (Cohen, Underwood, & Gottlieb, 2000).

Theorists identified three classes of information that lead to the perception of social support: "that one is cared for and loved, esteemed and valued, and part of a social network of communication and mutual obligations" (Taylor, 2010, p. 8510). Information indicating that one is cared for and loved results from situations that call for mutual trust (Cobb, 1976). Individuals gain a sense that they are esteemed and valued most effectively through public recognition for his or her abilities and worth. This recognition is linked to higher self-esteem and a greater sense of personal worth (Cobb, 1976). Cobb refers to one's social network as a "network of mutual obligation" (p. 301), suggesting that it is not only a shared sense of obligation between group members, but also the sharing of commonly understood information within a group. Further, he notes that this information includes a shared history of the group experience as well as knowledge about what each member offers in terms of tangible or emotional support.

Social Support Leads to Internal Chemical Changes

Social support mediates the relationship between physical and psychological disorders and disruptions in the neuroendocrine or immune system functioning that result from stressful life events (Cohen & Wills, 1985). Not only do relationships provide external support that reduce the influence of stressors (Williams et al., 2004), but also, individuals who experience the world as supportive are naturally less biologically reactive to stressful

situations (Taylor, 2010). Indeed, interpersonal relationships impact individuals on a chemical level, “significantly affect[ing] cortisol secretion and cardiovascular and blood pressure responses” (Kikusui et al., 2006, p. 2222), which reduces stress and anxiety. The absence of a strong social network is also significant and accounts for the increased stress responses recorded for individuals who are socially isolated (Kikusui et al., 2006).

Kikusui, Winslow, and Mori (2006) identified methods through which mammals receive messages of social support by gathering information from multiple experiments on both animal and human subjects. Their work described numerous studies indicating that psychological challenges and exposure to potentially dangerous stimuli result in increased cortisol levels among social mammals (Kikusui et al., 2006). The secretion of cortisol is regulated by the hypothalamic-pituitary-adrenal (HPA) axis, which releases glucocorticoids to restore homeostasis to the endocrine system after a stressful event (Kikusui et al., 2006). Researchers measured HPA axis activity, and therefore, identified the impact of social support on the subjects’ experience of the event by comparing cortisol and glucocorticoid levels in subjects before, during, and after a stressful event. In doing so, Kikusui et al. revealed numerous similarities between social organisms with regard to social support, noting a similarity between highly social mammals: that they recover more rapidly from distressing experiences when they are together.

Another study investigating the impact of social support on the body’s chemical stress response further supported the findings of Kikusui et al. (2006). Data from this study complements research suggesting that social support influences health by tempering neural reactivity to stress and moderating the resultant neuroendocrine stress responses (Taylor, 2010).

Nonverbal Means for Establishing Social Support

Research findings indicate a number of different mechanisms for communicating and

receiving support. While verbal communication accounts for a significant proportion of interpersonal relationships for humans and, therefore, the degree of social support fostered from it, nonverbal cues indicating emotional availability, warmth and concern are unavoidably included in each face-to-face message (Jones & LeBaron, 2002; Jones & Guerrero, 2001). For example, socialization has taught men and women to display their gender through head and hand placement and facial gestures and “nonreciprocal patterns of touching communicate dominance-submission patterns in the relationship, and function as the pecking order does in other species” (Epstein, 1985, p. 31). Additionally, nonverbal cues such as leaning forward, appropriate eye contact, direct body orientation, smiling, touch, and head nods serve to increase both physical and psychological closeness during interactions (Jones & Guerrero, 2001, p. 570). Therefore, although closeness, trust, and support can be relayed through language, a large part of each message is communicated nonverbally, often outside of an individual’s consciousness.

For many mammals, direct tactile contact with a sympathetic partner or group results in lowered cortisol levels during stress inducing events. For example, lower cortisol levels found in groups of frightened rats were not found when the rats were caged apart from each other (Kikusui et al., 2006). Additionally, oxytocin, a stress-buffering chemical, is released when mammals are subjected to non-noxious tactile stimulations such as warmth and vibration, which provide sensations similar to social contact and grooming (Kikusui et al., 2006). Again, without verbal cues or language, the chemical effect of support can be realized.

Experiments investigating the impact of visual cues led to similar results. Although sheep tend to exhibit anxiety-related corticosteroid secretion in unfamiliar environments, when provided with pictures of familiar sheep faces the subjects showed reduced corticosteroid secretion. Interestingly, when shown an artificially reversed image of the same sheep, this reduction was not evident (Kikusui et al., 2006). Kikusui et al. (2006) liken these

findings to the tendency for humans to keep pictures of family members and loved ones accessible. In fact, research indicates that viewing pictures of loved ones “deactivate[s] the amygdaloid nucleus, which controls fear-related responses” (Kikusui et al., 2006, p. 2219). Simply put, the reminder that loved ones exist, or have existed, without verbal communication or touch is stimuli enough to produce stress reducing chemical reactions in people.

The Social Support Concept Gets Specific

Early critics of social support research argued that, because of its subjective nature, the term social support was not precise enough to reveal substantial data for scientific research. In fact, research shows that “different components of social support are only weakly related and reflect different processes” (Rhodes & Lakey, 1999, p. 282). For example, a study that compared social network size to support satisfaction among patients with AIDS and patients with cancer found that AIDS patients tended to report significantly less satisfaction with their support than cancer patients, despite similarly sized networks (Sarna, van Servellen, & Padilla, 1996). In response to this criticism, Barrera (1986) distilled the concept of social support into three sub-categories: social embeddedness, enacted support, and perceived social support. Social embeddedness is the opposite of isolation and refers to an individual’s connections to her or his social network. The degree to which an individual is socially embedded reflects not directly supportive ties, but rather, others within that individual’s social network who could potentially serve as resources for support (Barrera, 1986). For example, an unfriendly person in a large family could be considered socially embedded, when, in fact, he or she might experience very little support.

The concept of enacted support reflects the tangible results of support. It is the actual, functional support that an individual in need receives (Barrera, 1986). An example of enacted

support might be receiving a ride to the airport, a get-well card, or a financial loan from a friend.

Perceived social support describes the “cognitive appraisal of being reliably connected to others” (Barrera, 1986, p. 416) and can be further broken down into two dimensions: perceived availability and adequacy of supportive ties. The category *perceived availability of supportive ties* is quantitative in nature and refers to the number of people in an individual’s social network that he or she believes would be available when needed. The category *perceived adequacy of supportive ties* is a qualitative concept and refers to the value of the assistance the individual believes his or her community will offer in a time of crisis (Kitamura, Kijima, Watanabe, & Takezaki, 1999).

Interestingly, only an individual’s perception of social support is consistently positively associated with well-being, while enacted support and social embeddedness have proven either unrelated to well-being or in some cases even associated with negative outcomes (Bozo, Gündoğdu, & Büyükaşık-Çolak, 2009; Haber et al., 2007; Koopman et al., 2000; Reinhardt, Boerner, & Horowitz, 2006; Wethington & Kessler, 1986). Indeed, in a study of HIV-infected Venezuelan men, researchers found a significant positive association between measures of social support and health-related quality of life; however, the tangible support sub-scale offered the lowest correlation (Bastardo & Kimberlin, 2000). Therefore, although people who perceive their support systems as extensive are not immune to mental illness, they tend to be more resilient and able to manage higher degrees of stress than those who do not perceive this support.

Perceived Social Support Is Consistently Related To Well-being

High levels of perceived social support are repeatedly associated with positive emotional and health outcomes in the literature. According to Besser and Neria (2010),

Perceived social support is a primary interpersonal resource that has been consistently found to be associated with psychological well-being in times of stress, and is considered to be a protective factor for individuals who have experienced a disaster or terror attack. (p. 336)

Evidence indicates the protective nature of social support for individuals in crisis from a wide variety of pathological states and disease-related problems (Ben-Ari & Gil, 2004; House, 1987; Rhodes & Lakey, 1999). The literature conclusively demonstrates that perceived social support is a reliable predictor of resilience to and recovery from posttraumatic stress disorder (Besser & Neria, 2010) as well as health outcomes and mortality with effect sizes similar to those of smoking and the over-consumption of fatty foods (Taylor, 2010). The findings regarding perceived social support and mortality are especially interesting given that the results are not due to risk factors that are commonly associated with psychological disorders, such as physical health or suicide (Rhodes and Lakey, 1999).

The Stress-buffering Hypothesis of Social Support

The stress-buffering hypothesis of social support serves as a framework for understanding the relationship between stress, social support, and well-being (Rhodes and Lakey, 1999). This theory offers a construct explaining the well documented understanding that the perception of support from others in the individual's social network reduces stress and anxiety, both commonly understood to negatively affect health (Rueger, Malecki, & Demaray, 2008; Schooler et al., 2000; Wiederhold & Wiederhold, 2005). Also, it is the most commonly used construct in the social support literature (Rhodes & Lakey, 1999) and will serve as the theoretical underpinning for this study.

The stress-buffering hypothesis suggests that, while untapped during periods of low stress, high levels of support protect against stress-induced pathology for those experiencing high levels of stress (Cohen & Wills, 1985) through the enhancement of one's coping

resources (Koopman et al., 2000; Lian & Geok, 2010; Wethington & Kessler, 1986).

Theoretically similar to the concept of proactive coping, this hypothesis holds that social support is established during periods of non-crisis in preparation for times of crisis (Cobb, 1976; Cohen & Hoberman, 1983; Mayo Clinic Staff, 2008). Therefore, one cannot expect to realize the positive effects of social support during regular day-to-day events but rather, when those times of transition and crisis inevitably arise, those with stronger social support appear to have more effective coping abilities than those with weaker social ties (Cobb, 1976; Cohen & Wills, 1985).

Cohen and McKay (1984) integrate the stress-buffering hypothesis into Lazarus and Folkman's (1984) stress and coping theory by suggesting that one's level of perceived social support impacts his or her cognitive appraisal of a stressful situation. The degree to which a situation is perceived as threatening is often determined by one's social network (Hobfoll, 2009; House, 1987). Situations are appraised as less stressful when the individual is confident that her or his support network will be supportive of the chosen response. Also, difficult situations can be perceived as surmountable if the individual perceives her or his network to be willing to help (Wethington & Kessler, 1986). Given larger social networks it becomes more likely that another member of one's network has experienced a similar situation, which could lead the individual to appraise the situation as less distressing, depending on the outcome. As Schooler et al. (2000) note, "stress may be reduced if the threatening event is appraised as less harmful or threatening" (p. 488).

The Strength of Weak Ties Theory

The strength of weak ties theory (Granovetter, 1973) documents the importance of acquaintances as differentiated from immediate, close relationships. The term 'weak ties' refers to "relational partners across divergent groups that can provide one another with non-redundant information" (Wong & Shoham, 2011, p. 1). Weak tie relations are typically

sources of information, more than strong ties, which are relied upon for regular, reciprocal support (Rainie, Horrigan, Wellman, & Boase, 2006). The strength of weak ties theory posits that individuals with whom we are less socially involved (weak ties) create connections to outside networks and serve as bridges for information and resources between what would otherwise be isolated communities (Granovetter, 1983). While studies indicate that individuals with more strong ties (closer, more intimate relationships) experience higher levels of psychological well-being (Heller et al., 1991), weak ties offer access to information and resources that are outside of an individual's normally referenced social circles (Stefanone, Kwon, & Lackaff, 2011). They also provide a second, although less reliable, level of support in the event that an individual's strong ties fail to meet his or her needs (Granovetter, 1983). In contrast to the stress-buffering hypothesis, the strength of weak ties theory suggests that larger social networks can be beneficial as relationships with people outside of the individual's inner social circle could offer significant social support (LaRose, Eastin, & Gregg, 2001; Zhao, 2006).

Social Networking Has Changed

Coyle and Vaughn (2008) define social networks as individuals linked to one another interpersonally through personal relationships (i.e., friends and family) or through shared interests, beliefs, or ideas (i.e., political and religious groups). They argue that humans are societal and cannot survive in the absence of relationships with other humans. In fact, numerous studies empirically support the idea that social participation leads to improved social support, more fulfilling personal relationships, an increased sense of purpose, higher levels of self-esteem, greater commitment to social norms and communities, and both improved psychological and improved physical well-being (Cohen & Wills, 1985; Diener et al., 1999; Shklovski et al., 2004). When considered in tandem with the Stress-buffering

hypothesis, the social support experienced through participation in social networks is arguably connected to an individual's level of stress.

The implication of 'social networking' has changed drastically with the advent and increasing accessibility of the Internet. In the past, social networking might have sprung to mind a cocktail party or luncheon. However, currently it more commonly refers to the use of specific Internet platforms, referred to as Social Networking Sites (SNSs), established for the creation, growth, and management of online social networks where individuals use profiles they have created to represent themselves (Coyle & Vaughn, 2008; Sheldon, 2008).

SNSs serve as a tool for individuals to "communicate, connect and remain in contact with others" (Fogel & Nehmad, 2009, p. 153). They offer the opportunity to reshape one's social network while lowering the cost of communicating within that network (Ellison, Steinfield, & Lampe, 2011). They provide functions that promote communication within numerous contexts, including participation in politics, identity construction (Ledbetter et al., 2011), and relationship maintenance. Accordingly, authors also report that SNSs often offer reminders to attend to one's friendships—a necessary aspect to the growth and sustenance of potentially supportive relationships (Coyle & Vaughn, 2008). Supporting this claim, a 2006 Pew Internet survey revealed that, in comparison with those not online, Internet users were more likely to receive help (i.e., enacted support) from their core network relations (Ellison, Steinfield, & Lampe, 2007). In fact, in a survey of 1001 Internet users, 94% reported that communicating with friends and family was easier through resources available online than offline (D'Amico, 1998).

Frequent users of the Internet for communication purposes are associated with more social ties than infrequent users (Ellison et al., 2007; Zhao, 2006). This is not surprising in light of research indicating that the relative anonymity of the Internet leads users to an increase in disclosure and that "disclosing the qualities and aspects of one's inner or true self

has been argued to create bonds of empathy and understanding between the relationship partners” (Bargh, McKenna, & Fitzsimons, 2002, p. 35). Interpersonal relationships are typically established through repeated interactions between people in which each interaction is based on the expectation of future communication (Leimeister, Schweizer, Leimeister, & Krcmar, 2008). Therefore, the interactive nature of SNSs, coupled with the ease of connection and available anonymity, should offer ample opportunities for users not only to increase their number of social contacts, but also to improve the quality of their current relationships through regular communication. Importantly, while regular communication and disclosure are requisites for the development and sustaining of close relationships, when the motivation for online communication is purely disclosure oriented (i.e., lacking reciprocity), negative relational outcomes result (Ledbetter et al., 2011). Barring this particular motivation, online social communication has been found a healthy and effective form of communication (Ledbetter et al., 2011) and research indicates that individuals do, indeed, consider relationships made online to be as close as those created in person (Swickert, Hittner, Harris, & Herring, 2002).

SNSs also offer the opportunity to connect with others who share similar interests and to be granted access to friends of their contacts in an ever-widening sphere of social connectivity (Sheldon, 2008; Swickert et al., 2002). Once people recognize that the creation of community can be an active process in which they seek out individuals with whom they identify, rather than a passive one in which they connect only within the community they were born into, they begin to search for others to create a potentially more fulfilling social network (Barrera, Glasgow, McKay, Boles, & Feil, 2002). SNSs can facilitate that search. For example, research on the value of virtual relationships (relationships mediated online) for cancer patients found that the opportunity to interact with other cancer patients online served to bolster their social networks and played a pivotal role in meeting their social needs

(Leimeister et al., 2008). Internet social networking not only helped the cancer patients more effectively cope with their illness, but also, the families and friends of patients reported increased support for their efforts to care for them (Leimeister et al., 2008). Additionally, the convenience and accessibility to online support groups have increased participation for individuals with chronic diseases or disabilities (Barrera et al., 2002). This adds further validity to Granovetter's (1973) strength of weak ties theory as previously mentioned, where the availability to interact not only with immediate friends (strong ties), but also with those friends' friends (weak ties) through SNSs creates an opportunity for much a much wider source of information and potential support.

Social Networking Site Use Is Increasingly Prevalent

The decade-long upsurge in SNS use does not appear to be a passing phenomenon. A 2010 Pew Internet study reports that membership rates in the United States more than quadrupled between 2005 and 2008—from 8% in 2005 to 16% in 2006 to 37% in 2008 (Lenhart, Purcell, Smith, & Zickuhr, 2010, p. 33). Since just 2008, when SNS membership was estimated at 100 million (Subrahmanyam, Reich, Waechter, & Espinoza, 2008), the number of users doubled, with 47% of all adults (59% of internet users) reporting that they use at least one SNS (Hampton, Goulet, Rainie, & Purcell, 2011). The use of SNSs such as LinkedIn, MySpace, and Facebook, which currently boasts 500 million members worldwide, shows a steady and continued rise in popularity. SNSs boasted an 11.5% increase in traffic between 2006 and 2007 (Prescott, 2007) and, in the United States, an estimated 24% of adults visit the websites at least once a month (Fogel & Nehmad, 2009).

Despite its popularity among the general public, however, the intrinsic value of computer-mediated communication has been controversial since its development. As SNSs have grown in popularity, research has argued contrasting opinions. SNSs have been vilified for their potential to negatively impact the interpersonal experience and have been praised for

offering the opportunity for sustained connection despite geographic and time limitations (Coyle & Vaughn, 2008; Kraut et al., 2002; Zhao, 2006).

Social networking sites could be detrimental. Many critics of Internet use cite the displacement hypothesis, that interpersonal relationships suffer when the time one might have spent interacting with others is replaced by time spent online (Huang, 2010; Meerkerk, 2007; Shaw & Gant, 2002; Shklovski et al., 2006; Sigman, 2009), which leads to feelings of isolation (Stepanikova et al., 2010; Zhao, 2006). Researchers of the displacement hypothesis validated this claim with findings that users of computer-mediated communication reported greater feelings of loneliness and isolation despite greater numbers of contacts than nonusers (Brenner, 1997; Kraut et al., 1998; Turkle, 1996). Additionally, frequent Internet use has been related not only to increased loneliness, but also lower scores on measures of emotional and social skills and higher scores on measures of deviance (Engelberg & Sjöberg, 2004).

Specific to SNS use, Hill (2009), in his article, *Reflections on Leaving Facebook*, notes philosophical concerns surrounding the nature of Facebook-mediated communication. Citing the online avatar—an image user's choose to represent themselves online—as problematic for connection, Hill suggests that any communication between individuals is, in actuality, only communication between avatars. “If the user is not identical with their avatar, then they are in a relation with only that avatar and the other user's avatar when communicating or interacting online” (Hill, 2009, p. 3). Hill argues that this inter-avatar relationship is disingenuous and incapable of providing connection between users.

There is empirical support for Hill's anecdotal evidence. Some researchers suggest that phone calls or face-to-face interactions are more useful than email for the development and maintenance of social relationships. They argue that relationships formed and maintained online are weaker in comparison to their offline counterparts and the replacement of face-to-face interactions with Internet-based interactions result in weaker social connections

(Cummings et al., 2002). When comparing the perceived social support experienced from online interactions versus face-to-face interactions, Schiffrin et al. (2010) found that participants were less likely to feel that their online connections, as opposed to offline contacts, would empathize with their position or offer to help them if they were sick and determined that that users of SNSs believe that social support is always more likely to be provided offline than online.

In line with this, the poor-get-poorer model (developed from Kraut's (2002) rich-get-richer model) asserts that individuals with fewer offline social resources tend to experience more adverse outcomes from Internet use than those with more offline support (Selfhout, Branje, Delsing, ter Bogt, & Meeus, 2009; Van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008). Research supports the poor-get-poorer model suggesting that online communication with the goal of meeting new people (i.e., computer-mediated communication with online-only relations) results in decreased life satisfaction (Valkenburg & Jochen, 2007) and increased depression (Bessière, Kiesler, Kraut, & Boneva, 2008) and that socially isolated individuals use internet-based communication to seek social support (Amichai-Hamburger, Wainapel, & Fox, 2002; LaRose et al., 2001). Put simply, people with few offline contacts tend to seek relationships online and purely online relationships are associated with poor emotional outcomes.

Continuing in this vein, while personal disclosure on SNSs resulted in stronger perceptions of support from online contacts, there was also a ceiling to this effect. Excessive disclosure led to feelings of disconnect and a lack of support among SNS users (Ledbetter et al., 2011). Also, researchers suggest that SNSs are seen by users as an inappropriate environment for overly personal questions or revelation (Morris, Teevan, & Panovich, 2010). As applied to social relationships and Facebook use, unlimited access to friends in need could

result in emotional burnout and have negative ramifications on relationships (Walther & Boyd, 2002).

Repeated studies have also demonstrated an increase in psychological distress in people who interact with depressed or distressed others, which is contrary to arguments that larger social networks offer greater opportunities for support (LaRose et al., 2001; Zhao, 2006). While this argument was greatest for longer term, intimate relationships (i.e., marriage, and life-partnerships), similar effects were found in relationships with strangers, roommates, and dating partners (Benazon & Coyne, 2000). The potential exists, then, for SNS users with depressed or distressed contacts to experience adverse effects from SNS use.

A study by Hart et al. (2008) provides further evidence against the idea that SNSs augment users' perceived social support. They suggest that the majority of Facebook use might be based on "curiosity" and "excitement," rather than interpersonal interaction. Researchers note that interaction does lead to excitement, but the interaction was more related to receiving "pokes" or "virtual gifts" from friends, rather than specific verbal communication of support.

Concerns that SNS membership leads to Compulsive Internet Use (CIU) are noted in the literature as well. CIU refers to "an inability to control one's online activity with feelings of guilt about the lack of control" (Caplan, 2003, p. 626). Researchers have found a positive relationship between frequency of real-time online communication (i.e. instant messaging) and CIU, however, this relationship was not found for email (Van den Eijnden et al., 2008).

Other research indicates that the overlapping of individuals' different social spheres also creates tension (Binder et al., 2009). This study found that "the overt visibility of communication [which is inherent to Facebook] may offset the beneficial social effects of technology" (Binder et al., 2009, p. 965). By allowing access between, for example, social and work relationship spheres in which individuals typically choose different communication

methods or present different aspects of their personality, Facebook users could experience increased levels of perceived stress.

In a comparison of face-to-face versus internet-based business meetings, Olson and Olson (2000) found that meetings conducted online often left participants feeling disoriented or lacking context more often than those meeting in person. These authors also suggest that projects conducted face-to-face produced higher quality output with less need for clarification or discussions about how the work was to be conducted. In sum, a number of research studies, as well as a number of other informed perspectives, suggest that online interaction might be less effective and socially binding than face-to-face interaction.

Research on computer-mediated communication and burnout within the field of organizational psychology offers additional insight into potential stress-inducing qualities of Facebook use. Numerous studies of Information and Communication Technologies have exposed the paradox that online technologies allowing employees the freedom to work from home have made employees more accessible and more consistently engaged in the work environment, which could make them more disposed to job burnout (Leonardi, Treem, & Jackson, 2010). Given the expectation of greater accessibility available to Facebook users, individuals might feel pressured to communicate more often than they wish. Indeed, a study of interpretations of online pauses and silence in communication confirmed that people have expectations for response times and when they are not fulfilled, it is experienced as a violation in the relationship (Kalman & Rafaeli, 2011). Abbasi (2008) offers anecdotal evidence to this point when he writes, "My enthusiasm for reviving old friendships and retaining newer ones via social networking waned when managing information about other people's socializing became harder work than my day job" (p. 215).

Another potentially stressful aspect of SNS use is a concern for privacy among users. The increased risk for cyber and physical stalking, identity theft, and surveillance as potential

threats to users of social network sites have been documented (Dwyer et al., 2007; Gross & Acquisti, 2005). In addition, the risks of defamation and deceptive identities as well as threats to intellectual property ownership are disconcerting to the average user (Chakradhar et al., 2009). Privacy concerns were also addressed in a study that explored the use of SNSs as a surveillance tool for romantic partners. Findings suggested that both male and female SNS users tend to secretly track their partner's behavior through online resources when feeling uncertain about their relationship (Tokunaga, 2011).

Some users reported discomfort with the way that information is displayed on and controlled by SNS developers and so, are hesitant to communicate, display photographs, and post profile statuses (Hart et al., 2008). If privacy concerns are prevalent among users, not only might it result in higher levels of perceived stress for users actively posting to the site, but also, a reluctance to post could interfere with users' willingness to provide support: motivating lurking (a popular term for visiting sites to watch others' activity without participating) rather than actively posting.

The debate surrounding Internet-based social networking has even inspired Pope Benedict XVI to state a position. In reference to Internet use and computer-mediated communication, he argues that the forms of communication developed online "do not increase humaneness but instead risk increasing a sense of solitude and disorientation." He continues, voicing concern that the progress accompanying these new technologies blurs the lines between reality and virtual reality and is leading to an "indifference towards real life" (as cited in Bosker, 2010).

Social networking sites could be beneficial. The above review of the social support literature demonstrates a clear relationship between a strong social support network and greater health and life satisfaction. The function of SNSs is to promote greater connectivity between people, which, it is hypothesized, should strengthen the experience of perceived

social support. Indeed, research has indicated that computer-mediated relationships can be an important resource for social support (Ellison et al., 2007; Swickert et al., 2002; Walther & Boyd, 2002). Authors have found little difference between online and offline demonstrations of social support, noting similar stress-buffering effects for both (Leung, 2007; Leung & Lee, 2005). And others suggest that, not only are meaningful relationships possible online (McKenna, Green, & Gleason, 2002), virtual relationships can have a strong supportive effect (Leimeister et al., 2008). Therefore, if people experience perceived social support through the use of SNSs, then the use of SNSs should serve as a buffer to anxiety and stress and reflect greater health and life satisfaction.

Interestingly, the advent of the telephone encouraged similar responses from scholars who predicted that as individuals became less geographically restricted their interests in matters on a local level would wane, resulting in “socialized societies of telephone friends” (Zhao, 2006, p. 844). Even some of the most die-hard opponents to the social use of the Internet have revisited their initial studies to find that more frequent Internet use is associated with larger increases in both local and distant social network size as well as increases in face-to-face interactions with friends and family (Kraut et al., 2002; Robinson, Kestnbaum, Neustadt, & Alvarez, 2000; Watkins & Lee, 2010). And others question the legitimacy of research that implies causality between Internet use and isolation, noting the possibility that troubled individuals might be more attracted to certain Internet functions (Gordon, Juang, & Syed, 2007).

A study of students’ transition to the college environment demonstrated that SNS use assisted underclass students in their move to the college environment by allowing them a less anxiety-provoking means for socializing within the new community. The facilitation of contact with previously established supportive relationships afforded by SNSs reportedly aided this transition as well (Chakradhar et al., 2009; Lian & Geok, 2010; Yu, Tian, Vogel, &

Chi-Wai Kwok, 2010). Also, some authors argue that individuals who engage in online communication report higher degrees of social support (LaRose et al., 2001; Valenzuela, Park, & Kee, 2009; Valkenburg & Jochen, 2007). In contrast to the Internet Paradox study mentioned above, Hamburger and Ben-Artzi (2000) reported that individuals connect with others online and experience decreased isolation and loneliness. Others note that, while SNSs could have changed some aspects of socializing and social networks, they also make the social process more readily available and efficient, thereby strengthening users' social networks (Wang & Wellman, 2010). Supporting this claim, Robinson, Kestnbaum, Neustadt & Alvarez (2000) report that Internet users participated in more social activities (i.e., communicating face-to-face and by phone) than non-users.

In contrast to privacy concerns voiced by critics of SNSs use, numerous authors argue for the benefit of online personal disclosure. Noting the importance of disclosure to the development of relationships, researchers suggest that the amount of information provided on SNS user profiles enables other users to learn about, and eventually disclose their own personal information, which could lead to deeper interpersonal connections (Baker & Oswald, 2010; Cohen et al., 2000) and increase their opportunities for social interaction and relationship formation and maintenance (Young & Quan-Haase, 2009). Others have identified the large role that self-disclosure and partner disclosure play in the growth of intimacy of online relationships (McKenna et al., 2002).

Even the Catholic Church appears unable to disentangle itself from the debate. Indeed, prior to the Pope's 2010 critique of SNSs, the Pontifical Council for Social Communications at the Vatican noted that the Internet can be a useful problem-solving tool that aids in human development and helps lead to "a world governed by justice and peace and love" (The Pontifical Council for Social Communications, 2002).

Regardless of the possible negative implications of SNS use, the wave of technology is clearly moving in a digital direction. If there are potential opportunities to promote well-being available as a result of this wave, then health care providers are obligated to take advantage of them. The opportunity to enhance individuals' perceived social support and, therefore, to proactively defend against countless future physical and psychological difficulties, might well lie in the utilization of SNSs.

Facebook—The Most Popular Social Networking Site

Facebook is a SNS that is recognized for its quick surge in popularity. Originally developed by Mark Zuckerberg in 2004 as a means for his fellow Harvard students to connect and maintain social ties, Facebook has experienced membership increases at an exponential rate. In 2006, just two years after its creation, the site had 12 million members, and just one year later in 2007, Facebook membership grew to 21 million (Ellison et al., 2007). According to the Facebook statistics page (Zuckerberg, 2011b), the site currently houses membership profiles for over 500 million active users, 50% of whom visit the site daily, who spend over 700 billion minutes each month on the site. The popularity of Facebook became undeniable when, in 2010, Internet users visited the site more frequently than Google.com, the search engine that previously had been recognized as the most popular Internet website (Mui & Whoriskey, 2010). Facebook is currently considered one of the most common means of communication in the United States (Hew, 2011; Mui & Whoriskey, 2010; Ross et al., 2009).

Facebook is similar to other SNSs in a number of ways: it is a social networking site that provides a platform for sharing personal information, photographs, and videos, and for joining groups of friends with one another. Bugeja (2006) describes the site as “an interactive, image-laden directory featuring groups that share lifestyles or attitudes” (p. 00). One important difference unique to Facebook, however, is that the majority of Facebook

relationships first originate offline as opposed to the online-offline trend most common to other sites (Ellison et al., 2007; Lampe et al., 2006).

Members of Facebook must first register with a valid email address and create a profile page, which includes information about the user. Lampe, Ellison, and Steinfield (2007) determined four categorizations for the information gathered on a Facebook profile: control elements, referents elements, interests elements, and contact elements. Control elements include gender (with options for male and female only), length of membership on Facebook, institutional involvement, and date of last update by member, which serves as a rough measure of account activity. Referents elements refer to information related to potential commonalities between users, such as: hometown, high school attended, current residence, and field of study. Interest elements include personal preferences, such as favorite music, movies, television shows, books, and quotes, as well as political views. Contact elements include information about offline contacts and other means for communicating outside of Facebook, such as relationship status, type of relationship sought, links to personal websites, current physical address, birth date, instant messenger information, and email address.

Supplying information other than an email address and a name is optional and privacy settings allow the user to decide what information is shared publicly and with whom; however, studies have demonstrated that, for Facebook specifically, users' number of friends is positively associated with the amount of profile information provided (Lampe et al., 2006). Also, as previously noted, amount of disclosure could impact the degree to which strong relationships are developed (Baker & Oswald, 2010; McKenna et al., 2002; Young & Quan-Haase, 2009).

Individuals can search for others on the site and send requests to be added as a 'friend' to others' pages once she or he has joined Facebook. If this request is accepted, a link

to each profile page is added to both pages publicly indicating the connection between the two users (they become “Facebook Friends”) and offering other contacts from each member access to the others’ page. As members find each other, either through active searching or by recognizing other members’ Facebook Friends, that individuals’ networks is created and grows.

Facebook functions might enhance perceived social support. There are numerous functions available on Facebook, each of which could support an individual’s social networking and perception of support in a different capacity.

Communication functions vary in degree of privacy allotted. Private forms of communication include messages, instant messages, and pokes. Messages are similar to emails that can be sent to any Facebook user, whether the individual is a friend or not, however, they can only be accessed through the site. Instant messaging is “a text-based communication tool that allows dyadic synchronous interaction between two individuals” (Hew, 2011, p. 663) and is limited to a user’s Facebook contacts. Not surprisingly, most respondents indicated that private communication on Facebook provided the most meaningful moments of connecting with another when asked in a study (Sas et al., 2009). “Poking” another Facebook member simply produces a notification on his or her page indicating that they have been “poked.” This function is available between any members, regardless of friendship status. The poke was established to indicate a desire to speak with the poked person (Hew, 2011); however, it seems more often to be used as a means for acknowledging someone without using words. Use of these particular functions might indicate a stronger interpersonal relationship between users as they support direct, dyadic communication (Sas et al., 2009).

More public forms of communication include posting messages to the Wall, commenting on friends’ pictures, videos, and “Wall” messages, the Newsfeed, and Notes.

The “Wall” is a space provided on a user’s profile page that acts as a public message board, which includes Status Updates (short messages that a user posts on his or her own page), newly uploaded pictures and videos, and all of the user’s Facebook activity. There is also space for all Facebook members to comment on uploaded pictures and videos. “Notes” is a page that resembles a blog, which allows users to post longer, diary-like messages that are accessible to friends. The “Newsfeed” is a compilation of friends’ activity on Facebook, including status updates and comments made on other members’ status updates, pictures, and videos. The Newsfeed also includes updates from organizations that the user has expressed interest in (i.e., National Public Radio, Truth-out.org), and interest groups that the member has joined. Each of these tools serve a more global communication function, as access to messages sent through these mechanisms are open to public consumption among friends and their friends.

While Facebook might be mostly limited to verbal interaction, the immediate access to pictures of supportive figures, often in the form of avatars located next to comments from these individuals, could offer adequate stimuli for the production of stress reducing chemicals in the bloodstream. Also, the calendar functions, while not communication-specific, serve as reminders of particular events among an individual’s Facebook contacts. The birthday calendar is automatically updated with reminders of friends’ birthdays and the events calendar houses invitations from other members who have created events (i.e., parties, political events, fundraisers, or concerts) on the site and reminders of upcoming events. These functions could trigger network-strengthening communication (Lampe et al., 2007) and might support face-to-face meetings, indirectly promoting tactile stimulation, an important social support cue (Kikusui et al., 2006).

Additionally, consideration of the strength of weak ties theory (Granovetter, 1973) is indicated as it pertains to Facebook use. Given that Facebook users, in general, are connected

to many more people through the site than they interact with on a regular basis (Joinson, 2008), it can be postulated that these individuals represent an example of Granovetter's weak ties.

That Facebook offers a 'space' for holding and organizing vast social networks might support users' social embeddedness by offering a reminder of the individuals in his or her social network as well as reminders to maintain, and opportunities for maintaining, those relationships. With active social networks firmly in place, the opportunities for perceived social support could become more likely.

Chapter 3: Method

As described in the review of literature, evidence exists that SNS use can increase perceived social support, and perceived social support decreases perceived stress. These findings suggest the possibility that SNS use might decrease perceived stress, in part by increasing perceived social support.

Hypotheses

1. Individuals regularly engaged in Facebook-based communication would experience lower degrees of perceived stress.
2. More intense use of Facebook would be associated with increased perceived social support.
3. The negative association between Facebook use and perceived stress would be partially mediated by the positive association between Facebook use and perceived social support.

Sampling Procedures

Capitalizing on the networking capacity of Facebook, participants self-referred through a snowball sampling procedure. As such, I posted a request for participation on my Facebook profile with an additional request for individuals to re-post the request to their own page. Data was collected through an online, self-report questionnaire hosted by SurveyMonkey.com. Requests to complete the survey were also sent electronically to the graduates and graduate students of Antioch University New England, and distributed through a national graduate program listserv (i.e., anepsyd@mm.windigicert.com).

Participants

The sample for this study included 641 Internet users above the age of 18. Demographic information gathered included age, gender, and respondent geographic location (see Table 1 in Chapter 4).

Sample Size and Power Estimates

The current study explores relationships among three variables: SNS use and perceived social support, SNS use and perceived stress, and perceived social support and perceived stress. When possible, effect sizes for these relationships were estimated from existing literature. Sample size estimates for each of the hypotheses were calculated using effect sizes from the literature that most closely approximated the variables being explored in this study.

Perceived Social Support And Perceived Stress

In a study examining the relationship between perceived social support and irritable bowel syndrome symptom severity, Lackner et al. (2010), found a negative association between perceived social support and perceived stress ($f^2 = 0.190476$, $p < 0.001$, $\beta = -0.34$). Because Lackner et al. used the same instruments used for this study to determine perceived social support (i.e., the Multidimensional Scale of Perceived Social Support) and perceived stress (i.e., the Perceived Stress Scale), and because their research was conducted recently (since the increase in popularity of SNSs), their study was deemed appropriate for use in determining sample size for this project. The sample size for alpha level $p < 0.05$ and $p < 0.01$ were calculated for the current study using the effect size from the Lackner et al. study. Assuming a beta of 0.80 and a significance level of $p = 0.05$, the minimum sample size = 71 and for $p = 0.01$, the minimum sample size = 98 (Soper, 2011). For the analysis used in this study, f^2 is the appropriate effect size index. The authors reported $f^2 = 0.190476$, which, according to Cohen (1992), is a medium effect. For that effect size, Cohen (1992) indicates a sample size of 97 provides adequate statistical power.

Facebook Use and Perceived Social Support

After extensive searches of online academic journal databases during the development of this study, it was concluded that there were no existing studies of Facebook use (or SNSs

in general) and perceived social support. Leimeister, Schwiezer, Leimeister, & Krcmar (2008), who explored levels of perceived social support among participants in cancer-focused virtual communities in Germany, revealed data about virtual relationships and perceived social support. This data exposed a significant positive effect of relationships established in virtual communities, arguably similar to Facebook communities, and perceived social support ($f^2 = 1.62467, p < 0.001, \beta = 0.787$). The sample size for alpha level $p < 0.05$ and $p < 0.01$ was calculated for the current study using the effect size from the Leimeister et al. study. Assuming a beta of 0.80 and a significance level of $p = 0.05$, the minimum sample size = 17 and for $p = 0.01$, the minimum sample size = 21 (Soper, 2011). For the analysis used in this study, f^2 is the appropriate effect size index. The authors reported $f^2 = 1.62467$, which, according to Cohen (1992), is a large effect. For that effect size, Cohen (1992) indicates a sample size of 45 provides adequate statistical power.

Sample Size Calculation

To this author's knowledge there was no literature documenting the effect sizes of the relationships among the variables used in the current study because this study had not been done before. Based on a lack of existing literature on the interaction effect size between SNS use and perceived stress and the strong interaction effect found in the Leimeister et al. (2008) study ($f^2 = 1.62$), this author hypothesized that Facebook use will positively correlate with perceived social support and a sample size was determined by using the oft-published interaction effect between perceived social support and perceived stress. In order to ensure an appropriate power analysis, the lowest acceptable sample size would have been 71. The target sample size was set at a conservative 100 respondents based on preference for a higher beta value (0.80) coupled with the ease of access to a greater number of potential respondents through the online survey method and limited criteria for participation.

Measures

Demographic Information

Demographic information included gender, age, and respondent location. Options for gender included male, female, and “If neither option above accurately reflects your gender, please describe your gender in the space provided,” which included a blank field for descriptive information. This option was used in order to communicate respectful inclusion for those who do not identify within the traditional, binary gender descriptions. Information regarding participant age was collected by offering the following ordinal options: 17 or younger, 18-20, 21-29, 30-39, 40-49, 50-59, and 60 or older. Participants choosing the option 17 or younger were directed to a disqualification page and, were any respondents to have chosen this option, their information would not have been included in the data. Information about each participant’s location was gathered through an open ended question (i.e., “Please indicate your current state of residence in the space provided. If you are not in the United States of America, please indicate your country”).

Preference for Online Communication

The measure for Communication Preference was developed to understand participants’ preferred method of communication between more traditional communication (i.e., face-to-face or telephone) and general online communication. Response items for this variable were not limited to Facebook-specific communication. Respondent preference for online communication was assessed by the following questions: “I prefer to communicate with others online more than face-to-face,” “I prefer to communicate with others online more than talking on the phone,” and “I communicate with my closest friends online more often than in person or on the phone.” Responses to these items were along a scale of 1 (“strongly disagree”) to 7 (“strongly agree”). A Communication Preference score was created by summing responses to these three items. This score was continuous, ranging from 3 to 21

possible points, where the higher score represents a greater preference for computer-mediated versus face-to-face or phone communication.

Perceived Social Support

The dependent variable, Perceived Social Support, was quantified using the 12-item Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) (APPENDIX A). The MSPSS uses ratings of subjectively assessed social support through a 7-point Likert-scale ranging from very strongly disagree (1) to very strongly agree (7). Scores from the MSPSS are continuous, ranging from 12 to 84 possible points, with higher summative scores representing greater support (Youngblut & Brooten, 2006). Designed to “assess perceptions of social support adequacy from... family, friends, and significant others,” the MSPSS “is shown to be psychometrically sound, with good reliability, factorial validity, and adequate construct validity” (Zimet et al., 1988, p. 33). Although originally normed to a sample of university students, it has proven reliable for multicultural populations as well (Clara, Cox, Enns, Murray, & Torgrudc, 2003; Duru, 2007; Edwards, 2004; Kazarian & McCabe, 1991; Klineberg et al., 2006; Lopez & Salas, 2006; Steese et al., 2004).

Perceived Stress

The dependent variable, Perceived Stress, was quantified using the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983. (APPENDIX B). The PSS is a 14-item questionnaire designed to identify “the degree to which respondents [find] their lives unpredictable, uncontrollable, and overloading” (Cohen et al., 1983, p. 385).

The PSS is a simple instrument designed for individuals from a diversity of cultural backgrounds with at least a junior high school education and results have been determined to be unaffected by age or sex variation (Cohen et al., 1983). For this measure, participants responded to items such as, “In the last month, how often have you been upset because of

something that happened unexpectedly,” for example, by endorsing the most accurate representation from the 5-point Likert scale ranging from “Never” to “Very Often.” The PSS is scored by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1, and 4 = 0) to the four positively stated items (items 4, 5, 7, and 8), and then summing across all scale items (Cohen, 1994). Scores from the PSS are continuous, ranging from 0 to 40 possible points, with higher summative scores representing higher degrees of respondent perceived stress.

The PSS has demonstrated “adequate internal and test-retest reliability and is correlated in the expected manner with a range of self-report and behavioral criteria” (Cohen et al., 1983, p. 385). Additionally, because the PSS measures respondents’ appraisal of events rather than the frequency or number of events, it was found to more strongly predict health and health-related outcomes (Cohen et al., 1983). The association between the PSS and disorder is moderated by social support; persons with high levels of support show less disorder under high PSS levels than do those with low levels of support (Cohen & Williamson, 1988).

Facebook User Variables

All respondents were asked whether they were currently members of Facebook. Respondents who indicated that they do not use Facebook were directed to the remaining two surveys (the Multidimensional Scale of Perceived Social Support and the Perceived Stress Scale) to offer comparison data between Facebook users and non-users after completion of the communication preference items. Those who responded that they are Facebook members were directed to an instrument designed as a measure of Facebook usage (APPENDIX C) that incorporated Ellison, Steinfield, and Lampe’s (2007) Facebook Intensity Scale (Cronbach’s $\alpha = 0.83$). Items on this mixed method survey identified: a) respondents’ general Facebook use, b) intensity of Facebook use, and c) sense of Facebook value.

General Facebook use. Respondents answered a number of questions about their Facebook use, including: a) number of Facebook friends, b) majority of Facebook friends originally met offline, c) inclusion of family members as Facebook friends, d) inclusion of professional relationships as Facebook friends, e) favorite Facebook applications, and f) likes and dislikes about Facebook. Response items identifying whether participants originally met Facebook friends offline were ordinal (Yes = 2, No = 1, not a Facebook member = 0). Response items identifying whether respondents include professional relationships as Facebook friends were also ordinal (Yes = 2, No = 1, not a Facebook member = 0). Each of these items were used as individual variables in response to previous research (Binder et al., 2009; Ellison et al., 2007; Lampe, Ellison, & Steinfield, 2006), provided qualitative data for future analysis, and are the outside scope of this study.

Intensity of Facebook use. An Intensity of Facebook Use measure was developed to describe the degree of intensity with which participants use the platform. The measure's items include, (a) the amount of time each respondent reported spending on the site, (b) the frequency with which each respondent posts to or comments on other Facebook members' "walls" or posts, (c) how often he or she uses the Facebook "chat" function, (d) how often he or she checks his or her Facebook "Newsfeed," (e) how often she or he sends private messages on Facebook, (f) how often he or she updates her or his Facebook "status," and (g) whether or not he or she is notified of activity on their account outside of the site. Response options were categorical for time spent on Facebook (10 minutes or less = 1; 11 to 30 minutes = 2; 31 to 60 minutes = 3; 1 to 1:59 hours = 4; 2 to 2:59 hours = 5; 3 to 3:59 hours = 6; and 4 hours or more = 7). The response options for items identifying frequency are nominal ("I have never used [the designated function]" = 1; "Less than once per year" = 2; "A few times per year" = 3; "Less than once a month" = 4; "Once a month" = 5; "Twice a month" = 6; "Once a week" = 7; "Two to six times weekly" = 8; "Once daily" = 9; "Two to four times

daily” = 10; and “Five or more times daily” = 11). Those response items identifying whether participants received notification of activity related to their Facebook account are ordinal (Yes = 2, No = 1, I don’t know = 0). The responses to these questions can be summed to create a score for Intensity of Facebook Use. Respondents who reported that they do not use Facebook were given a score of 0 for this variable. Scores for the composite variable Intensity of Facebook Use were continuous, ranging from 0 to 64 possible points, with higher scores representing a greater degree of Facebook use intensity.

Procedures

To test the hypothesis that Facebook Use decreases perceived stress by increasing perceived social support, a mediation analysis was performed. As shown in Figure 1, intensity of Facebook use was the independent variable, perceived social support was the mediator variable, and perceived stress was the dependent variable.

Data Collection

The data collection for this study was conducted through an online, self-report questionnaire hosted by SurveyMonkey.com and distributed via a link on Facebook and through personal email. Requests to complete the survey were sent electronically to the graduates and graduate students of Antioch University New England, distributed through a graduate program listserv, to individuals in this author’s social network, and posted to Facebook in order to most effectively increase the population size and the likelihood of response. Participants were offered the opportunity to register for a chance to win a \$100 Amazon.com gift card after completion of the survey. Participation in the raffle was voluntary in order to allow those uncomfortable with supplying contact information to complete the survey.

Ethics

In order to ethically conduct this study, careful consideration was given to “how the

researcher must think and act concerning the people who make themselves available for scrutiny” (Locke, Spirduso, & Silverman, 2007, p. 28). The strict guidelines established by the American Psychological Association (APA), specifically section 6.02, “Maintenance, Dissemination, and Disposal of Confidential Records of Professional and Scientific Work” (Nagy, 2005, p. 154) were addressed in the Informed Consent section of the questionnaire.

In accordance with these and other standards, the researcher began by seeking approval for the study with the Institutional Review Board (IRB) at Antioch University New England (Mertens, 2005). Once IRB approval was obtained, each volunteer received the Informed Consent form. It is suggested that both confidentiality and anonymity be addressed (Locke et al., 2007), so direct measures to provide for participant anonymity were employed. As such, questionnaires request only minimal identifying data (i.e., name, age, gender, location) and data was managed according to a coding system based on the order in which the responses were gathered.

Additionally, each volunteer participant was informed of his or her rights before completion of the questionnaire (see Appendix D). This included informing each participant of:

1. The nature and intention of the study;
2. Methods for maintaining his or her confidentiality;
3. All possible risks and benefits involved in completing the interview for not only her or him, but also for all other participants as well;
4. The voluntary nature of his or her participation and his or her right to terminate his or her consent and discontinue involvement in the study at any time;
5. The name and contact information of the person responsible for the study as well as permission to contact that person if ever a question arises, and finally;
6. Her or his right to receive information about the results of the study (Locke et al., 2007).

In order for this final participant right, access to the final study results will be made available online, to ensure anonymity and allow for the results to be accessed.

Risks

Questionnaires inquired about participants' experience of perceived stress. Although it is unlikely that the volunteers were in any danger of trauma as a result of participation, it is possible that requests for information about respondents' experience of stress could have elicited traumatic or painful memories. For this reason, participants were advised of their right to discontinue at any time and were encouraged to consult with a psychotherapist if any troublesome thoughts were triggered.

Confidentiality

“Confidentiality means that the privacy of individuals will be protected in that the data they provide will be handled and reported in such a way that they cannot be associated with them personally” (Mertens, 2005, p. 333). To achieve this end, efforts were made to avoid identifiable information (i.e. names, specific places) on the questionnaire and all identifiable information was removed and exchanged with codes. Additionally, the Survey Monkey feature that enables the collection of respondent Internet Protocol addresses was disabled and data was stored in a password-protected file in a password-protected computer.

In order to promote respondent participation, one \$100 gift certificate to Amazon.com was raffled among respondents. An item was added to the end of the survey for each respondent to supply contact information (in the form of an email address) if they chose to be included in the raffle. This information was not connected in any way to survey responses, was stored on a separate database from responses, and participation was voluntary to allow respondents uncomfortable with identification to participate.

Analytic Design

Frazier, Tix and Barron (2004) note that the method most commonly used for determining mediation in the psychological literature is that recommended by Baron and Kenny (1986). The four steps for determining mediation for this study according to the Baron and Kenny model include three regression equations (see Table 2). The first step, as

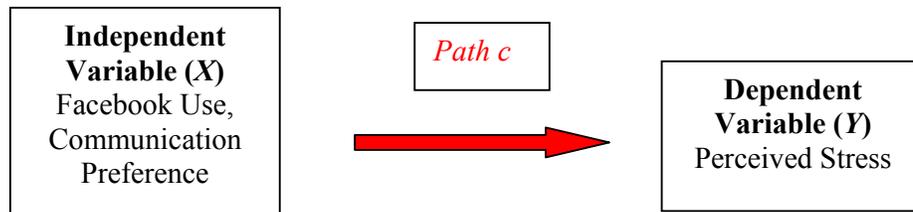


Figure 1. Diagram of initial path in mediation model (Frazier et al., 2004)

addressed above, is to show that the independent variable, Facebook use, is a significant predictor of the dependent variable, perceived stress (see Path *c* in Figure 1). The second step is to show that the independent variable, Facebook use, is a significant predictor of the mediator variable, perceived social support (see Path *a* in Figure 2). The third step is to examine the effect of the mediator variable, perceived social support on the dependent variable, perceived stress, while controlling for the independent variable, Facebook use (see Path *c'* in Figure 2). If perceived social support completely mediates the relationship between Facebook use and perceived stress, the effect of Facebook use on perceived stress when controlling for perceived social support should be zero (Baron & Kenny, 1986). Perceived social support might partially (rather than completely) mediate the relationship between Facebook use and perceived stress, in which case the last analysis should show a reduction in the relationship between Facebook use and perceived stress when social support is in the model versus when it is not.

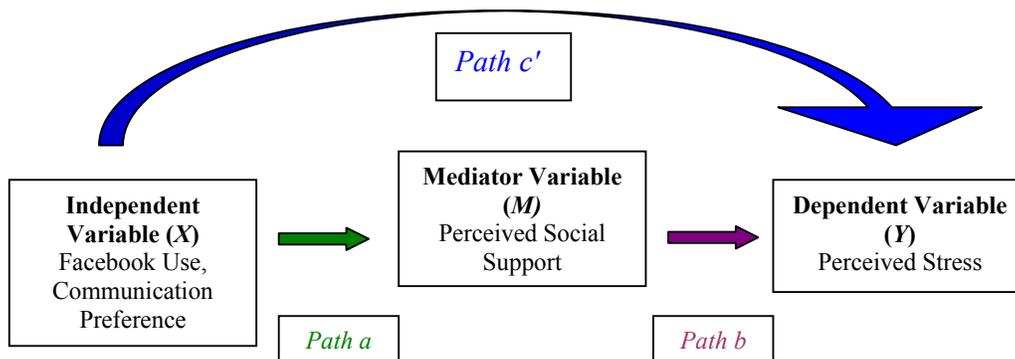


Figure 2. Diagram of remaining paths in mediation model (Frazier et al., 2004)

Kenny, Kashy, and Bolger (1998) argue that the first step is not required in situations where there is a significant relationship between the dependent variable and the mediator variable, and the mediator variable and the dependent variable. Lacking existing literature on the relationship between Facebook use and perceived stress, the significant relationship implied between Facebook use and perceived social support by Leimeister et al. (2008) as well as the significant relationship found between perceived social support and perceived stress by Lackner et al. (2010) were considered adequate to substantiate the analysis.

Chapter 4: Results

Research Questions

Research Question #1. *Does the intensity with which an individual uses Facebook relate to increased levels of perceived social support for that individual?*

If the effect size of the relationship between the variables Intensity of Facebook Use and Perceived Social Support fell within the 0.02 – 0.14 range (Path *a* in Figure 2), it would be considered small, and not significant. If the effect size fell within the 0.15 – 0.34 range, it would be considered medium and significant, and if the effect size was above 0.35, it would be considered a large effect and very significant.

Research Question #2. *Is Facebook use associated with perceived stress?*

If the effect size of the relationship between the variables Facebook use and Perceived Stress fell within the 0.02 – 0.14 range (Path *c* in Figure 1), it would be considered small, and not significant. If the effect size fell within the 0.15 – 0.34 range, it would be considered medium and significant. If the effect size fell above 0.35, it would be considered a large effect and very significant.

Research Question #3. *Is any relationship between Facebook use and perceived stress mediated by social support?*

If the relation between the Intensity of Facebook Use variable and the Perceived Stress variable were reduced with the addition of Perceived Social Support variable to the model (Path *c'* in Figure 2), it would indicate that perceived social support mediates the relationship between Facebook use and perceived stress. If the Intensity of Facebook Use variable had no effect on the Perceived Stress variable after the addition of the Perceived Social Support variable to the model, then perfect mediation would be established (Baron & Kenny, 1986).

If partial mediation is indicated (that is, if the strength of the relationship between Intensity of Facebook Use and Perceived Stress decreases but does not disappear once the Perceived Social Support variable is in the model), a significance test will be used to determine the strength of partial mediation. To accomplish this, the method recommended by Barron and Kenny (1986; Kenny et al., 1998), and illustrated by Frazier et al. (2004) will be used. Using a Sobel z test for significance, the products of paths a and b are divided by a standard error term which provides a z score for the mediation effect of perceived social support. If this z score is greater than 1.96, the effect will be significant at the .05 level.

In the event that data do not support these hypotheses, the Communication Preference variable and individual items on the Survey of Facebook Use will be examined in relation to the mediator variable (i.e., Perceived Social Support) and the dependent variable (i.e., Perceived Stress) in place of this study's proposed independent variable (Intensity of Facebook Use). Support for the hypothesis of significant relationships between a preference for online communication, perceived social support, and perceived stress would contribute to the literature on specific trends of computer-mediated communication.

Participant Demographics

The demographics data on the sample are in Table 1. The sample group included 641 Internet users above the age of 18. Twenty-four people (4%) did not complete the survey in its entirety and so were excluded from further analyses. The majority of the sample was female (71.8%), from the Northeastern United States (60.68%), and between the ages of 30 to 49 (53.8%). The majority of respondents currently live in the United States of America, and a number of respondents live elsewhere (e.g., China, Scotland, Australia, New Zealand, Argentina, Brazil, Ecuador, Ireland, Jamaica, Kazakhstan, Spain, Sweden, Taiwan, Turkey, United Kingdom, and Pakistan). The majority of respondents (89.3%) reported that they are currently members of Facebook.

Table 1

<i>Sample Group Demographics</i>		
Gender	N	%
Male	177	27.6
Female	460	71.8
Neither	4	0.6
Geographic Region	N	%
Northeastern US	389	60.68
Southeastern US	56	8.74
Midwestern US	91	14.19
Southwestern US	10	1.56
Western US	49	7.65
Outside US	31	4.84
Age	N	%
29 or younger	166	25.9
30 to 49	345	53.8
50 or older	130	20.3

Table 2

Variable Descriptors Chart

Variable	N	Range	Mean	SD
Preference for Online Communication	617	3 - 21	10.63	3.99
Perceived Social Support	617	42-84	71.65	9.87
Perceived Stress	617	2-34	13.35	5.11
Member of Facebook				
No (10.9%)	67			
Yes (89.1%)	550			
Intensity of Facebook Use	617	0-61	33.45	15.42

Descriptive Data

The data for the analysis of each represented variable is on Table 2. Analysis of the Intensity of Facebook Use variable revealed a normal distribution, falling within the 2-point range for skew and kurtosis, with a range of 0-61, a mean of 33.45, and a standard deviation of 15.42. Analysis of the Perceived Stress variable revealed a normal distribution, falling within the 2-point range for skew and kurtosis, with a range of 2 to 34, a mean of 13.35, and a standard deviation of 5.11. Analysis of the Perceived Social Support variable revealed a normal distribution, falling within the 2-point range for skew and kurtosis, with a range of 42 to 84, a mean of 71.65, and a standard deviation of 9.87. Analysis of the Communication Preference variable revealed a normal distribution, falling within the 2-point range for skew and kurtosis, with a range of 3 to 21, a mean of 10.63, and a standard deviation of 3.99.

Table 3

Intensity of Facebook Use Model

Testing Steps in Mediation Model	β	p
Testing Step 1 (Path c)		
Dependent variable: Perceived Stress		
Independent Variable: Facebook use	0.213	< 0.01
Testing Step 2 (Path a)		
Dependent variable: Perceived Social Support		
Independent variable: Facebook Use Intensity	- 0.04	0.323
Testing Step 3 (Paths b and c')		
Dependent variable: Perceived Stress		
Mediator variable: Perceived Social Support (Path b)	n/a	n/a
Independent variable: Facebook Use Intensity (Path c')	n/a	n/a

Note: Testing Mediator Effects Using Multiple Regression (Frazier et al., 2004)

Facebook Use Intensity and the Stress-buffering Hypothesis

The Stress-buffering Hypothesis

A regression analysis was conducted between perceived social support and perceived stress to investigate the Stress Buffering Hypothesis (Cohen & Willis, 1985) for this sample. The result was a statistically significant negative relationship between Perceived Social Support and Perceived Stress ($\beta = -0.262, p < 0.0001$). Consistent with the Stress Buffering Hypothesis, the findings suggest that individuals who report higher degrees of perceived social support also report lower degrees of perceived stress. However, a β (or R^2) of -0.26 is a relatively weak relationship, leaving 74% of the variance of Perceived Stress unaccounted.

Facebook Use and Perceived Stress (Testing Step #1)

A linear regression was conducted to investigate this research question with Intensity of Facebook Use as the independent variable and perceived stress as the dependent variable (Path *c* in Figure 1). There was a statistically significant positive relationship ($\beta = .213, p < 0.01$) between Intensity of Facebook Use and Perceived Stress. Counter to the original hypothesis, this finding suggests that individuals who use Facebook with greater intensity also report higher degrees of perceived stress. However, a β (or R^2) of -0.213 is a relatively weak relationship, leaving 78.7% of the variance of Perceived Stress unidentified.

Facebook Use and Perceived Social Support (Testing Step #2)

A linear regression was performed with Intensity of Facebook use as the independent variable and Perceived Social Support as the dependent variable (Path *a* in Figure 2). A lack of significant results ($\beta = -0.04, p > 0.32$) indicated that Facebook use intensity was not predictive of perceived social support in this sample (Table 3).

Testing For Mediation and Significance (Testing Step #3)

Given that Intensity of Facebook Use was not a significant predictor of Perceived Social Support (Path *a*), further testing for mediation was unwarranted. Therefore, data do not support the study's hypotheses.

Communication Preference and the Stress-buffering Hypothesis

A secondary analysis investigated the relationship between communication preference and perceived stress, and whether social support mediated that relationship.

Communication Preference and Perceived Stress (Testing Step #1)

A linear regression was performed to test whether Communication Preference was a predictor of the level of Perceived Stress (Path *c* in Figure 1). The result was a statistically

Table 4

<i>Communication Preference Model</i>			
Testing Steps in Mediation Model		β	p
Testing Step 1 (Path c)			
Dependent variable: Perceived Stress			
Independent variable: Communication Preference		0.148	< 0.0001
Testing Step 2 (Path a)			
Dependent variable: Perceived Social Support			
Independent variable: Communication Preference		0.166	< 0.01
Testing Step 3 (Paths b and c')			
Dependent variable: Perceived Stress			
Mediator variable: Perceived Social Support (Path b)		- 0.244	< 0.01
Independent variable: Communication Preference (Path c')		0.108	< 0.01
Sobel z Test		Test Statistic	SE
		3.48	0.015
			p
			0.0004

Note: Testing Mediator Effects Using Multiple Regression (Frazier et al., 2004)

significant relationship between the preference for computer-mediated communication and higher levels of Perceived Stress ($\beta = .148, p < 0.0001$). This suggests that individuals in this sample who preferred computer-mediated communication to face-to-face or telephone communication also reported higher degrees of perceived stress.

Communication Preference and Perceived Social Support (Testing Step #2)

A linear regression was conducted with Communication Preference as the independent variable and Perceived Social Support as the dependent variable (Path *a* in Figure 2). The result was a statistically significant negative relationship between the preference for computer-mediated communication and levels of Perceived Social Support (β

= - 0.224, $p < 0.01$). These findings suggest that individuals in this sample who prefer online communication to more traditional forms also report lower degrees of perceived social support. However, a β (or R^2) of -0.224 is a relatively weak relationship, leaving 77.6% of the variance of Perceived Social Support unexplained.

Testing For Mediation And Significance (Testing Step #3)

A regression analysis was performed on the relationship between the independent variables, Communication Preference and Perceived Social Support) and the dependent variable, Perceived Stress (Paths c' and b in Figure 2) with Perceived Social Support as the mediator. The relation between Communication Preference and Perceived Stress was significantly smaller when Perceived Social Support was in the equation (Path c' ; $\beta = 0.108$, $p < 0.01$) than when perceived social support was not in the equation (Path c ; $\beta = 0.148$, $p < 0.01$; see Table 4), but was still greater than zero, suggesting partial mediation. A Sobel z test was conducted and showed that this partial mediation effect was statistically significant ($z = 3.48$, $p < 0.015$). In sum, when perceived social support was included in the model, the association of a preference for computer-mediated communication on higher levels of stress was significantly reduced.

Chapter 5: Discussion

As the popularity of Facebook and other tools for online communication continue to grow and related arguments about both potential benefits and dangers to mental health evolve, it is increasingly important to understand how the use of online communication affects users. This research explored the hypothesis that Facebook use would decrease perceived stress by increasing perceived social support. It was based on the increased access to support systems that Internet users experience through social networking sites coupled with Cohen and Wills' (1985) buffering hypothesis, which states that increased social support should result in decreased perceived stress. A mediation analysis was performed to answer this question (Baron & Kenny, 1986).

In order to determine mediation, the first step in the analytic process was to determine the degree to which Facebook use predicts perceived stress. Contrary to the hypothesis that greater intensity of Facebook use would be predictive of decreased perceived stress, the analysis revealed that greater intensity of Facebook use was a highly significant predictor of *increased* perceived stress for this sample group.

The next step in determining mediation was to identify the degree to which Facebook use predicts perceived social support. Results indicated that individuals' Facebook use was not predictive of perceived social support. The failure of Facebook use to predict perceived social support did not meet the minimal requirements for identifying mediation, making the third step in the mediation model unnecessary. Therefore, the hypothesis that greater intensity of Facebook use would predict increased perceived social support was unsupported.

Facebook Use, Perceived Social Support and Perceived Stress

The initial analysis explored the relationship between Facebook use and perceived stress as mediated by perceived social support. The results indicate that Facebook use is related to increased perceived stress and not related to perceived social support; therefore, the

relationship between Facebook use and perceived stress is not mediated by perceived social support, as was hypothesized. There was evidence in support of both the augmentation theory (Huang, 2010) and the displacement theory (Huang, 2010; Shaw & Gant, 2002; Meerkerk, 2007; Shklovski et al., 2006; Sigman, 2009). Evidence in support of Granovetter's Strength of Weak Ties theory (1973) was also found. While this study did not investigate causality, it is important to speculate about possible alternative explanations for the significant relationship between Facebook use and perceived stress.

The augmentation hypothesis (Huang, 2010) asserts that Internet-based communication tools supplement interpersonal connectivity. Proponents of this hypothesis (i.e., Burke, Marlow, & Lento, 2010) have argued that social networking sites strengthen existing offline social networks by offering a platform for varying degrees of communication. Studies of the Stress-buffering Hypothesis indicate that increased perceived social support is regularly associated with decreased perceived stress (Chakradhar et al. 2009; Cohen & McKay, 1984; Kikusui et al., 2006). The Facebook platform makes available tools with the capacity to promote behaviors important to the development of support (Sas et al., 2009). These were the foundation for this study's hypotheses. It was assumed that Facebook use would predict increased perceived social support given the increase in social ties (Ellison et al., 2007; Zhao, 2006), personal disclosure (Bargh et al., 2002), and the potential for improved relationships (Ledbetter et al., 2011; Fogel & Nehmad, 2009) inherent to Facebook use, coupled with findings that computer-mediated communication has been found to be a healthy and effective form of communication (Ledbetter, et al., 2011).

Survey results indicated that respondents are using the networking site to augment their social networks. Respondents reported that they like Facebook because it allows them to communicate with people from their past (75.3%, N = 426) and that Facebook is how they communicate with their current friends (33.4%, N = 189). Additional qualitative data offered

anecdotal support of the augmentation theory (i.e., “it allows me to sustain connections with friends and family who live at a distance,” “it allows me to remain close with important people in my life across the country,” “helped me find old friends I had lost touch with,” “an easy way to stay connected,” and, “it allows me to maintain a wider and more up-to-date social circle than I could otherwise, especially with individuals who live out of state or country”). One respondent specifically noted, “Facebook allows me to be connected to the small details of my friends’ lives, which I enjoy. For example, I can see that my far away niece just learned to skate, which can help guide me in buying the perfect Christmas gift. I can see that my friend down the street is feeling ill and can offer to drive her child to soccer practice,” offering evidence not only for the augmentation hypothesis, but also multiple types of support. However, overall results from this sample group failed to support the augmentation hypothesis as the intensity with which respondents used Facebook was not predictive of perceived social support.

Some respondents’ comments were reflective of Granovetter’s Strength of Weak Ties theory (1973), which, similar to the augmentation hypothesis, indicates the potential for accessing additional social support through Facebook even though analysis of the entire sample did not indicate increased social support. For example, two participants reported: “[Facebook] allows people who do not know each other to connect through me,” and, “Facebook allows conversations to flow across networks of people—you can join a conversation in progress, just like if you were together for real.” In such cases, respondents note the ability to tap into wider social spheres by accessing and creating weaker social ties, which, according to Granovetter (1973), increases the potential for social support in times of need.

Interestingly, the failure of Facebook use to predict perceived social support also appears to refute the displacement theory (Huang, 2010; Shaw & Gant, 2002; Meerkerk,

2007; Shklovski et al., 2006; Sigman, 2009) with respect to Facebook use. The displacement theory asserts that a greater intensity of online interaction (i.e. Facebook use) should result in decreased perceived social support because time spent engaging in face-to-face interpersonal relationships decreases with increased time spent online. Survey results indicated that 11.5% (N = 65) of respondents dislike Facebook because it competes with time they could be spending with their friends in person and additional qualitative data from other respondents revealed a shared concern regarding the displacement of their social time. Respondents noted that “the time that I spend on Facebook takes me away from my children who need me at all times,” that Facebook “allows people to disengage in real life communication and situations,” that it “seems to subsume friends’ time,” and that, “my friends feel less inclined to hang out with me, and more inclined to post mundane comments to my wall.” One respondent reported, “I feel that as more people join Facebook, they slowly become less dependent on personal interactions. This resulting [sic] in real life friends deciding they can just chat on Facebook versus going out and socializing. Becoming hermits basically [sic].” For the findings from this study to be consistent with the displacement hypothesis, increased Facebook use would have to be predictive of lower perceived social support, which was not the case for this sample group.

It is interesting that the findings indicated support for both the augmentation theory and the displacement theory, which are seemingly at odds with each other. This dichotomy helps to explain the lack of significant results for the relationship between Facebook use and perceived social support. That some respondents see Facebook use as an opportunity to connect and others see it for its potential to negatively impact in-person relationships is reflective of the same discourse within the field of research and could be due to any combination of variables that were not addressed in this study. One potential explanation could be the popular discourse between those who endorse technological advances and

luddites, whose concerns often tend toward the loss of simpler ways of being. Whether or not one identifies with one camp or another could color his or her perspective and either create concerns where there are none, or blind users to potential problems. Future research might clarify how much one's preexisting belief in the worth of a technology impacts her or his ultimate satisfaction with that technology.

Respondents' preference for public communication in combination with their tendency for lurking behavior offers another possible explanation for the absent relationship between Facebook use and perceived social support. Analysis of individual items from the Facebook Use Scale revealed that the functions on Facebook that allow dyadic, synchronous communication (i.e., instant messaging or "chatting") and dyadic asynchronous communication (i.e., Facebook "email") were the least popular functions on Facebook. Findings suggested that more respondents preferred the Newsfeed (45.2%; N = 256) and photos (35.0%; N = 198) to the functions used for one-to-one communication, such as the private message (5.7%, N = 32) and chat (0.9%, N = 5) functions. Also, more respondents report posting intimate feelings, thoughts, and moods (57.1%; N = 300) than those who report that their posts do not share these characteristics (40.9%; N = 215). In sum, respondents reported a preference for lurking behavior (i.e., observing other members' activity without engaging with them) and when they do communicate they tend to post intimate information (i.e., moods and feelings) in the public arena rather than in an intimate private interaction. Therefore, it can be hypothesized that a small majority of the participants in this sample group may seek an audience to fulfill their own social needs and yet are seemingly disinterested in the commitment necessary to engage privately with others who may demand fulfillment of their own needs. Previous research has identified that private online communication is more likely to result in meaningful connections between users (Sas, 2009). The preference for less intimate functions of Facebook might also help to explain the lack of

significant findings related to Facebook use and perceived social support as the most popular Facebook functions appear to be more related to lurking and public announcements than active, dyadic, synchronous interaction.

Because both Facebook use and perceived social support were predictive of perceived stress and Facebook use was not significantly related to perceived social support, other explanations for the relationship between Facebook use and stress must exist. Ledbetter et al., (2011) notes the difference between sharing and over-sharing and reported that interpersonal relationships suffer when individuals over-disclose (talk about themselves and their problems more frequently than inquiring about others) during online communication. Evidence that respondents over-disclose could be found in the aforementioned preference for posting about moods and feelings in the public domain. One might speculate about why people post their intimate thoughts and feelings in a public forum when this type of communication on Facebook does not result in greater reported perceived social support and does result in greater degrees of perceived stress. Do people expect to feel heard on Facebook or is it mainly used as a broadcasting tool? Is the act of posting personal thoughts and feelings merely about reporting to the faceless masses or are Facebook users sharing with the unfulfilled goal of interpersonal connection? It could be argued that repeated and unsuccessful attempts toward need-fulfillment helps to explain the reported increased perceived stress. Future research investigating member-perceived benefits of Facebook use and posting might reveal interesting information that clarifies the motivations for certain types of communication and how that motivation relates to perceived social support and stress.

The significant relationship between Facebook use and increased perceived stress could also be attributed to unwanted social interactions. For example, respondents provided comments such as, “[Facebook] sets up the potential for cliques and drama via the

Newsfeed,” “[I dislike] overly (or overtly) political friends getting preachy,” “I have to remove people from my feed due to their constant negativity,” “it is often annoying when people repeatedly post how awful their lives are,” “sometimes other people’s statuses are dramatic, overly personal, or angry rants,” “there are a lot of miscommunications, passive-aggressive communications, “ “other people’s posts can be harsh because they are not saying something to your face,” and, “I dislike being judged and condemned on FB for political views that were solicited [sic].” These comments indicate that, alongside the potential for greater social connectivity, Facebook offers additional opportunities for interpersonal conflict and resultant stress.

A number of additional potential explanations for the finding that Facebook use was related to perceived stress were raised in respondent comments on the Survey of Facebook Use. Comments such as, “I could use the five minutes for mindfulness, instead I check Facebook,” reflect that the social network poses a distraction from healthier activities. And comments like, “too often Facebook posts have led to conflict between my wife and my family,” expose new challenges to offline relationships directly related to Facebook use. One respondent identified a degree of self-judgment related to his or her tendency to lurk, writing, “I rarely engage/interact other than reading my newsfeed and then checking out other people’s Facebook and therefore I feel like a miserable “Facebooker.” I take in lots of info [sic] but give out very little.”

As individuals work to navigate their online presence, they appear to be facing new challenges in their lives offline. The pressure to be a good “Facebooker” offers evidence of a stressor specifically related to the advent of Facebook and hints at the tendency for some members to use it for comparison with others. Indeed, 13.8% (N = 78) of respondents reported that comparing their interactions with others’ interactions lead to feelings that their social network is lacking and 16.1% (N = 91) individuals reported feeling less successful in

comparison with their Facebook contacts. Comments such as “I believe that some people use Facebook to brag about themselves or how wonderful their life is. Sometimes when I’m having a bad day, it can get to me,” and “[it] promotes keep up with Jones’s life [sic]. Comparing lifestyles [sic]. I don’t buy it, but I notice it and don’t like it,” reflect additional sources of stress for some Facebook users.

Respondents also provided comments that supported Binder et al.’s (2009) assertion that the overlapping of social spheres results in increased stress. Twenty-two percent (N = 125) of the survey participants reported discomfort with their social networks having access to one another. Participants reported: “[others have] too much data about exes [sic],” “it’s awkward to deny friend requests from co-workers, and yet, I don’t necessarily want them to have access to all that’s going on for me via Facebook,” “I am fearful that my Facebook activity will negatively affect my professional life,” “sometimes I regret putting information up as a status, etc., later [sic].” Another respondent addresses the matter by reporting, “Because I have a diverse group of friends, and nothing is truly private, I share less and less on Facebook about how I feel or what’s really going on.” And yet another respondent identified the challenge of mixing personal and private identities, writing, “I am a teacher and I dislike the idea of children I teach being able to ‘friend’ me. I know I could turn this function off but I want genuine friends to be able to ‘friend me.’” This desire to join the Facebook community is seemingly at odds with some individuals’ professional responsibilities, which arguably leads to added stress. Again, there appears to be negative sequelae associated with the greater accessibility to wider spheres of social networking that Facebook affords.

In addition to interpersonal stressors resulting from Facebook use, respondents largely cited concerns for privacy and issues of trust with the site in comments regarding individual dislikes of Facebook. Comments such as: “I worry about security and putting my personal

information ‘out there,’“ “I cannot trust Facebook itself; its methods and incentives are distinctly at odds with my interests,” “risk of revealing private information/people accessing private information,” “I worry about privacy and what gets posted by others,” “privacy issues with selling my info [sic] to other companies,” “there is a creepy sense I am losing privacy through what Facebook does with my data,” and, “the ease through which people choose to post inappropriate personal information for public dissemination. Some do not know the meaning of PRIVACY [sic]!” identify a fear of how information will be used and distrust in the intention of its collection.

That perceived social support did not play a role in the relationship between Facebook use intensity and perceived stress raises important considerations. One consideration is that of causality. A causal direction was implied in the hypotheses: increased Facebook use was presumed to lead to increased perceived social support, which was presumed to result in lower perceived stress.

The question of causality arises in response to the finding that perceived social support was not related to Facebook use: Are people who experience higher degrees of perceived stress, regardless of their perception of social support, drawn to Facebook more than those who do not? A large number of respondents indicated that Facebook provides a distraction from their work (26.5%; N = 150) and others reported that they are less productive as a result of their Facebook use (42.8%; N = 242). One respondent commented that Facebook “vacuums time and there I find little return for the time ‘sucked up.’” If individuals are using Facebook as an intentional distraction, it might follow that those who use it with greater frequency are more frequently in need of distraction from the stresses of work and daily life. Results indicate that those individuals are not experiencing perceived social support from their Facebook activity and therefore, their stress is not assuaged from visits to the site. If people tend to use Facebook as a distraction from stressful life

circumstances, it could be argued that an individual will visit the site when he or she perceives more stress, regardless of that individual's degree of perceived social support. In this example, causation is reversed from the hypothesized direction and social support is removed from the model; that is, increased stress could lead to an increase in Facebook use, which could lead to more stress.

Another possibility exists that socially isolated people, who experience higher degrees of perceived stress, might join Facebook in search of social support and find their needs unfulfilled. This could potentially lead to a cycle of increasing stress linked to frequency of Facebook use. These examples would help to explain findings that, although the relationship between social support and stress and Facebook use and stress were highly significant, no significant relationship between Facebook use and social support was established.

Preference for Computer-Mediated Communication And The Buffering Hypothesis

After initial analyses revealed that intensity of Facebook use was negatively correlated with greater perceived social support, and therefore, not an appropriate variable for the proposed mediation model, the focus on Facebook use was replaced by a more general form of social Internet use: online communication preference.

This second analysis revealed data consistent with the displacement hypothesis: that a preference for computer-mediated communication was predictive of decreased perceived social support and increased perceived stress. Those respondents who indicated a preference for online communication over face-to-face or telephone communication also reported lower levels of perceived social support and higher levels of perceived stress, with perceived social support partially mediating the relationship. Again, the question of causality arises as alternate explanations are explored. It is plausible that a preference for computer-mediated communication and lower degrees of perceived social support are consequences of stressful life circumstances, rather than the hypothesized direction; that the preference for computer-

mediated communication leads to decreased perceived social support, which results in increased perceived stress.

Assuming, however, that results are indicative of the hypothesized causality, this finding is consistent with the argument that Internet-based interactions result in weaker social connections (Cummings et al., 2001; Schiffrin et al., 2010). Similarly, given the same assumptions, it is also consistent with Lewandowski's et al. (2011) assertion that face-to-face communication offers a more effective means of providing informal social support. However, as previously discussed, a determination of causality is beyond the limits of this study. Therefore, it is important to consider other possible explanations.

Individuals who prefer to communicate online more than speaking in person or on the phone also report lower degrees of perceived social support. The initially tested hypotheses (that Facebook users would experience increased levels of perceived social support) was based on the idea that the social support experienced through Facebook would be supplemental to pre-existing perceived social support and that this would bolster and strengthen offline relationships. The communication preference variable taps a different concept. The communication preference variable captures those individuals who would *rather* use Internet-based communication tools than more traditional means, given an equal opportunity for either.

One must consider the rationale behind such a preference. Respondents who are overwhelmed and pressed for time might prefer the accessibility of computer-mediated communication, might not have time for creating especially strong social support networks and seek them online, and could perceive a great deal of stress as a factor of their schedule or life situations. This scenario would describe a reverse of the hypothesized causal directionality.

A preference for online communication could also be related to a preference for social isolation (i.e., those with degrees of social anxiety, PTSD symptoms, or those who simply prefer solitude) or for having fewer accessible close relationships, which might correlate with lower perceived social support. Therefore, while SNSs might, indeed, create easier methods for communicating, connecting, and remaining in contact with others (Fogel & Nehmad, 2009), those who prefer them to more traditional forms of contact could be missing out on the psychological benefits of social interaction.

While it is tempting to assume that it is the preference for online communication that causes decreased perceived social support and increased stress, as evidenced above, it could be that increased stress and lower levels of perceived social support result in greater preference for online communication.

Limitations of the Study

Items identifying respondent demographic information did not include ethnicity, which, while outside the scope of this study, could provide useful information for future analysis. Additionally, the sample group was heavily skewed by gender, with 71.8% (N = 460) women. Exploration of the impact of gender on Facebook use and computer-mediated communication are beyond the scope of this study and it is unclear how a more balanced gender distribution may have led to different results. Further, respondents in this sample group reported relatively high levels of perceived social support (range = 42-84; mean = 71.65; SD = 9.87), which might have confounded the data by introducing a relatively small margin of variability. Finally, one must also consider that large sample groups frequently produce statistically significant results with small regression coefficients. While the results may be significant, the relationship between the variables might remain questionable.

The hypothesized relationship between Facebook use and perceived social support relied heavily on findings related to what Lewandowski et al. (2011) refer to as *formal* social

support: groups established specifically with the expressed intent of providing support. Research by Leimeister et al. (2008) on virtual cancer support groups as well as research on support groups established for individuals with chronic diseases or disabilities (Barrera et al., 2002; Rodgers & Chen, 2005) provide evidence that the virtual medium offers the necessary components for providing formal social support. One of the assumptions of the current study was that *informal* social support (i.e., general support from a non-specific social network rather than from a support-focused group) offers similar advantages through the virtual medium. The current study focused on general Facebook use (i.e., informal social support) and not specifically on Facebook-based support groups (i.e., formal support groups such as the Brain Injury Support Group, the Autism Spectrum Disorder Support Group, and the Fibromyalgia Support Group located on Facebook). Therefore, this study used data from studies of formal online social support to justify a study on informal online social support. Future research developed to explore the differences in perceived social support between members of Facebook-based support groups and Facebook members who are not members of support groups might help clarify the issue of perceived social support on Facebook.

This study also did not distinguish between the various online tools such as video-chatting, instant messaging, and email in its comparison of preferences for online communication and in-person/phone communication. Because video-chat, email and instant message are each very different communication experiences, it would be important for future research to take these differences into consideration as a distinction between these online communication tools might offer more focused discernment of the findings.

Conclusion

In conclusion, it was hypothesized that Facebook use would facilitate opportunities to access one's social network without regard to geography or time, and that sustaining these relationships would increase resilience to stressful life events. This research suggests that

Facebook users might not enjoy such benefits. To the contrary, Facebook use was not predictive of perceived social support. Also, respondents who report using Facebook more frequently also report higher degrees of perceived stress. This could be a side effect of Facebook use specifically or a question of causality related to the possibility that individuals use Facebook as a distraction from their already stressful lives. These questions of causality have been explored and potential explanations have been surmised. In sum, while Facebook users report higher degrees of stress and no additional social support to cope with it, it is unclear whether stressed Facebook users tend to visit the site more regularly than non-stressed Facebook users.

At the outset of this study the hypothesis that Facebook use leads to greater degrees of perceived social support appeared a foregone conclusion. While this study did not set out to prove causality, it did set out to prove a correlation. The lack of a correlation between Facebook use and perceived social support might, in the end, tell us more. Facebook affords opportunities to communicate with the bulk of one's support network at any moment, regardless of geography, and responses are often paired with a picture of the respondent. These traits made Facebook appear to be the perfect support tool. However, these opportunities appear inadequate for users to experience increases in perceived social support. It is possible that negative qualities of Facebook use (i.e., concerns for privacy, comparing oneself to others, greater exposure to undesirable material from others, the overlapping of social spheres) outweigh the potential benefits (i.e., easier access to potentially supportive friends and loved ones, access to information related to social events). Another interesting finding is that the public posting of the user's mood or feelings do not generally result in higher degrees of perceived social support.

It is important to recognize that the development of perceived social support might not be as simple as broadcasting one's feelings to his or her network..

Future research might also find interesting data with regard to formal and informal support, as identified by Lewandowski, et al. (2011). Exploring how results from members of support groups established on Facebook might differ from general users could provide additional information of what constitutes supportive communication and relationships.

With regard to computer-mediated communication, the results of this study are consistent with research that indicates that a preference for computer-mediated communication over face-to-face and telephone communication is associated with both lower levels of perceived social support and higher levels of perceived stress. In this study, the relationship between preference for computer-mediated communication and perceived stress was partially mediated by perceived social support; therefore, the increase in perceived stress can be partly explained by the lack of social support experienced by those who prefer computer-mediated communication. However, the lack of discernment between different forms of online communication (i.e., video chatting and Internet phone services versus instant messaging and email) is a limitation and could prove a confounding factor in the results of this study.

Individuals' preference for online communication proved to be highly related to decreased perceived social support and higher degrees of perceived stress. Interestingly, respondents' intensity of Facebook use resulted in a different outcome with respect to perceived social support (i.e. more intense Facebook use resulted in lower perceived social support). From this one might argue that what matters is not the amount with which a communication tool is used, but the way in which it is used coupled with whether it is the individual's preferred means of communication. Recognition that computer-mediated relationships might not provide beneficial social support is also an important finding, given the greater accessibility of the technology and the increase in its use by increasing percentages of the population.

The aim of this study was to gain a greater understanding of the potential relationship of Facebook use to stress and social support. Past research has indicated that it is the mere perception that others acknowledge and care for us on some level that provides a buffer to stressful life experiences. However, findings from this study could indicate that the perception of social support requires something more than relationships experienced through social networking sites like Facebook. Because individuals' levels of perceived stress is positively correlated with increased Facebook use and a preference for computer-mediated communication, it is troublesome to consider that the availability of technology could lead many to rely on the virtual relationship to fulfill their social needs. In any case, additional research is necessary so that we can better understand both the strengths and limitations of relying on these technologies, as they are ubiquitous in a growing number of people's lives.

References

- Abbasi, K. (2008). MMR and the value of word of mouth in social networks. *Journal of the Royal Society of Medicine*, 101(5), 215-216. doi:10.1258/jrsm.2008.101005
- Aldwinally, C., & Yancura, L. (2004). Coping and health: A comparison of the stress and trauma literatures. In P. Schnurr & B. Green (Eds.), *Trauma and health: Physical health consequences of exposure to extreme stress* (pp. 99-125). Washington, DC: American Psychological Association.
- Amichai-Hamburger, Y., Wainapel, G., & Fox, S. (2002). "On the Internet no one knows I'm an introvert": Extroversion, neuroticism, and Internet interaction. *CyberPsychology & Behavior*, 5(2), 125-128. doi:10.1089/109493102753770507
- Andreatos, A. (2007). Virtual communities and their importance for informal learning. *International Journal of Computers Communications and Control*, 2(1), 39-47.
Retrieved from
http://fmi.unibuc.ro/cniv/2006/disc/icvl/documente/pdf/met/3_andreatos.pdf
- Arrington, M. (2011). Amazingly, MySpace's decline Is accelerating. *Tech Crunch*.
Retrieved from <http://techcrunch.com/2011/03/23/amazingly-myspaces-decline-is-accelerating/>
- Baker, L. R., & Oswald, D. L. (2010). Shyness and online social networking services. *Journal of Social and Personal Relationships*, 27(7), 873 -889.
doi:10.1177/0265407510375261
- Bargh, J. A., McKenna, Katelyn Y. A., & Fitzsimons, G. M. (2002). Can you see the real me? Activation and expression of the "true self" on the Internet. *Journal of Social Issues*, 58(1), 33-48. Retrieved from
http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=00224537&issue=v58i0001&article=33_cystrmotsoti

- Baron, R. M., & Kenny, David A. (1986). The moderator-mediator variable distinction in social psychological research. *Journal of Personality and Social Psychology*, *51*(6), 1173-1182. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=00223514&issue=v51i0006&article=1173_tmvdispr
- Barrera, M. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology*, *14*(4), 413 - 445. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=00910562&issue=v14i0004&article=413_dbsscmm
- Barrera, M., Glasgow, R. E., McKay, H. G., Boles, S. M., & Feil, E. G. (2002). Do Internet-based support interventions change perceptions of social support?: An experimental trial of approaches for supporting diabetes self-management. *American Journal of Community Psychology*, *30*(5), 637-654. doi:10.1023/A:1016369114780
- Bastardo, Y. M., & Kimberlin, C. L. (2000). Relationship between quality of life, social support and disease-related factors in HIV-infected persons in Venezuela. *AIDS Care*, *12*(5), 673-684. doi:10.1080/095401200750003842
- Baumeister, R. F., Stillwell, A. M., & Heatherton, T. F. (1994). Guilt. *Psychological Bulletin*, *115*(2), 243-267. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=00332909&issue=v115i0002&article=243_g
- Benazon, N. R., & Coyne, J. C. (2000). Living with a depressed spouse. *Journal of Family Psychology*, *14*(1), 71-79. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=08933200&issue=v14i0001&article=71_lwads

- Ben-Ari, A., & Gil, S. (2004). Well-being among minority students. *Journal of Social Work, 4*(2), 215-225. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=14680173&issue=v04i0002&article=215_wams
- Besser, A., & Neria, Y. (2010). The effects of insecure attachment orientations and perceived social support on posttraumatic stress and depressive symptoms among civilians exposed to the 2009 Israel-Gaza war: A follow-up cross-lagged panel design study. *Journal of Research in Personality, 44*(3), 335-341. doi:10.1016/j.jrp.2010.03.004
- Bessière, K., Kiesler, S., Kraut, R., & Boneva, B. (2008). Longitudinal effects of Internet uses on depressive affect: A social resources approach. Unpublished manuscript, Carnegie Mellon University, Pittsburgh, PA.
- Binder, J., Howes, A., & Sutcliffe, A. (2009, April). The problem of conflicting social spheres: Effects of network structure on experienced tension in social network sites. *Proceedings of the Twenty-Seventh International Conference on Human Factors in Computing Systems, Boston, MA*, 965–974. doi:10.1145/1518701.1518849
- Bosker, B. (2010, September 15). Pope: Internet has “numbed” young people. *The Huffington Post*. Retrieved from http://www.huffingtonpost.com/2010/11/15/pope-warns-internet-leads_n_783609.html
- Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13*(1), 210-230. doi:10.1111/j.1083-6101.2007.00393.x
- Bozo, Özlom, Gündogdu, E., & Büyükaşık-Çolak, C. (2009). The moderating role of different sources of perceived social support on the dispositional optimism—posttraumatic growth relationship in postoperative breast cancer patients. *Journal of health psychology, 14*(7), 1009.

- Brenner, V. (1997). Psychology of computer use: XLVII. Parameters of Internet use, abuse and addiction: The first 90 days of the Internet Usage Survey. *Psychological reports*, 80, 879-882. doi:10.2466/pr0.1997.80.3.879
- Bugeja, M. J. (2006). Facing the Facebook. *The Chronicle of Higher Education*, 52(21), C1.
- Burke, M., Marlow, C., & Lento, T. (2010, April). Social network activity and social well-being. *Proceedings of the Twenty-Eighth International Conference on Human Factors in Computing Systems, Atlanta, GA*, 909–1912.
- Caplan, S. E. (2003). Preference for online social interaction. *Communication Research*, 30(6), 625-648. doi:10.1177/0093650203257842
- Chakradhar, K., Raj, V., & Raj, A. (2009). Modern social support structures: Online social networks and their implications for social workers. *Advances in Social Work*, 10(2), 157.
- Charuvastra, A., & Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annual Review of Psychology*, 59, 301. Retrieved from <http://ezproxy.antiochne.edu/login?url=http://proquest.umi.com/pqdweb?did=1407590891&Fmt=7&clientId=8471&RQT=309&VName=PQD>
- Clara, I. P., Cox, B. J., Enns, M. W., Murray, L. T., & Torgrudc, L. J. (2003). Confirmatory factor analysis of the multidimensional scale of perceived social support in clinically distressed and student samples. *Journal of Personality Assessment*, 81(3), 265-270.
- Cobb, S. (1976). Presidential address 1976: Social support as a moderator of life stress. *Psychosomatic Medicine*, 38(5), 300-314. Retrieved from <http://www.psychosomaticmedicine.org/cgi/content/abstract/38/5/300>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=00332909&issue=v112i0001&article=155_app

- Cohen, S. (1992). Stress, social support, and disorder. In H.O.F. Veiel and U. Baumann (Eds.) *The meaning and measurement of social support*, (pp.109–124). New York: Hemisphere Press.
- Cohen, S. (2004). Social relationships and health. *American Psychologist*, *59*(8), 676-684.
doi:10.1037/0003-066X.59.8.676
- Cohen, L. H., McGowan, J., Fooskas, S., & Rose, S. (1984). Positive life events and social support and the relationship between life stress and psychological disorder. *American Journal of Community Psychology*, *12*(5), 567-587. doi:10.1007/BF00897213
- Cohen, S. & Hoberman, H. M. (1983). Positive events and social supports as buffers of life change stress. *Journal of Applied Social Psychology*, *13*(2), 99-125.
doi:10.1111/j.1559-1816.1983.tb02325.x
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health & Social Behavior*, *24*(4), 385-396.
- Cohen, S., & McKay, G. (1984). Social support, stress, and the buffering hypothesis: A theoretical analysis. In A. Baum, S. E. Taylor, & J. E. Singer (Eds.), *Handbook of psychology and health*, (pp. 253–267). Hillsdale, NJ: Lawrence Erlbaum
- Cohen, S., Sherrod, D. R., & Clark, M. S. (1986). Social skills and the stress-protective role of social support. *Journal of Personality and Social Psychology*, *50*(5), 963-973.
Retrieved from
http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=00223514&issue=v50i0005&article=963_ssatsross
- Cohen, S., Underwood, L., & Gottlieb, B. H. (2000). *Social support measurement and intervention: A guide for health and social scientists*. New York: Oxford University Press.

- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310-357. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=00332909&issue=v98i0002&article=310_sssath
- Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health* (pp. 31-67). Newbury Park, CA: Sage Publications.
- Compas, B., Connor-Smith, J., Saltzman, H., Thomsen, A., Wadsworth, M. (2001). Coping with Stress During Childhood and Adolescence: Problems, Progress, and Potential in Theory and Research. *Psychological Bulletin*, 127(1), 87-127.
- Coyle, C. L., & Vaughn, H. (2008). Social networking: Communication revolution or evolution? *Bell Labs Technical Journal*, 13(2), 13 - 17. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=10897089&issue=v13i0002&article=13_sncroe
- Coyne, J. C., & Smith, D. A. F. (1991). Couples coping with a myocardial infarction. *Journal of Personality and Social Psychology*, 61(3), 404-412. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=00223514&issue=v61i0003&article=404_ccwami
- Cummings, J. N., Butler, B., & Kraut, R. (2002). The quality of online social relationships. *Communications of the ACM*, 45(7), 103-108. doi:10.1145/514236.514242
- D'Amico, M. L. (1998, December 7). Internet has become a necessity, U.S. poll shows. *CNN.com*. Retrieved January 20, 2010, from <http://edition.cnn.com/TECH/computing/9812/07/neednet.idg/index.html>
- DeLongis, A. (1982). Relationship of daily hassles, uplifts, and major life events to health status. *Health Psychology*, 1(2), 119-136. Retrieved from

http://journals.ohiolink.edu/ejc/article.cgi?issn=02786133&issue=v01i0002&article=119_rodhuamleths

DeLongis, A., Folkman, S., & Lazarus, R. S. (1988). The Impact of Daily Stress on Health and Mood. *Journal of Personality and Social Psychology*, 54(3), 486-495. Retrieved from

http://journals.ohiolink.edu/ejc/article.cgi?issn=00223514&issue=v54i0003&article=486_tiodsoham

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being.

Psychological Bulletin, 125(2), 276-302. Retrieved from

http://journals.ohiolink.edu/ejc/article.cgi?issn=00332909&issue=v125i0002&article=276_sw

Dong, X., & Simon, M. (2008). Is greater social support a protective factor against elder mistreatment? *Gerontology*, 54(6), 381. Retrieved from

<http://ezproxy.antiochne.edu/login?url=http://proquest.umi.com/pqdweb?did=1592553281&Fmt=7&clientId=8471&RQT=309&VName=PQD>

Duru, E. (2007). Re-examination of the psychometric characteristics of the multidimensional scale of perceived social support among Turkish university students. *Social Behavior and Personality*, 35(4), 443. Retrieved from

<http://ezproxy.antiochne.edu/login?url=http://proquest.umi.com/pqdweb?did=1302555601&Fmt=7&clientId=8471&RQT=309&VName=PQD>

Dwyer, C., Hiltz, S. R., & Passerini, K. (2007). Trust and privacy concern within social networking sites: A comparison of Facebook and MySpace. *Proceedings of American Conference on Information Systems (AMCIS)*. Boulder, CO.

Edwards, L. M. (2004). Measuring perceived social support in Mexican American youth:

Psychometric properties of the multidimensional scale of perceived social support.

- Hispanic Journal of Behavioral Sciences*, 26(2), 187-194. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=07399863&issue=v26i0002&article=187_mpssimmsopss
- Ellison, N. B., Steinfield, C., & Lampe, C. (2011). Connection strategies: social capital implications of Facebook-enabled communication practices. *New Media & Society*. Advance online publication. doi:10.1177/1461444810385389
- Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook friends: Social capital and college student use of online social network sites. *Journal of Computer-Mediated Communication*, 12(4), 1143-1168. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=10836101&issue=v12i0004&article=1143_tbofscuoosns
- Engelberg, E., & Sjöberg, L. (2004). Internet use, social skills, and adjustment. *CyberPsychology & Behavior*, 7(1), 41-47. doi:10.1089/109493104322820101
- Epstein, C. F. (1985). Symbolic segregation: Similarities and differences in the language and non-verbal communication of women and men. *Sociological Forum*, 1(1), 27-49. doi:10.1007/BF01115072
- Fogel, J., & Nehmad, E. (2009). Internet social network communities: Risk taking, trust, and privacy concerns. *Computers in Human Behavior*, 25(1), 153-160. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=07475632&issue=v25i0001&article=153_isncrttaptc
- Folkman, S. (2010). Stress, coping, and hope. *Psycho-Oncology*, 19(9), 901-908. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=10579249&issue=v19i0009&article=901_scah

- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter. *Journal of Personality and Social Psychology*, 50(5), 992-1003. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=00223514&issue=v50i0005&article=992_doase
- Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of counseling psychology*, 51(1), 115–134.
- Friedman, M. J., & McEwen, B. S. (2004). Posttraumatic stress disorder, allostatic load, and medical illness. In P. P. Schnurr & B. L. Green (Eds.), *Trauma and health: Physical health consequences of exposure to extreme stress*. (pp. 157-188). Washington, DC: American Psychological Association.
- Gonchar, N., & Adams, J. (2000). Living in cyberspace: Recognizing the importance of the virtual world in social work assessments. *Journal of Social Work Education*, 36(3), 587.
- Gordon, C. F., Juang, L. P. & Syed, M. (2007). Internet use and well-being among college students: Beyond frequency of use. *Journal of College Student Development*, 48(6), 674-688. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=15433382&issue=v48i0006&article=674_iuawacsbfou
- Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360. doi:10.1086/225469
- Granovetter, M. (1983). The strength of weak ties: A network theory revisited. *Sociological theory*, 1, 201–233.
- Grant, K. E., Compas, B. E., Stuhlmacher, A. F., Thurm, A. E., McMahon, S. D., & Halpert, J. A. (2003). Stressors and child and adolescent psychopathology. *Psychological*

- Bulletin*, 129(3), 447-466. Retrieved from
http://journals.ohiolink.edu/ejc/article.cgi?issn=00332909&issue=v129i0003&article=447_sacaap
- Green, B. L., & Kimerling, R. (2004). Trauma, posttraumatic stress disorder, and health status. In P. P. Schnurr & B. L. Green (Eds.), *Trauma and health: Physical health consequences of exposure to extreme stress*. (pp. 13-42). Washington, DC: American Psychological Association.
- Greenglass, E. R., & Fiksenbaum, L. (2009). Proactive coping, positive affect, and well-being. *European Psychologist*, 14(1), 29-39. Retrieved from
http://journals.ohiolink.edu/ejc/article.cgi?issn=10169040&issue=v14i0001&article=29_pcpaaw
- Groër, M., Meagher, M. W., & Kendall-Tackett, K. (2010). An overview of stress and immunity. In K. Kendall-Tackett (Ed.), *The psychoneuroimmunology of chronic disease: Exploring the links between inflammation, stress, and illness*. (pp. 9-22). Washington, DC: American Psychological Association.
- Gross, R., & Acquisti, A. (2005). Information revelation and privacy in online social networks. *Proceedings of the 2005 ACM Workshop on Privacy in the Electronic Society, New York*, 71–80.
- Haber, M. G., Cohen, J. L., Lucas, T., & Baltes, B. B. (2007). The relationship between self-reported received and perceived social support: A meta-analytic review. *American Journal of Community Psychology*, 39(1-2), 133 - 144. Retrieved from
http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=00910562&issue=v39i1-2&article=133_trbsrapssamr
- Hamburger, Y. A., & Ben-Artzi, E. (2000). The relationship between extraversion and neuroticism and the different uses of the Internet. *Computers in Human Behavior*,

- 16(4), 441-449. Retrieved from
http://journals.ohiolink.edu/ejc/article.cgi?issn=07475632&issue=v16i0004&article=441_trbeantduoti
- Hampton, K., Goulet, L., Rainie, L., & Purcell, K. (2011). Social networking sites and our lives. *Pew Research Center's Internet & American Life Project*. Retrieved from
<http://pewinternet.org/Reports/2011/Technology-and-social-networks.aspx>
- Hart, J., Ridley, C., Taher, F., Sas, C., & Dix, A. (2008). Exploring the Facebook experience: A new approach to usability. *Proceedings of the Fifth Nordic Conference on Human-Computer Interaction: Building Bridges, Sweden, 5*, 471-474.
doi:10.1145/1463160.1463222
- Harvey, A., Nathens, A. B., Bandiera, G., & LeBlanc, V. R. (2010). Threat and challenge: Cognitive appraisal and stress responses in simulated trauma resuscitations. *Medical Education, 44*(6), 587-594. Retrieved from
http://journals.ohiolink.edu/ejc/article.cgi?issn=03080110&issue=v44i0006&article=587_taccaasrstr
- Heller, K., Thompson, M. G., Trueba, P. E., Hogg, J. R., & Vlachos-Weber, I. (1991). Peer support telephone dyads for elderly women: Was this the wrong intervention? *American Journal of Community Psychology, 19*(1), 53-74. doi:10.1007/BF00942253
- Hew, K. F. (2011). Students' and teachers' use of Facebook. *Computers in Human Behavior, 27*(2), 662-676. Retrieved from
http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=07475632&issue=v27i0002&article=662_satuof
- Hill, D. (2009). Reflections on leaving facebook. *Fast Capitalism, 5*(2). Retrieved from
http://www.uta.edu/huma/agger/fastcapitalism/5_2/Hill5_2.html,

- Hobfoll, S. E. (2009). Social support: The movie. *Journal of Social and Personal Relationships, 26*(1), 93.
- Holroyd, K. A., & Lazarus, R. S. (1982). Stress, coping and somatic adaptation. In L. Goldberger & S. Breznitz (Eds.) *Handbook of stress: Theoretical and clinical aspects*, pp. 21–35. New York, NY: Free Press.
- Holtzman, S., Abbey, S. E., Singer, L. G., Ross, H. J., & Stewart, D. E. (2011). Both patient and caregiver gender impact depressive symptoms among organ transplant caregivers: Who is at risk and why? Advance online publication. *Journal of Health Psychology*. doi:10.1177/1359105310393542
- House, J. S. (1987). Social support and social structure. *Sociological Forum, 2*(1), 135-146. doi:10.1007/BF01107897
- Huang, C. (2010). Internet Use and Psychological Well-being: A Meta-Analysis. *CyberPsychology, Behavior & Social Networking, 13*(3), 241-249. doi:10.1089/cyber.2009.0217
- Joinson, A. N. (2008). Looking at, looking up or keeping up with people?: Motives and use of Facebook. *Proceedings of the Twenty-Sixth Annual SIGCHI Conference on Human Factors in Computing Systems, Florence, Italy, 1027-1036* doi:10.1145/1357054.1357213
- Jones, S. E., & LeBaron, C. D. (2002). Research on the relationship between verbal and nonverbal communication: Emerging integrations. *Journal of Communication, 52*(3), 499-521. doi:10.1111/j.1460-2466.2002.tb02559.x
- Jones, S. M., & Guerrero, L. K. (2001). The effects of nonverbal immediacy and verbal person centeredness in the emotional support process. *Human Communication Research, 27*(4), 567-596. Retrieved from

http://journals.ohiolink.edu/ejc/article.cgi?issn=03603989&issue=v27i0004&article=567_teoniacitesp

- Kalman, Y. M., & Rafaeli, S. (2011). Online pauses and silence: Chronemic expectancy violations in written computer-mediated communication. *Communication Research*, 38(1), 54 -69. doi:10.1177/0093650210378229
- Kazarian, S. S., & McCabe, S. B. (1991). Dimensions of social support in the MSPSS: factorial structure, reliability, and theoretical implications. *Journal of Community Psychology*, 19(2), 150-160.
- Kenny, D. A., Kashy, D. A., & Bolger, N. (1998). Data analysis in social psychology. *Handbook of Social Psychology*, 4(1), 233–265.
- Kibler, J. L., Joshi, K., & Hughes, E. E. (2010). Cognitive and behavioral reactions to stress among adults with PTSD: Implications for immunity and health. In K. Kendall-Tackett (Ed.), *The psychoneuroimmunology of chronic disease: Exploring the links between inflammation, stress, and illness* (pp. 133-158). Washington, DC: American Psychological Association.
- Kikusui, T., Winslow, J. T., & Mori, Y. (2006). Social buffering: relief from stress and anxiety. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 361(1476), 2215.
- Kitamura, T., Kijima, N., Watanabe, K., & Takezaki, Y. (1999). Precedents of perceived social support: Personality and early life experiences. *Psychiatry and Clinical Neurosciences*, 53(6), 649-654. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=13231316&issue=v53i0006&article=649_popsspaele
- Klineberg, E., Clark, C., Bhui, K. S., Haines, M. M., Viner, R. M., Head, J., Woodley-Jones, D., Stansfeld, S. (2006). Social support, ethnicity and mental health in adolescents.

- Social Psychiatry and Psychiatric Epidemiology*, 41(9), 755 - 760. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=09337954&issue=v41i0009&article=755_sseamhia
- Koopman, C., Gore-Felton, C., Marouf, F., Butler, L. D., Field, N., Gill, M., Chen, X.-H., ... Spiegel, D. (2000). Relationships of perceived stress to coping, attachment and social support among HIV-positive persons. *AIDS Care*, 12(5), 663-672.
doi:10.1080/095401200750003833
- Kramer, B. J. (1993). Expanding the conceptualization of caregiver coping: The importance of relationship-focused coping strategies. *Family Relations*, 42(4), 383-391.
doi:10.2307/585338
- Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet paradox revisited. *Journal of Social Issues*, 58(1), 49-74.
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukhopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53(9), 1017.
- Kraut, R., Mukhopadhyay, T., Szczypula, J., Kiesler, Sara, & Scherlis, B. (1999). Information and communication: Alternative uses of the Internet in households. *Information Systems Research*, 10(4), 287.
- Lackner, J. M., Brasel, A. M., Quigley, B. M., Keefer, L., Krasner, S. S., Powell, C., Katz, L. A., & Sitrin, M. D. (2010). The ties that bind: Perceived social support, stress, and IBS in severely affected patients. *Neurogastroenterology & Motility*, 22(8), 893-900.
doi:10.1111/j.1365-2982.2010.01516.x
- Lampe, C., Ellison, N., & Steinfield, C. (2006). A Face(book) in the Crowd: Social searching vs. social browsing. *ACM Special Interest Group on Computer-Supported Cooperative Work*. Banff, Canada: ACM Press.

- Lampe, C., Ellison, N., & Steinfield, C. (2007). A Familiar Face(book): Profile elements as signals in an online social network. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, Alberta, Canada*, 435–444.
- Lampe, C., Ellison, N. B. & Steinfield, C. (2008). Changes in use and perception of Facebook. *Proceedings of the 2008 ACM conference on computer supported cooperative work, San Diego, CA*, 721-730. doi:10.1145/1460563.1460675
- LaRose, R., Eastin, M. S., & Gregg, J. (2001). Reformulating the Internet paradox: Social cognitive explanations of Internet use and depression. *Journal of Online Behavior*, 1(2). Retrieved November 20, 2010, from <http://www.behavior.net/JOB/v1n2/paradox.html>
- Lazarus, R. S. (1961). Adjustment and stress. *Adjustment and personality.*, McGraw-Hill series in psychology (pp. 303-329). McGraw-Hill Book Company.
- Lazarus, R. S., & DeLongis, A. (1983). Psychological stress and coping in aging. *American Psychologist*, 38(3), 245-254. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=0003066x&issue=v38i0003&article=245_psacia
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer Publishing Company.
- Ledbetter, A. M., Mazer, J. P., DeGroot, J. M., Meyer, K. R., Yuping Mao, & Swafford, B. (2011). Attitudes toward online social connection and self-disclosure as predictors of Facebook communication and relational closeness. *Communication Research*, 38(1), 27 -53. doi:10.1177/0093650210365537
- Leimeister, J. M., Schweizer, K., Leimeister, S., & Krcmar, H. (2008). Do virtual communities matter for the social support of patients? *Information Technology & People*, 21(4), 350-374. Retrieved from

http://journals.ohiolink.edu/ejc/article.cgi?issn=09593845&issue=v21i0004&article=350_dvcmftssop

Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). Social media and young adults.

Pew Internet & American Life Project. Retrieved from

<http://www.pewinternet.org/Reports/2010/Social-Media-and-Young-Adults/Part-3.aspx?r=1>

Leonardi, P. M., Treem, J. W., & Jackson, M. H. (2010). The connectivity paradox: Using technology to both decrease and increase perceptions of distance in distributed work arrangements. *Journal of Applied Communication Research*, 38(1), 85-105.

doi:10.1080/00909880903483599

Leung, L. (2007). Stressful life events, motives for internet use, and social support among digital kids. *CyberPsychology & Behavior*, 10(2), 204-214.

doi:10.1089/cpb.2006.9967

Leung, L., & Lee, P. S. N. (2005). Multiple determinants of life quality: The roles of Internet activities, use of new media, social support, and leisure activities. *Telematics and Informatics*, 22(3), 161-180. Retrieved from

http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=07365853&issue=v22i0003&article=161_mdolqtmssala

Lewandowski, J., Rosenberg, B., Parks, M., Siegel, J. (2011). The effect of informal social support: Face-to-face versus computer-mediated communication. *Computers in Human Behavior* 27(5), 1806-1814.

Lian, T. C., & Geok, L. S. (2010). Perceived social support, coping capability and gender differences among young adults. *Sunway Academic Journal*, 6, 75-88.

- Locke, L. F., Spirduso, W. W., & Silverman, S. J. (2007). *Proposals that work: A guide for planning dissertations and grant proposals* (5th ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Lopez, E. J., & Salas, L. (2006). Assessing social support in Mexican and Mexican American high school students: A validation study. *Journal Of Hispanic Higher Education*, 5(2), 97-106. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=15381927&issue=v05i0002&article=97_assimahssavs
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7(1), 83-104. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=1082989x&issue=v07i0001&article=83_acomttmaoive
- Martin, P. D., & Brantley, P. J. (2004). Stress, coping, and social support in health and behavior. In J. M. Raczynski & L. C. Leviton (Eds.), *Handbook of clinical health psychology: Disorders of behavior and health* (pp. 233-267). Washington, DC: American Psychological Association.
- Mayo Clinic Staff. (2008, June 23). Reduce stress with a strong social support network. *Mayoclinic.com: Stress management*. Retrieved from <http://www.mayoclinic.com/health/social-support/SR00033>
- McKenna, K. Y., Green, A. S., & Gleason, M. E. (2002). Relationship formation on the Internet: What's the big attraction? *Journal of Social Issues*, 58(1), 9-31.
- Meerkerk, G.-J. (2007). *Pwned by the Internet: Explorative research into the causes and consequences of compulsive internet use*. Rotterdam, Netherlands: Erasmus Universiteit. Retrieved from <http://hdl.handle.net/1765/10511>

- Mertens, D. M. (2005). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Meyer, B. A., Arnold, J. A., & Pascali-Bonaro, D. (2001). Social support by doulas during labor and the early postpartum period. *Hospital Physician*, (September), 57-65.
Retrieved from <http://www.google.com/search?hl=en&safe=off&client=firefox-a&rls=org.mozilla:en-US:official&hs=NuT&q=social+support&start=10&sa=N>
- Moore, K., & Cooper, C. L. (1998). *Theories of stress among mental health professionals*. In S. Hardy, J. Carson & B. Thomas (Eds.) *Occupational stress: personal and professional approaches* (pp. 1968-1980). Gloucestershire , UK: Nelson Thornes.
- Morris, M. R., Teevan, J., & Panovich, K. (2010). What do people ask their social networks, and why?: A survey study of status message Q&A behavior. *Proceedings of the Twenty-Eighth International Conference on Human Factors in Computing Systems, Atlanta, GA, 1739–1748*.
- Mui, Y. Q., & Whoriskey, P. (2010, December 31). Facebook passes Google as most popular site on the Internet, two measures show. *The Washington Post*. Retrieved from <http://www.washingtonpost.com/wp-dyn/content/article/2010/12/30/AR2010123004645.html>
- Nagy, T. F. (2005). *Ethics in plain English: An illustrative casebook for psychologists* (2nd ed.). Washington, DC: American Psychological Association.
- Nauert, R. (2008, November 19). Social support may protect from stroke. *Psych Central News*. Retrieved from <http://psychcentral.com/news/2008/11/19/social-support-may-protect-from-stroke/3371.html>
- Ng, D. M., & Jeffery, R. W. (2003). Relationships between perceived stress and health behaviors in a sample of working adults. *Health Psychology*, 22(6), 638-642.

Retrieved from

http://journals.ohiolink.edu/ejc/article.cgi?issn=02786133&issue=v22i0006&article=638_rbpsahiasowa

O'Brien, T. B., DeLongis, Anita, Pomaki, G., Puterman, E., Zwicker, A., & O'Brien, T. B.

(2009). Couples coping with stress. *European Psychologist, 14*(1), 18-28. Retrieved from

http://journals.ohiolink.edu/ejc/article.cgi?issn=10169040&issue=v14i0001&article=18_ccws

Olson, G. M., & Olson, J. S. (2000). Distance matters. *Human Computer Interaction, 5*(2),

139–178. doi:http://dx.doi.org/10.1207/S15327051HCI1523_4

Park, C. (2008). Testing the meaning making model of coping with loss. *Journal of Social and Clinical Psychology, 27*(9), 970.

Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of General Psychology, 1*(2), 115-144. Retrieved from

http://journals.ohiolink.edu/ejc/article.cgi?issn=10892680&issue=v01i0002&article=115_mitosac

Preece, J., Nonnecke, B., & Andrews, D. (2004). The top five reasons for lurking: Improving community experiences for everyone. *Computers in Human Behavior, 20*(2), 201-

223. Retrieved from

http://journals.ohiolink.edu/ejc/article.cgi?issn=07475632&issue=v20i0002&article=201_ttfrflicefe

Prescott, L. A. (2007). Buzznet and IMEEM: Fast growing social networks. *Hitwise*.

Retrieved from <http://weblogs.hitwise.com/leeann->

[prescott/2007/03/buzznet_and_imeem_fast_growing.html](http://weblogs.hitwise.com/leeann-prescott/2007/03/buzznet_and_imeem_fast_growing.html)

- Quick, J. C., Quick, J. D., Nelson, D. L., & Hurrell, J. J. (1997). *Preventive stress management in organizations*. Washington, DC: American Psychological Association.
- Rainie, L., Horrigan, J., Wellman, B., & Boase, J. (2006). The strength of Internet ties. *Pew Internet & American Life Project*. Retrieved from <http://www.pewinternet.org/Reports/2006/The-Strength-of-Internet-Ties/03-What-Is-the-Internet-Doing-to-Relationships/4-Research-points-to-the-positive-social-networking-effects-of-connectivity.aspx>
- Reinhardt, J. P., Boerner, K., & Horowitz, A. (2006). Good to have but not to use: Differential impact of perceived and received support on well-being. *Journal of Social and Personal Relationships, 23*(1), 117.
- Rhodes, G. L., & Lakey, B. (1999). Social support and psychological disorder: Insights from social psychology. In R. M. Kowalski & M. R. Leary, (Eds.) *The social psychology of emotional and behavioral problems: Interfaces of social and clinical psychology.*, 281-309. doi:10.1037/10320-010
- Robinson, J. P., Kestnbaum, M., Neustadt, A., & Alvarez, A. (2000). Mass media use and social life among internet users. *Social Science Computer Review, 18*(4), 490 -501. doi:10.1177/089443930001800411
- Rod, N. H., Gronbaek, M., Schnohr, P., Prescott, E., & Kristensen, T. S. (2009). Perceived stress as a risk factor for changes in health behaviour and cardiac risk profile: a longitudinal study. *Journal of Internal Medicine, 266*(5), 467-475. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=09546820&issue=v266i0005&article=467_psaarfcprals

- Rodgers, S., and Chen, Q. (2005). Internet community group participation: Psychosocial benefits for women with breast cancer. *Journal of Computer Mediated Communication, 10*(4), article 5.
- Ross, C., Orr, E. S., Siscic, M., Arseneault, J. M., Simmering, M. G., & Orr, R. R. (2009). Personality and motivations associated with Facebook use. *Computers in Human Behavior, 25*(2), 578-586. doi:10.1016/j.chb.2008.12.024
- Rueger, S. Y., Malecki, C. K., & Demaray, M. K. (2008). Gender differences in the relationship between perceived social support and student adjustment during early adolescence. *School Psychology Quarterly, 23*(4), 496-514. doi:10.1037/1045-3830.23.4.496
- Sarna, L., Padilla, G., & van Servellen, G. (1996). Comparison of emotional distress in men with acquired immunodeficiency syndrome and in men with cancer. *Applied Nursing Research, 9*(4), 209-212. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=08971897&issue=v09i0004&article=209_coedimsaimwc
- Sas, C., Dix, A., Hart, J., & Su, R. (2009). Emotional experience on Facebook site. *Proceedings of the Twenty-Seventh International Conference Extended Abstracts on Human Factors in Computing Systems, Boston, MA*, 4345-4350. doi:10.1145/1520340.1520664
- Schiffirin, H., Edelman, A., Falkenstern, M., & Stewart, C. (2010). The associations among computer-mediated communication, relationships, and well-being. *CyberPsychology, Behavior & Social Networking, 13*(3), 299-306. doi:10.1089/cyber.2009.0173
- Schnurr, P. P., & Green, B. L. (2004). Understanding relationships among trauma, posttraumatic stress disorder, and health outcomes. In P. P. Schnurr & B. L. Green

- (Eds.), *Trauma and health: Physical health consequences of exposure to extreme stress* (pp. 247-275). Washington, DC: American Psychological Association.
- Schooler, T. Y., Dougall, A., & Baum, A. (2000). Stress: Impact on health. In A. E. Kazdin (Ed.), *Encyclopedia of psychology: Vol. 7* (pp. 487-489). New York: Oxford University Press.
- Schwarzer, R., & Knoll, N. (2003). Positive coping: Mastering demands and searching for meaning. In S. J. Lopez & C. R. Snyder (Eds.), *Positive psychological assessment: A handbook of models and measures* (pp. 393-409). Washington, DC: American Psychological Association. Retrieved from <http://psycnet.apa.org/psycinfo/2003-02181-025>
- Selfhout, M. H. W., Branje, S. J. T., Delsing, M., ter Bogt, T. F. M., & Meeus, W. H. J. (2009). Different types of Internet use, depression, and social anxiety: The role of perceived friendship quality. *Journal of Adolescence*, *32*(4), 819-833.
doi:16/j.adolescence.2008.10.011
- Selye, H. (1973). The evolution of the stress concept. *American Scientist*, *61*(6), 692-699.
- Shaw, L. H., & Gant, L. M. (2002). In defense of the Internet: The relationship between Internet communication and depression, loneliness, self-esteem, and perceived social support. *CyberPsychology & Behavior*, *5*(2), 157-171.
- Sheldon, P. (2008). The relationship between unwillingness-to-communicate and students' Facebook use. *Journal of Media Psychology: Theories, Methods, and Applications*, *20*(2), 67-75.
- Shklovski, I., Kiesler, S., & Kraut, R. (2006). The Internet and social interaction: A meta-analysis and critique of studies, 1995-2003. In R. Kraut, M. Brynin, & S. Kiesler (Eds.) *Computers, Phones and the Internet: Domesticating Information Technology* (pp. 251-264). New York, NY: Oxford University Press.

- Shklovski, I., Kraut, R., & Rainie, L. (2004). The Internet and social participation: Contrasting cross-sectional and longitudinal analyses. *Journal of Computer -Mediated Communication, 10*(1), 00-00. doi:10.1111/j.1083-6101.2004.tb00226.x
- Sigman, A. (2009). Well connected? *Biologist, 56*(1), 14-20.
- Soper, D. S. (2012). *Free Statistics Calculators (Online Software)*. Retrieved from: <http://www.danielsoper.com/statcalc>
- Speisman, J. C., Lazarus, R. S., Mordkoff, A., & Davison, L. (1964). Experimental reduction of stress based on ego-defense theory. *Journal of Abnormal & Social Psychology, 68*(4), 367-380. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=0096851x&issue=v68i0004&article=367_erosboet
- Spielberger, C. D., Vagg, P. R., & Wasala, C. F. (2003). Occupational stress: Job pressures and lack of support. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 185-200). Washington, DC: American Psychological Association.
- Steese, S., Dollette, M., Phillips, W., Hossfeld, E., & al, et. (2006). Understanding girls' circle as an intervention on perceived social support, body image, self efficacy, locus of control and self-esteem. *Adolescence, 41*(161), 55. Retrieved from <http://ezproxy.antiochne.edu/login?url=http://proquest.umi.com/pqdweb?did=1033920491&Fmt=7&clientId=8471&RQT=309&VName=PQD>
- Stefanone, M., Kwon, K., & Lackaff, D. (2011). The value of online friends: Networked resources via social network sites. *First Monday, 16*(2). Retrieved from <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/3314/2763>

- Stepanikova, I., Nie, N. H., & He, X. (2010). Time on the Internet at home, loneliness, and life satisfaction: Evidence from panel time-diary data. *Computers in Human Behavior, 26*, 329–338. doi:<http://dx.doi.org/10.1016/j.chb.2009.11.002>
- Stroebe, W., Stroebe, M., Abakoumkin, G., & Schut, H. (1996). The role of loneliness and social support in adjustment to loss. *Journal of Personality and Social Psychology, 70*(6), 1241-1249. Retrieved from http://journals.ohiolink.edu/ejc/article.cgi?issn=00223514&issue=v70i0006&article=1241_trolassiatl
- Subrahmanyam, K., Reich, S. M., Waechter, N., & Espinoza, G. (2008). Online and offline social networks: Use of social networking sites by emerging adults. *Journal of Applied Developmental Psychology, 29*(6), 420-433. doi:10.1016/j.appdev.2008.07.003
- Swickert, R. J., Hittner, J. B., Harris, J. L., & Herring, J. A. (2002). Relationships among Internet use, personality, and social support. *Computers in Human Behavior, 18*(4), 437-451. doi:10.1016/S0747-5632(01)00054-1
- Taylor, S. E. (2010). Mechanisms linking early life stress to adult health outcomes. *Proceedings of the National Academy of Sciences, 107*(19), 8507 -8512. doi:10.1073/pnas.1003890107
- The Pontifical Council for Social Communications. (2002). Ethics in Internet. Retrieved from http://www.vatican.va/roman_curia/pontifical_councils/pccs/documents/rc_pc_pccs_doc_20020228_ethics-internet_en.html
- Tokunaga, R. S. (2011). Social networking site or social surveillance site? Understanding the use of interpersonal electronic surveillance in romantic relationships. *Computers in Human Behavior, 27*(2), 705-713. doi:10.1016/j.chb.2010.08.014

- Tufekci, Z. (2008). Grooming, gossip, Facebook and Myspace. *Information, Communication & Society, 11*(4), 544-564. doi:10.1080/13691180801999050
- Turkle, S. (1996). Virtuality and its discontents: Searching for community in cyberspace. *The American Prospect 7*(24), 50-57.
- Uchino, B. N. (2009). Understanding the links between social support and physical health: A life-span perspective with emphasis on the separability of perceived and received support. *Perspectives on Psychological Science, 4*(3), 236.
- Van den Eijnden, R., Meerkerk, G., Vermulst, A. A., Spijkerman, R., & Engels, R. (2008). Online communication, compulsive internet use, and psychosocial well-being among adolescents: A longitudinal study. *Developmental Psychology, 44*(3), 655.
- Valenzuela, S., Park, N., & Kee, K. F. (2009). Is there social capital in a social network site?: Facebook use and college students' life satisfaction, trust, and participation. *Journal of Computer-Mediated Communication, 14*(4), 875-901. doi:10.1111/j.1083-6101.2009.01474.x
- Valkenburg, P. M., & Jochen, P. (2007). Internet communication and its relation to well-being: Identifying some underlying mechanisms. *Media Psychology, 9*(1), 43-58. doi:10.1080/15213260701279556
- Walther, J. B., & Boyd, S. (2002). Attraction to computer-mediated social support. In C.A. Lin & D. Atkin (Eds.) *Communication technology and society: Audience adoption and uses*, (pp. 153-188). Cresskill, NJ: Hampton Press.
- Wang, H., & Wellman, B. (2010). Social connectivity in America: Changes in adult friendship network size from 2002 to 2007. *American Behavioral Scientist, 53*(8), 1148-1169. Retrieved from http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=00027642&issue=v53i0008&article=1148_sciacinsf2t2

- Watkins, S. C., & Lee, H. E. (2010). Got Facebook? Investigating what's social about social media. Unpublished manuscript, Department of Radio, Television and Film, The University of Texas at Austin, TX.
Retrieved from http://www.theyoungandthedigital.com/wp-content/uploads/2010/11/watkins_lee_facebookstudy-nov-18.pdf
- Wethington, E., & Kessler, R. C. (1986). Perceived support, received support, and adjustment to stressful life events. *Journal of Health & Social Behavior*, 27(1), 78-89.
- Wiederhold, B. K., & Wiederhold, M. D. (2005). *Virtual reality therapy for anxiety disorders: Advances in evaluation and treatment*. Washington, DC: American Psychological Association.
- Williams, R. M., Ehde, D. M., Smiths, D. G., Czerniecki, J. M., Hoffman, A. J., & Robinson, L. R. (2004). A two-year longitudinal study of social support following amputation. *Disability & Rehabilitation*, 26(14/15), 862-874.
doi:10.1080/09638280410001708878
- Wong, J., & Shoham, M. (2011). The emotional strength of weak ties: Reevaluating social support online. *Hawaii International Conference on System Sciences, Kauai, HI* (pp. 1-9). doi:[10.1109/HICSS.2011.411](https://doi.org/10.1109/HICSS.2011.411)
- Young, A. L., & Quan-Haase, A. (2009). Information revelation and internet privacy concerns on social network sites: A case study of Facebook. *Proceedings of the Fourth International Conference on Communities and Technologies, University Park, PA*, 265-274. doi:10.1145/1556460.1556499
- Youngblut, J. M., & Brooten, D. (2006). Pediatric head trauma: Parent, parent-child, and family functioning two weeks after hospital discharge. *Journal of Pediatric Psychology*, 31(6), 608-618. Retrieved from

http://journals.ohiolink.edu.proxy.antioch.edu/ejc/article.cgi?issn=01468693&issue=v31i0006&article=608_phtppaf2wahd

- Yu, A. Y., Tian, S. W., Vogel, D., & Chi-Wai Kwok, R. (2010). Can learning be virtually boosted? An investigation of online social networking impacts. *Computers & Education, 55*(4), 1494-1503. doi:10.1016/j.compedu.2010.06.015
- Zhao, S. (2006). Do Internet users have more social ties? A call for differentiated analyses of Internet use. *Journal of Computer-Mediated Communication, 11*(3), 844-862. doi:10.1111/j.1083-6101.2006.00038.x
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*(1), 30. doi:10.1207/s15327752jpa5201_2
- Zimet, D., Powell, S., Farley, G., Werkman, S., Berkoff, K., (1990) Psychometric characteristics of the multidimensional scale of perceived social support. *Journal of Personality Assessment, 55*(3&4), 610-617.
- Zuckerberg, M. (2011a). Factsheet. *Facebook.com*. Retrieved from <https://www.facebook.com/press/info.php?factsheet>
- Zuckerberg, M. (2011b). Statistics. *Facebook.com*. Retrieved from <https://www.facebook.com/press/info.php?statistics>

Appendix A

Multidimensional Scale of Perceived Social Support (G. D. Zimet et al., 1988)

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the “1” if you **Very Strongly Disagree**

Circle the “2” if you **Strongly Disagree**

Circle the “3” if you **Mildly Disagree**

Circle the “4” if you are **Neutral**

Circle the “5” if you **Mildly Agree**

Circle the “6” if you **Strongly Agree**

Circle the “7” if you **Very Strongly Agree**

1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2. There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3. My family really tries to help me.	1	2	3	4	5	6	7
4. I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
5. I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6. My friends really try to help me.	1	2	3	4	5	6	7
7. I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8. I can talk about my problems with my family.	1	2	3	4	5	6	7
9. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10. There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11. My family is willing to help me make decisions.	1	2	3	4	5	6	7
12. I can talk about my problems with my friends.	1	2	3	4	5	6	7

Appendix B

The Perceived Stress Scale (Cohen, S., Kamarck, T., and Mermelstein, R., 1983)

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

Age _____ Gender (*Circle*): **M** **F** Other _____

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often					
1. In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
2. In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
3. In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
5. In the last month, how often have you felt that things were going your way?	0	1	2	3	4
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
7. In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
8. In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
9. In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Scoring: PSS scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items. A short 4 item scale can be made from questions 2, 4, 5 and 10 of the PSS 10 item scale.

Appendix C

Survey of Facebook Use

1. Please identify your gender.
 1. Female
 2. Male
 3. If neither option accurately reflects your gender, please describe your gender in the space provided.

2. Please indicate your age by checking the appropriate box.
 1. 18 – 24
 2. 25 – 34
 3. 35 – 44
 4. 45 – 54
 5. 55 – 64
 6. 65 – 74
 7. 75 – 84
 8. 85 – 94
 9. 95 and above.

Directions: Using the 7-point scale provided, please indicate the degree to which you agree with each statement. A rating of 1 would indicate that you completely disagree, while a rating of 7 would indicate that you agree wholeheartedly. NOTE: The following 4 questions are NOT related to Facebook use specifically. Please consider all ONLINE COMMUNICATION methods (i.e., Gchat, AIM, Skype, etc.).

3. I prefer to communicate with others ONLINE rather than face-to-face.
 1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree

4. I prefer to communicate with others ONLINE rather than talking on the phone.
 1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree

5. I communicate ONLINE with my closest friends more often than in person or on the phone.
 1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree

4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree
6. Please indicate the online tool that you use for real-time (i.e., chatting or texting) online communication (not email). If you do not use real-time online communication tools, please indicate so by checking the “I do not prefer online communication” option.
1. Facebook chat function
 2. Google Chat (Gmail)
 3. Google Video Chat (Gmail)
 4. Yahoo Mail Chat
 5. Skype
 6. AOL Instant Messenger
 7. I do not use online communication tools.
 8. Other (please specify)
7. Please indicate your preferred site for email.
1. Facebook
 2. Gmail
 3. Yahoo
 4. AOL
 5. Hotmail
 6. Other (please specify)
8. Are you currently a member of Facebook?
1. Yes
 2. No
9. How many contacts (friends) do you have on Facebook?
1. 50 or less
 2. 51-100
 3. 101-150
 4. 151-200
 5. 201-250
 6. 251-300
 7. 301-350
 8. 351-400
 9. 401-450
 10. 451-500
 11. 501-550
 12. 551-600
 13. 601-650
 14. 651-700
 15. 701-750
 16. 751-800
 17. 801-850
 18. 850-900
 19. 901 or more

10. Family members are my Facebook friends.
 1. Yes
 2. No

11. My Facebook friends include professional relationships.
 1. Yes
 2. No

12. On average, how much time do you spend on Facebook each day?
 1. 10 minutes or less
 2. 11-30 minutes
 3. 31-60 minutes
 4. 1-2 hours
 5. 2-3 hours
 6. 3-4 hours
 7. 4 hours or more

DIRECTIONS: For the questions below, please indicate how often you use the indicated Facebook mechanism. A rating of 1 would indicate more than once per day, while a rating of 11 would indicate that you have never used the function. If you have not been a member for a year, please approximate your expected use.

13. How often do you post on other people's Walls or comment on other people's posts?
 1. Five or more times daily
 2. Two to four times daily
 3. Once daily
 4. Two to six times weekly
 5. Once a week
 6. Twice a month
 7. Once a month
 8. Less than once a month
 9. A few times per year
 10. Less than once per year
 11. I have never used it.

14. How often do you use the "Chat" function on Facebook?
 1. Five or more times daily
 2. Two to four times daily
 3. Once daily
 4. Two to six times weekly
 5. Once a week
 6. Twice a month
 7. Once a month
 8. Less than once a month
 9. A few times per year
 10. Less than once per year
 11. I have never used it.

15. How often do you check your Facebook "Newsfeed?"

1. Five or more times daily
 2. Two to four times daily
 3. Once daily
 4. Two to six times weekly
 5. Once a week
 6. Twice a month
 7. Once a month
 8. Less than once a month
 9. A few times per year
 10. Less than once per year
 11. I have never used it.
16. How often do you send private messages on Facebook (Facebook “email”)?
1. Five or more times daily
 2. Two to four times daily
 3. Once daily
 4. Two to six times weekly
 5. Once a week
 6. Twice a month
 7. Once a month
 8. Less than once a month
 9. A few times per year
 10. Less than once per year
 11. I have never sent a private message on Facebook.
17. How often do you update your Status on Facebook?
1. Five or more times daily
 2. Two to four times daily
 3. Once daily
 4. Two to six times weekly
 5. Once a week
 6. Twice a month
 7. Once a month
 8. Less than once a month
 9. A few times per year
 10. Less than once per year
 11. I have never updated my Status.
18. When I post Status Updates, my posts tend to reflect my current mood and/or feelings.
1. True
 2. False
 3. Other (please describe)
19. Are you notified when someone has contacted you on Facebook through a different service (i.e., through a personal email or phone text message)?
1. Yes
 2. No
 3. I’m not sure

20. What is your favorite function/application on Facebook?
1. Chat
 2. Events
 3. Social Games
 4. Messages
 5. Notes
 6. Newsfeed
 7. Groups
 8. Photos
 9. Other (please specify)
21. Most of my Facebook contacts are people I met in person first.
1. True
 2. False

Directions: Using the 7-point scale provided, please indicate the degree to which you agree with each statement. A rating of 1 would indicate that you completely disagree, while a rating of 7 would indicate that you agree wholeheartedly.

22. I feel that I am able to support my contacts through Facebook.
1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree
23. I feel that others are more honest with me on Facebook than in person.
1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree
24. I am inclined to offer support to friends through Facebook.
1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree
25. I feel that I can be more honest with others on Facebook than in person.
1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree

4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree
26. I feel that I can rely on friends for support through Facebook.
1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree
27. Having a Facebook page helps me to stay close with important people in my life.
1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree
28. If it weren't for Facebook, I would probably lose touch with important people in my life.
1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree
29. Facebook is an important part of my social life.
1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree
30. I keep in touch with family members through Facebook.
1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree

31. I have felt support from friends through Facebook during at least one difficult or stressful experience.
1. Strongly Disagree
 2. Disagree
 3. Slightly Disagree
 4. Neither Agree nor Disagree
 5. Slightly Agree
 6. Agree
 7. Strongly Agree

DIRECTIONS: Indicate however many of the following responses that apply.

32. What do you dislike about Facebook?
1. I am less productive as a result of my Facebook use.
 2. I compare my interactions with those of other members and feel that my social network is lacking.
 3. I compare myself to others and feel that I am not as successful as others.
 4. I am uncomfortable with my different social networks (i.e., family, friends, professional relationships) having access to each other.
 5. I feel that Facebook communication is less sincere or meaningful than telephone or face-to-face communication.
 6. I feel that the time I spend on Facebook competes with the time I might spend with my friends in person.
 7. There is nothing I dislike about Facebook.
 8. Other (please specify)
33. What do you most enjoy about Facebook?
1. It is how I communicate with my current friends.
 2. It is how I manage my social calendar.
 3. It provides a distraction from my work.
 4. It allows me to communicate with people from my past
 5. It provides me with access to local and world news that I would not come across otherwise (i.e., in groups, through the newsfeed, from friends' article postings).
 6. There is nothing I especially like about Facebook.
 7. Other (please specify)

Appendix D

Informed Consent Form

Thank you for taking the time to fill out this brief survey.

Purpose:

The purpose of this study is to explore experiences of stress, social support and Facebook.com use. The variables examined will be age, gender, Facebook use, perceived social support, and perceived stress. This study could identify implications of Facebook use and increase knowledge about how this immensely popular social networking site relates to users' experience of stress.

Why you were selected:

You were selected to participate because you are an Internet user and are above the age of 18.

Procedures:

If you agree to participate in this study you will be prompted to complete 3 short questionnaires. The questionnaires will ask you questions regarding your experiences using Facebook, your perception of social support, and your perception of stress. The questionnaires vary in length and will take you approximately 15 to 20 minutes to complete.

Associated Risks:

There is minimal risk involved in participating in this study. In this study you will be asked to answer specific questions about your personal demographics, experiences with Facebook.com, attitudes, and interests in Facebook.com, and levels of perceived social support and perceived stress. If you feel uncomfortable in answering these questions or continuing with this study, know that you do not have to participate and that you may withdraw from the study at any time.

If responding to these questions arouses any troublesome thoughts, you are urged to contact a professional psychologist. The "Psychologist Locator" (<http://locator.apa.org/>) is a good reference from the American Psychological Association for finding a practicing psychologist in your area.

Additionally, in order to ensure the privacy of participants, the survey feature that enables the collection of participant IP addresses will be disabled.

Associated Benefits:

There is the benefit of being entered into a raffle for one of two \$50 gift cards from Amazon.com for participating in this study. If you choose to participate in this study, you will be redirected to a separate and independent survey at this same website at the end of the study where you may enter a valid email address which will allow you register for the raffle. Please note that any information you divulge will not be associated with your participation in

the study. That is, the identifying information that you give will in no way be linked to your responses to the questionnaires, nor will it be saved on the same database.

Withdrawal:

You are free to withdraw from the study at any time, or to not participate, without penalty.

Contact Information:

If you have any questions at any time during the study you may contact John Lynch by email at jlynch1@antioch.edu or by phone at (603) 357-1745. You may also contact his dissertation chair and licensed psychologist, Dr. Susan Hawes at shawes@antioch.edu or by phone at (603) 283-2192. Questions about your rights as a research subject should be directed to the Antioch University New England Institutional Review Board at (800) 553-8920.

Thank you,
John G. Lynch, M.S.

I have been given information about this research study and its risks and benefits and have been given the information about where to direct any questions or concerns I may have. By answering YES below, I indicate that I am at least 18 years old, have read and agreed to the conditions above and that I freely give my consent to participate in this research study.

Yes

No