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FACEBOOKING FOR SOCIAL SUPPORT: AN EXPERIMENTAL TEST OF RELATIONAL REGULATION THEORY

by

Odessia Knowles

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Psychology

Approved:

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UTAH STATE UNIVERSITY
Logan, Utah

2013

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ABSTRACT

Facebooking for Social Support: An Experimental Test of Relational Regulation Theory

by

Odessia Knowles, Master of Science

Utah State University, 2013

Major Professor: Melanie M. Domenech Rodríguez, Ph.D.
Department: Psychology

This study was conducted to examine social support in college student populations by way of the popular social networking website, Facebook. Relational regulation theory was used to drive the study as it posits that social support occurs when a person has conversations and/or shared activities with another individual with whom they identify as relationally meaningful. The conversation, activity, and individual are matters of personal taste; thus, this study examined whether Facebook was a good modality for this to occur. Participants were college students attending a predominately White university located in a semirural, western area of the United States. There were 122 participants across three experimental conditions. Data were collected in group format. Participants completed self-report measures, read news stories, completed puzzles as distractor tasks, and in some conditions interacted with their Facebook accounts. Results indicated that individuals receiving relational social support had a higher positive affect

(M = 2.76) as compared to individuals who received no social support (M = 1.81) but were expecting it, and individuals who received nonrelational social support (M = 2.06). The difference between the no social support subgroup and the relational social support subgroup was significant, p = .012.

(88 pages)

PUBLIC ABSTRACT

Facebooking for Social Support: An Experimental Test of Relational Regulation Theory

by

Odessia Knowles, Master of Science

Transitioning to college can be difficult. While some individuals choose to attend a college that is local to their home, others move away from their family and friends to attend their college of choice. This move adds additional stress to the already stressful nature of attending college. Research suggests that having social support can help with this additional stressor. However, individuals who move away from their family and friends may have difficulty receiving social support in their new, unfamiliar environment.

Facebook is a well-known, widely used form of social media with a significant number of users worldwide. College students spend a significant amount of time on their Facebook accounts interacting with individuals whom they already know. These interactions may be a good way for transitioning college students to remain connected to their family and friends, even when not in close proximity, until they are able to build a support system in their new surroundings. Relational regulation theory suggests that the link between social support and mental health comes from ordinary conversations and shared activities with relationally meaningful individuals. This study tested whether relational regulation theory could hold true through Facebook interactions.

Results indicated that social support can occur through Facebook interactions. Positive affect was higher for participants receiving social support from individuals with whom they had a more positive relationship as compared to individuals with whom they did not feel as connected to. In addition, positive affect was lowest for individuals who were expecting to receive social support but received none.

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CHAPTER I

INTRODUCTION

In the United States between 1999 and 2009 the population of individuals enrolled in college increased 38%, from 14.8 million to 20.4 million (U.S. Department of Education, National Center for Education Statistics, 2011). To attend a college of choice, individuals will sometimes move away from their family and friends (Frenette, 2006; Mulder & Clark, 2002). Maintaining close relationships with previous friends can initially be beneficial for transitioning into college (Swenson, Nordstrom, & Hiester, 2008), allowing students to continue feeling connected despite physical distance from their already established support system.

In college-student populations, limited social support has been associated with depressive symptoms, anxiety, suicidality, self-injury, and symptoms of eating disorder (Hefner & Eisenberg, 2009), thus receiving social support is imperative. Social support can be defined as "the social resources that persons perceive to be available or that are actually provided to them … in the context of… informal helping relationships" (Gottlieb & Bergen, 2010, p. 512). Historically, social supports have been construed as in-person or real-time contact (e.g., telephone); however, with the rise of social networking websites, college students now have an alternative to maintaining previously established social support systems in spite of geographical limitations.

Facebook is a well-known, widely used social networking website. As of December 2011, Facebook had approximately 845 million active users, with an average of 483 million active daily users (Facebook Newsroom, 2011). In the U.S., over 155

million people have Facebook accounts, nearly 25% of which are between the ages of 18-24 (CheckFacebook, 2012). Studies suggest that more than 90% of college students have an active Facebook account (Ellison, Steinfield, & Lampe, 2007), spend approximately 30 minutes every day on Facebook (Pempek, Yermolayeva, & Calvert, 2009), and primarily use Facebook for social interactions with individuals they already have an offline relationship with (Pempek et al., 2009; Subrahmanyam, Reich, Waechter, & Espinoza, 2008).

Little is known about the impact of social supports through social media. Relational regulation theory (RRT) provides the flexibility to consider this relationship. RRT describes how affect, action, and thought can be regulated through social support (Lakey & Orehek, 2011). The theory posits that ordinary interactions and shared activities occurring with relational individuals positively impact affect, action, and thought (Lakey & Orehek, 2011). Lakey and Orehek defined the term "relational" as desired effect, action, or thought resulting from recipient interactions with specific providers. The authors specifically stated that both the provider and the social interaction is a matter of personal preference, making a virtual social network a potential context in which relational regulation can occur.

There is considerable research that suggests a link between social support and mental health (Barrerra, 1986; Cohen & Willis, 1985; Thoits, 1986). Mental health can be compromised by depression, anxiety, general psychological distress, or negative affect. Existing research has focused primarily on social supports available through personal physical contact (Chu, Saucier, & Hafner, 2010; Finch, Okun, Pool, & Ruehlman, 1999).

However, a review of the literature pertaining to the uses of Facebook by students and teachers reported that some of the most common uses of Facebook are tied to social support, namely to maintain existing relationships, to meet new people, for fun, for popularity, and to express oneself (Hew, 2011). To date, no known studies have examined whether Facebook is a good context for the type of social support needed to foster the kind of meaningful relationships which can positively impact college students' wellbeing. The present study sought to fill this gap by examining whether Facebook could serve a social support function, whether relational regulation could occur or be maintained in Facebook interactions, and whether positive affect would increase following Facebook interactions.

CHAPTER II

REVIEW OF THE LITERATURE

This review of literature is divided into five primary sections: (a) information will be provided on mental health and social support in college student populations, particularly research with college student populations that jointly examine social support and mental health, (b) information will be provided on college student transition and social support, (c) information will be provided on Facebook and college student populations, (d) an explanation of RRT, and (d) associated findings on RRT.

College Students: Mental Health and Social Support

Over the years, college student mental health issues have grown in complexity, volume, and severity (Kadison & Digeronimo, 2004), with 91% of college counseling center directors reporting a trend of increased numbers of students with severe psychological problems on their campus (Gallagher, 2011). A study conducted by Benton, Robertson, Tseng, Newton, and Benton (2003) reported that clinicians saw increases in the percentage of students having issues in 14 of 19 client problem areas. Results of the study indicated that students who were seen in more recent years had more complex problems, including more severe issues such as anxiety, depression, suicidal thoughts, and personality disorders (Benton et al., 2003). Suicide has been listed as the second leading cause of death among college students (Centers for Disease Control and Prevention, 2009).

Various protective and risk factors can contribute to the levels of distress and

wellbeing in college student populations. One such variable is social support; social support which may be lacking for recently relocated college student. Despite increases in the utilization of college counseling centers, many students still choose not to seek formal support when struggling with mental health concerns. A common reason for not seeking support from a mental health care provider is family, cultural, and peer norms (Barksdale & Molock, 2009; Curtis, 2010).

While the social support literature is vast, most studies are specific to particular populations (e.g., Chinese migrant farmers, mothers of children with Autism), with the majority of studies utilizing adults as research participants. Little is known about the broader topic of college student populations in regards to social support and mental health. One meta-analysis analyzed 246 studies to examine the associations between social support and mental health in children and adolescents ages 3 through 20 (Chu et al., 2010). The findings from this study may be particularly relevant in college student populations because both populations (children/adolescents and college students) may experience social support from their providers not only a horizontal manner (as may be received from a peer) but also a vertical manner (as may be received from a person in an up-power position from the individual). Chu and colleagues found that perceived social support was most strongly associated with mental health, teacher and school personnel support was more strongly associated with mental health, as age increased so did the association between social support and mental health, and the overall association between social support and mental health was positive yet small.

College Students: Transition and Social Support

With a growing number of individuals attending college, many find themselves moving away from their family and friends. There is evidence that the highest levels of distress are observed during the student's first year (Bewick, Koutsopoulou, Miles, Slaa, & Barkham, 2010; Edwards, Hershberrger, Russell, & Markert, 2001), suggesting that the transition to college is particularly stressful. Moving away from family and friends can add additional distress to the already stressful nature of attending college (Cleary, Walter, & Jackson, 2011).

Not every individual experiences their transition to college in the same stressful manner, thus it is important to pay particular attention to the main effects of social support: students with high social support should have better mental health than students with low social support regardless of their stress levels. Since college students utilize technology regularly, Facebook can be a context for social support in college student populations.

College Students and Facebook

A search of the literature yielded over 10,000 research articles published on Facebook since the website was founded in 2004. Additional descriptors were added to this search to include only research pertaining to Facebook and college students. That search yielded 761 articles. Research on Facebook has covered a plethora of topics including the impact that Facebook can have on an individual (e.g., mood, identity), Facebook usage (e.g., frequency, how, why), and Facebook as a tool for learning, just to

name a few.

Many college students have Facebook accounts and spend countless hours on those Facebook accounts. Research suggests that more than 90% of college students have active Facebook accounts (Ellison et al., 2007). Studies suggested that on average college students spend anywhere from 30 minutes per day (Pempek et al., 2009) to 1 hour 40 minutes per day (Junco, 2012) on Facebook. Research suggests that students will typically log into their Facebook accounts at least once per day (Ellison et al., 2007). Findings from the Junco study reported that students checked their Facebook account an average of 5.75 times per day. According to Hanson, Drumheller, Mallard, McKee, and Schlegel (2011), college students spend 17.71 more hours per week on personal communication, including Facebook use, than on school and school related tasks (e.g., attending class, library use, group study).

These data suggest that a majority of college students are spending considerable time on Facebook. This begs the question whether Facebook can be utilized by college students as a good context for social support, particularly those students who do not have a local support system.

Relational Regulation Theory

RRT is a new theory pertaining to social support. The first article published about the theory titled “Relational Regulation Theory: A New Approach to Explain the Link between Perceived Social Support and Mental Health” appeared in *Psychological Review* in July 2011. In the article, Lakey and Orehek (2011) stated that the development of RRT

occurred during the course of a 30-year program of research, “to meet goals that we thought were valuable in any social support theory” (p. 483). RRT was developed to explain the link between social support and the emotional wellbeing of an individual. The theory applies to individuals with anxiety, depression, or general psychological distress as evidenced through high negative affect, thoughts, or behaviors. Several theories and perspectives of social support exist. Underlying these theories and perspectives are various hypotheses. Stress buffering hypothesis and main effects (also known as direct effects) hypothesis has been identified as two dominant hypotheses that explain the link between social support and mental health (Cohen & Willis, 1985). The main difference between the stress buffering and the main effects hypotheses is that stress buffering predicts that social support is primarily beneficial during stressful times whereas main effects predicts that social support can be beneficial anytime. One dominant theory that adheres to the stress buffering hypothesis is stress and coping theory (SCT). Table 1 shows a comparison of RRT to SCT.

RRT adheres to the main effects hypothesis emphasizing that the link between

Table 1

Social Support Theory Comparison

Variable	RRT	SCT
Model	Main effects hypothesis	Stress buffering hypothesis
Predictors	Social support	Social support
Outcome of interest	Mental health	Mental illness
Conceptualization	Ordinary interactions with meaningful individuals help individuals regulate their affect, behaviors, and cognitions	Individuals talk about their stressors to influence how they think and cope with the event

social support and mental health comes from ordinary conversations and shared activities with relationally meaningful individuals rather than conversations specific to how to cope with a stressor. There are eight key principles to RRT.

Principle One

"Recipients regulate their affect, action, and thought primarily through social interaction" (Lakey & Orehek, 2011, p. 486). Due to support received from social interactions, recipients are able to positively change their affect, behaviors, and cognitions to those that are desirable. Key to this principle is the assumption that the social interaction is a matter of personal taste.

Principle Two

"Social interaction primarily regulates affect, action, and thought relationally" (Lakey & Orehek, 2011, p. 486). Key to this principle is the relationship between recipient and provider. For social support to have a positive influence on affect, behavior, and cognition, the provider must be a person that the recipient chooses.

Principle Three

"Relational regulation occurs primarily in ordinary yet affectively consequential social interaction" (Lakey & Orehek, 2011, p. 487). Unlike, previously thought, this principle contends that it is not necessary for the social interaction to focus on a stressful event. This principle connects principles one and two together: desired effect, behaviors, and cognitions can be obtained through social interactions of a positive nature with relationally meaningful individuals.

Principle Four

"Relational regulation occurs primarily through conversation and shared activities that elaborate on recipients' cognitive representations of relationships and quasi relationships" (Lakey & Orehek, 2011, p. 488). Desired affect and behaviors result when an individual has conversations and shared activities within a relationship that occur the way the individual wants them or thinks they should be. Because expectations for social interaction and personal construal of support vary across individuals, there are no set characteristics of the conversation or activities that must take place for an interaction to be supportive. Rather, the fit between recipient and provider is key.

Principle Five

"Perceived support is based primarily on relational regulation of affect through ordinary interactions but sometimes also on enacted support" (Lakey & Orehek, 2011, p. 489). This principle builds on principle three. A recipient may begin speaking with a provider through ordinary interactions as a means to gauge how supportive the provider may be. If the recipient feels that support has been received from the provider the recipient may continue to seek support from the provider on more distressing issues.

Principle Six

"Relational regulation is dynamic in that people shift conversations, interaction partners, and activities in an attempt to optimally regulate affect" (Lakey & Orehek, 2011, p. 489). Recipients will make changes to accommodate their need to regulate affect. If a provider was previously perceived as supportive but is found not to be

supportive at another time, the recipient will make a shift to something different (topic, provider, activity) to obtain the needed support.

Principle Seven

"Social support interventions will be more effective if they harness relational regulation" (Lakey & Orehek, 2011, p. 490). This principle connects back into principle two which stresses the importance of the recipients' choice in providers. The effectiveness of social support interventions will be greater if relationally meaningful relationships are present.

Principle Eight

"The wider the diversity of potential relationships and quasi relationships that are available to recipients, the greater the likelihood of effective regulation" (Lakey & Orehek, 2011, p. 490). This principle speaks directly to the need for options. As stated in principle six, relational regulation is dynamic; as stated in principle two, providers are a matter of personal preference; as stated in principle three, social interactions are a matter of personal preference—recipients are more likely to be able to effectively regulate their affect, behaviors, and cognitions when they have a variety of options to choose from.

Of particular interest for this study are principles one, two, and three. The ability for ordinary social interactions with relationally meaningful individuals to regulate a person's affect, behaviors, or cognitions is worth further examination for college student populations in a social networking context.

Empirical Support for Relational Regulation Theory

Since the first article about RRT was published in 2011, there has been little research conducted to support the theory broadly. To date, three research studies examining key principles of RRT have been published. Each study will be described below. The first study described below, examined the degree to which social influences impacted negative thinking, and whether that negative thinking was connected to worse affect (principle 2). In contrast, the second study described below, compares RRT to two other social support theories to test the notion of RRT that main effects between perceived social support and mental health occur through ordinary conversations and shared activities (principle 3). The final study described below, pertains to the ability to match specific providers with recipients so that relational influences can occur (principle 2).

Lakey and Tanner (2012) examined the degree to which negative thinking was impacted by social influences, and whether the socially influenced negative thinking was related to worse affect. This experiment consisted of two studies. Participants for the first study were 143 introductory psychology students who were enrolled at a midsized university in the Great Lakes area. Participant demographics were as follows: the mean age of participants was 19 years old, 120 were female and 23 were male, 84% were White, 5% were Black, and the remainder reported a variety of ethnic backgrounds. Participants completed a packet of self-report measures, rating three social support providers: mother, father, and closest peer. The packet of measures that participants completed consisted of assessments of automatic negative thoughts, dysfunctional

attitudes, hopelessness, worry, perfectionistic thinking, positive and negative affect, provider supportiveness, and appearance self-esteem. Results indicate that negative thinking was significantly impacted by social influences and the socially influenced negative thinking was linked to worse affect. This finding corresponds to the notion of RRT that both affect and thoughts can be regulated relationally. Study two was a replication of study one with a few methodological changes: participants completed alternate forms for each provider as opposed to the same form for each provider, an assessment of optimism was added, and the assessment of hopelessness was lengthened from four items to 20 items. Study two consisted of 127 introductory psychology undergraduates from a midsized university in the Great Lakes area. Participants mean age was 19 years old, 103 were female and 24 were male, 84% were White, 3% were Black, and the remainder reported a variety of ethnic backgrounds. Study two replicated study one in that social influences impacted negative thinking.

The second study published pertaining to RRT was conducted by Shorey and Lakey (2011). Shorey and Lakey recruited a total of 356 students from psychology classes, broken down into three independent samples. Participant demographics were as follows: 61% female, mean age was 19 years old, 83% were White, 6% Black, 5 % Asian, 4% Hispanic, and 3% fit into the “other” category. The purpose of this study was to test the notion of RRT that main effects occur through ordinary, yet affectively consequential conversations and shared activities with relational individuals. Shorey and Lakey examined perceived support and capitalization support using three social support theories: stress and coping theory, capitalization support theory, and RRT. Perceived

support is typically thought of as a provider lending support to help protect a recipient from a negative event. Capitalization support pertains to a provider increasing the positive effects of a good event for a recipient. Results were consistent with RRT. The authors concluded that perceived support and capitalization support were similar because the emphasis was not primarily on the stress and coping of an event (i.e., is the event positive or negative), but rather reflected the relational nature of social interactions.

Veenstra and colleagues (2011) conducted a two-part study about forecasting relational support. The first part of the study consisted of 43 participants, 40 of whom served as support recipients, and three served as support providers. Support providers were recruited based faculty members recommendation. All participants were recruited from a regional Midwestern state university. Recipients mean age was 18.5 years old, they were all first-semester first-year students, 85% were female, 73% were White, and 18% were Black. Providers mean age was 23 years old, and all were upper-level White female psychology majors. This study examined the notion of relational support, and the importance of being able to forecast whether a recipient would perceive a provider as unusually supportive. The primary goal of the first part of the study was to investigate how well the authors could match specific providers with specific recipients that would find their provider unusually supportive. Results showed that relational support could be forecasted from a single, 10-minute conversation between recipients and providers, thus for future use it should be possible to predict whether a specific recipient would find a specific provider unusually supportive based upon the first 10 minutes of their initial interaction. The second part of the study consisted of 14 participants who were recruited

from a large Midwestern urban university. Ten participants were support recipients and four were providers. Recipient mean age was 30 and provider mean age was 23. The primary goal of this part of the study was to replicate the findings from the first part of the study. Findings were indeed replicated.

To summarize, RRT is a new theory that has the potential to be utilized with college student populations. The possible impact of relational influences can be profound given that not every individual attends a college that is within close proximity to their family and/or friends. The notion that relational influences may have the ability to provide the social support needed to create main effects between perceived social support and emotional wellbeing in college student populations speaks volumes to an individuals' transition to college in a geographically new location. If relationally meaningful relationships existed for a student when they lived at home, when the student departs for college those same relationships should have the potential to provide enough support to help the student transition into college. However, further research is needed in college student populations.

Purpose and Objectives

The purpose of this study was to test whether Facebook could serve a social support function for students while they were transitioning into college. RRT hypothesizes that "main effects occur when people regulate their affect, thought, and action through ordinary yet affectively consequential conversation" (Lakey & Orehek, 2011, p. 482). Moreover, RRT posits that affect is regulated through social interactions,

that social interactions regulate affect relationally, and that both the social interactions and the types of people within those interactions are a matter of personal taste (Lakey & Orehek, 2011). This study was intended to test the notion that the context of the social interaction in which the relational regulation happened was a matter of personal taste. Additional questions were answered about whether Facebook use could impact student positive affect, whether Facebook was a good context for social interactions, and if relational regulation could occur or be maintained virtually.

Research Questions

The primary question of interest was whether the context for the social interaction that involves relational regulation was a matter of personal taste, that is, is Facebook a viable modality for social support to occur with relationally meaningful individuals. It was hypothesized that 1. Facebook would serve a social support function, 2. that relational regulation would occur or be maintained in Facebook interaction, and thus, 3. positive affect would increase. It was further believed that the context of the social interaction that involved relational regulation would be a matter of personal taste, thus students using Facebook for social support could increase their positive affect if the relationships with the individuals with whom they interacted was relationally meaningful (see Figure 1).

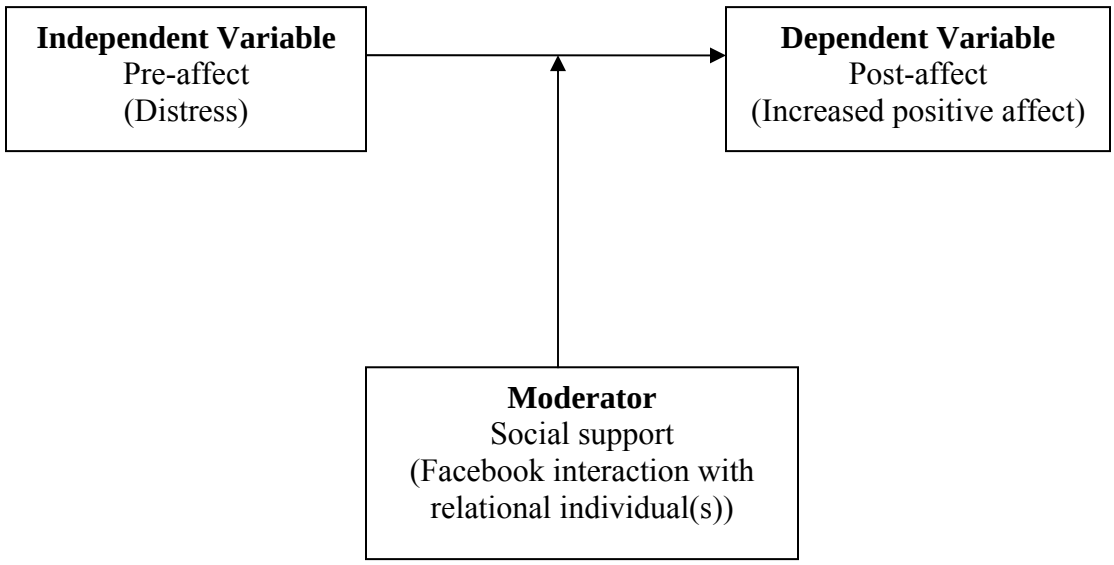

Figure 1. Social support as a moderator.

CHAPTER III

METHODS

Participants

Participants for the study were students enrolled at a midsized western university. Participants were required to have an existing active Facebook account in which they logged into their account, on average, at least three times per week. Particular emphasis was placed on recruiting students whom were less likely to have a local, physical support system available (i.e., not born in state, first-time, transfer, and nonresident students). Recruitment efforts were targeted toward entities and individuals on-campus that serve the target population: Connections program; Student Orientation, Advising, and Registration program (SOAR); Access and Diversity Center-nontraditional students, professors of Psychology 1010 course, to name a few.

One hundred twenty-two students participated in the study. Participants were able to choose from multiple available sessions, the session in which they wanted to participate. Three experimental conditions existed in which participants were blind to which condition was assigned to which session, or even that multiple conditions existed at all. Group distribution was relatively equal with 41 participants (33.6%) in the distractor task only (DG) condition, 42 participants (34.4%) in the posting (PG) condition, and 39 participants (32.0%) in the posting and interacting (EG) condition (see Table 2). Participants' age in years spanned from 18 to 37 (M = 19.61; SD = 3.13). More than half (56.6%) of the participants were age 18. Greater than 90% of participants were

Table 2

Number of Participants by Date and Condition

	Condition		
Date	Distractor only	Posting	Posting and interacting
9/5/2012			21
9/7/2012	19	8	
9/12/2012	16		18
9/15/2012	6	12	
9/19/2012		15	
9/24/2012		7	

between ages 18 and 22. There was a greater proportion of women (*n* = 79, 64.8%) than men (*n* = 43, 35.2%). Racial and ethnic background was as follows: 107 (87.7%) identified as White, 7 (5.7%) identified as Hispanic/Latino, 3 (2.5%) identified as Asian, 3 (2.5%) identified as Multiracial, 1 (0.8%) identified as American Indian/Alaskan Native, and 1 (0.8%) identified as Native Hawaiian/Pacific Islander.

School Information

The majority of participants (*n* = 81, 66.4%) were first-year students, and 19 participants (15.6%) were transfer students. More than half of the participants (*n* = 68, 54.9%) graduated from high school in 2012; the remaining 54 participants' graduation year was between 1993 and 2011. Thirty-one participants (25.4%) were undecided or had not declared their major. Across the seven university colleges, participant distribution was as follows: College of Arts = 10 (8.2%), College of Agriculture = 7 (5.7%), College of Engineering = 8 (6.6%), College of Humanities and Social Sciences = 13 (10.7%), College of Science = 21 (17.2%), College of Education and Human Services = 31

(25.4%), School of Business, College of Natural Resources = 1 (0.8%).

Living Arrangements

Twenty participants (16.4%) were born in the county where the study was conducted, 53 (43.4%) were born within the state but not within the county, 45 (36.9%) were born in a different state, and 4 (3.3%) were born in a country outside of the United States. Participant residency status was as follows: 87 (71.9%) were residents of the state where the study was conducted and 34 (27.1%) were residents of a different state. More than half of the participants (54.5%) had lived in the county where the study was conducted for less than one year. Of the remaining 55 participants the amount of years lived in the county was between 1 and 37, with a mean of 6.37 (*SD* = 5.84). Seventy participants (58.3%) reported that this was their first time living away from home. Seventeen participants (14.0%) reported that they did not have any close friends or family living within a 30-mile radius of their current household. More than half (*n* = 55) of the participants reported having 1-5 people living nearby. Of those that reported having family and friends living nearby (*n* = 96), hours spent with those individuals per week ranged from 1 to 168, with an average of 26.4 (*SD* = 33.34).

Setting

This study was conducted at a 4-year predominately White university located in a semirural, western area of the U.S. Fall 2011 official university reporting shows a total enrollment of 28,994 students, with only 16,857 attending the main campus. See Table 3 for racial/ethnic enrollment.

Table 3

Race and Ethnicity by Enrollment

	Enrollment			
	Total		Main campus only	
Race/ethnicity	*n*	%	*n*	%
White non-Hispanic	22,727	78.39	14,183	84.14
Unknown	2,326	8.02	594	3.53
Hispanic	1,439	4.96	657	3.90
International	877	3.02	746	4.43
American Indian/ Alaskan Native	596	2.06	79	0.47
Asian	399	1.38	208	1.23
Black non-Hispanic	285	0.98	148	0.88
Two or more races non-Hispanic	260	0.90	192	1.14
Native Hawaiian/Pacific Islander	85	0.29	50	0.30

Additionally, there were 8,365 out-of-state students; 4,738 first-time students; 3,013 transfer students; and 2,995 nonresident students (Office of Analysis, Assessment, and Accreditation, 2011).

Procedure

Data collection occurred during the Fall 2012. Participants were recruited through Sona Systems. Sona Systems is a web-based university software that manages respondents and data in human-participant research. Once recruited, participants were routed to Qualtrics. Qualtrics is a web-based survey software used for online data collection and analysis. Through Qualtrics, participants read the Letter of Information (see Appendix A) and completed the Pre-Participation Screening Form (see Appendix B). Those that gave consent to the Letter of Information and met criteria for the study then

returned to Sona to schedule a time to participate. Appointment times were offered according to highest traffic times on Facebook (Decker, 2012). Days and times for participation included Wednesdays and excluded Sundays, additionally the mid-day hours (around 3 p.m.) were offered. Inclusion criteria were: current enrollment at the participating university, be at least 18 years of age, have an active Facebook account, and have logged into that Facebook account on average at least three times per week.

Total time for completing research participation was approximately 1 hour (see Table 4 for timeline). Participants used a computer, the internet, a writing utensil, and a piece of paper. Eligible participants were assigned to a group based upon the timeslot in which they chose to sign up: Distractor Task Only Group (DG), Posting Group (PG), or Posting and Interacting Group (EG). Group assignments to experimental condition were

Table 4

Task Completion Timeline

	Approximate time (in minutes) to complete task		
Task	DG	PG	EG
Pre-Participation Screening Form	1	1	1
Demographics Form, PANAS, PHQ-9, and MSPSS	10	10	10
Choose and read article, and write down reactions	10	10	10
PANAS	1	1	1
Log into Facebook account and post on wall or timeline	X	5	5
Distractor task	20	20	20
Interact with Facebook post	X	X	10
Specific-MSPSS per individual interacted with (up to three) and post-questionnaire	X	X	10
PANAS and MSPSS	3	3	3
Total participation time	45	50	70

made after participants had signed up so that they all had an equal chance of participating in one of the three experimental conditions. Participants in the DG condition only worked on the distractor task. The purpose of this group was to serve as a control group. Participants in the PG condition posted on their Facebook wall or timeline but were not given the opportunity to interact with their Facebook post. This group served to examine the difference in affect from posting only compared to posting and receiving social support. Lastly, participants in the EG condition posted on their Facebook wall or timeline and were given the opportunity to interact with individuals surrounding their Facebook post.

All eligible participants completed the Demographic Form (see Appendix C), along with the Positive Affective and Negative Affective Schedule (PANAS, see Appendix D), the Patient Health Questionnaire (PHQ-9, see Appendix E), and the Multidimensional Scale of Perceived Social Support (MSPSS, see Appendix F) as baseline measures of wellbeing and perceived social support.

After responding to baseline measures, all participants were asked to read four web links to news stories. These links pertained to current news and were selected for somewhat distressing content (see Table 5). Participants were instructed to choose the news story they found most distressing based upon its title and a brief summary, read the story, and write down their reactions to the story on the piece of paper provided to them. Participants were prompted to write about the feelings they experienced when reading the content of their chosen story so that they were utilizing multiple modalities to process and internalize the content of the story. Participants then completed the PANAS for the

Table 5

News Stories by Experimental Condition

Date	Condition	Title of news stories
9/5/12	EG	1. Man Kills Son and Self With Chainsaw 2. American Taliban Testifies Against Prison Ban on Prayer 3. Greed and Debt: The True Story of Mitt Romney and Bain Capital 4. Hitler-Brand Wines and Europe's Debate Over the Limits of Free Speech
9/7/12	DG	1. Richard Lisko, Joel Kennedy Charged in Vicious Pit Bull Attack 2. Man Dies After Doctor Goes on Lunch Break During Surgery 3. 3rd Yosemite Hantavirus Death Reported; 12K More Alerted 4. Fatal Border Shooting: U.S. Agent Fire Across the Border, Allegedly Kills Mexican Citizen
9/7/12	PG	1. Richard Lisko, Joel Kennedy Charged in Vicious Pit Bull Attack 2. Man Dies After Doctor Goes on Lunch Break During Surgery 3. 3rd Yosemite Hantavirus Death Reported; 12K More Alerted 4. Fatal Border Shooting: U.S. Agent Fire Across the Border, Allegedly Kills Mexican Citizen
9/12/12	DG	1. Girl, 10, Charged with Manslaughter in Maine Infant Death 2. Fatal Border Shooting: U.S. Agent Fire Across the Border, Allegedly Kills Mexican Citizen 3. Richard Lisko, Joel Kennedy Charged in Vicious Pit Bull Attack 4. Man Dies After Doctor Goes on Lunch Break During Surgery
9/12/12	EG	1. Girl, 10, Charged with Manslaughter in Maine Infant Death 2. Fatal Border Shooting: U.S. Agent Fire Across the Border, Allegedly Kills Mexican Citizen 3. Richard Lisko, Joel Kennedy Charged in Vicious Pit Bull Attack 4. Man Dies After Doctor Goes on Lunch Break During Surgery
9/15/12	DG	1. Girl, 10, Charged with Manslaughter in Maine Infant Death 2. Fatal Border Shooting: U.S. Agent Fire Across the Border, Allegedly Kills Mexican Citizen 3. Richard Lisko, Joel Kennedy Charged in Vicious Pit Bull Attack 4. Man Dies After Doctor Goes on Lunch Break During Surgery
9/15/12	PG	1. Girl, 10, Charged with Manslaughter in Maine Infant Death 2. Fatal Border Shooting: U.S. Agent Fire Across the Border, Allegedly Kills Mexican Citizen 3. Richard Lisko, Joel Kennedy Charged in Vicious Pit Bull Attack 4. Man Dies After Doctor Goes on Lunch Break During Surgery
9/19/12	PG	1. Girl, 10, Charged with Manslaughter in Maine Infant Death 2. Fatal Border Shooting: U.S. Agent Fire Across the Border, Allegedly Kills Mexican Citizen 3. Richard Lisko, Joel Kennedy Charged in Vicious Pit Bull Attack 4. Man Dies After Doctor Goes on Lunch Break During Surgery
9/24/12	PG	1. Girl, 10, Charged with Manslaughter in Maine Infant Death 2. Fatal Border Shooting: U.S. Agent Fire Across the Border, Allegedly Kills Mexican Citizen 3. Richard Lisko, Joel Kennedy Charged in Vicious Pit Bull Attack 4. Man Dies After Doctor Goes on Lunch Break During Surgery

second time. This administration of the PANAS served as a test to the stimulus, that is, to measure that the distressing content did have a negative effect on participants' affect.

Participants assigned to the DG condition were instructed to go to www.mypuzzle.org and choose puzzles to work on. The purpose of the puzzles for the DG condition was to serve as a distractor. Participants assigned to the PG and EG conditions were instructed to log into their Facebook accounts and post on their wall or timeline the link to their chosen story, along with a sentence that read, "I am feeling _____." Participants were instructed to use their highest negative emotion from their second PANAS (i.e., distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, or afraid) as the word to complete the sentence. If more than one word from their second PANAS had a score of "5," participants were given the option to choose which word they would like to use.

After posting, participants in the PG and EG conditions were instructed to go to www.mypuzzle.org and work on puzzles for 20 minutes. The puzzles served as a distractor task, allowing time for individuals to respond to participants' Facebook post. In an effort to ensure that participants became fully engaged with the distractor task, all participants were instructed to keep a record of how many puzzles they completed (see Appendix G for tracker). EG participants were then instructed to return to Facebook and spend no more than 10 minutes interacting with the Facebook thread surrounding their post. Participants could choose how they wanted to interact: through chat, email, timeline or wall, and so forth. Participants were instructed to keep a detailed note of their interactions during the 10-minute time period. Participants in the EG condition then

completed up to three brief, specific-MSPSS. Participants chose from the Multidimensional Scale of Perceived Social Support for family (MSPSS-FAS, see Appendix H), friends (MSPSS-FRS, see Appendix I), or significant others (MSPSS-SOS, see Appendix J) for each individual with whom they interacted. The specific-MSPSS that the participants completed was contingent upon how they identified with the individual. If participants interacted with more than three individuals during the allotted interaction time, participants chose which three for whom they completed their specific MSPSS. Also, participants in the EG condition completed the Post-Questionnaire (see Appendix K) for descriptive purposes of their time spent on Facebook. All participants completed the PANAS for the third time and the MSPSS for the second time as measures of their ending affect and overall feeling of social support.

Sample Size and Power

A statistical power analysis was performed for sample size estimation using G*Power 3.1. With a two tailed alpha = .05 and power 0.80, the projected sample size for a medium effect size is approximately $N = 108$. A slightly larger sample ($N = 120$) was recruited to allow for expected attrition or exclusion of participants (e.g., excessive missing data).

Instruments

Pre-Participation Screening Form

The Pre-Participation Screening Form was used to obtain relevant information to

determine a participant's eligibility into the study. The form consists of four yes/no questions.

Demographic Form

The purpose of the Demographic Form was to obtain descriptive information about each participant in the study. The Demographic Form includes four sections: Part I—General Information, Part II—Educational Information, Part III—Life, and Part IV—Facebook Information.

Positive Affective and Negative Affective Schedule (PANAS)

The PANAS is a reliable, valid, and efficient instrument to measure positive and negative affect. The instrument consists of 20 words that describe feelings and emotions. Participants rate each item on a 5-point Likert-type scale that ranges from very slight or not at all (1) to *extremely* (5). The instrument was administered with the the short-term instruction "at this moment." Short-term instructions have been shown to be sensitive enough to capture fluctuations in mood within short periods of time. Watson, Clark, and Tellegen (1988) found alpha reliabilities of .89 for the positive affect scale and .85 for the negative affect scale. Reliabilities for the current sample at all time points were adequate (see Table 6).

Patient Health Questionnaire (PHQ-9)

The PHQ-9 is a nine item reliable and valid measure of depression severity. Participants rate each item on a 4-point Likert-type scale ranging from not at all (0) to nearly every day (3). A study of the PHQ-9 yielded an internal reliability of .89, test-

Table 6

PANA Reliabilities

Time	PANAS subscale	*N*	α
Time 1	PA	117	.86
	NA	118	.71
Time 2	PA	119	.82
	NA	120	.84
Time 3	PA	110	.93
	NA	120	.75

PA = Positive Affect subscale
NA = Negative Affect subscale

retest reliability of .84, and for a score of "9" or higher, a sensitivity of .95 and specificity of .84 (Kroenke, Spitzer, & Williams, 2001). This study utilized the instrument to measure the severity of depression symptomology in students. Reliability for the current sample was .81.

Multidimensional Scale of Perceived Social Support (MSPSS)

The MSPSS is a 12-item, widely used valid measure of perceived social support with good reliability (Cronbach's alpha of .88), and a test-retest reliability of .85 (Zimet, Dahlem, Zimet, & Farley, 1988). Participants rate each item using a 7-point Likert-type scale ranging from *very strongly disagree* (1) to *very strongly agree* (7). This study utilized the instrument as a tool to measure the overall level of social support received from students' family and friends. Reliabilities for the current sample were adequate at time one (α = .90) and time two (α =.92).

Multidimensional Scale of Perceived Social Support—Family Specific (MSPSS-FAS)

The MSPSS-FAS is a four question, modified version of the MSPSS. This subscale of the MSPSS has internal reliability of .87 and test-retest reliability of .85 (Zimet et al., 1988). The questions on this instrument comprise a factor group relating to the source of the social support (family). For the EG condition, this study used the instrument to measure the level of social support received from specific individuals who were identified as family. Overall, four instruments were returned. Three individuals returned the MSPSS-FAS and there was zero variance in responses, therefore reliability could not be calculated. One individual returned a second form of the MSPSS-FAS.

Multidimensional Scale of Perceived Social Support—Friend Specific (MSPSS-FRS)

The MSPSS-FRS is a four question, modified version of the MSPSS. This subscale of the MSPSS has internal reliability of .85 and test-retest reliability of .75 (Zimet et al., 1988). The questions on this instrument comprise a factor group relating to the source of the social support (friend). For the EG condition, this study used the instrument to measure the level of social support received from specific individuals who were identified as friends. Overall, 23 instruments were returned. Fifteen individuals returned the MSPSS-FRS for the first social support contact ($\alpha = .97$), six returned for the second contact ($\alpha = .98$), and two for the third contact ($\alpha = 1.0$).

Multidimensional Scale of Perceived Social Support—Significant Other Specific (MSPSS-SOS)

The MSPSS-SOS is a four question, modified version of the MSPSS. This

subscale of the MSPSS has internal reliability of .91 and test-retest reliability of .72 (Zimet et al., 1988). The questions on this instrument comprise a factor group relating to the source of the social support (significant other). For the EG condition, this study used the instrument to measure the level of social support received from specific individuals who were identified as significant others. Only three individuals returned data for the MSPSS-SOS (α = .79).

Post-Questionnaire

The Post-Questionnaire was used to collect descriptive information regarding the time that participants in the EG condition spent interacting on Facebook during the study. This questionnaire consists of six questions.

Data Analysis Plan

This study examined the relationship between pre-affect and post-affect by way of social support. Baseline data was collected for each of the three experimental conditions to provide a comparison to the data collected at times two and three. Pre-affect was the independent variable which was measured by the second administration of the PANAS, social support was the moderator variable which was measured by the specific-MSPSS in the EG condition, and post-affect was the dependent variable which was measured by the third administration of the PANAS. The direction and/or strength of the relationship between the independent variable and the dependent variable should be changed after introducing the moderator variable (Baron & Kenny, 1986), meaning that the relationship between pre-affect and post-affect should be changed after introducing social support in

the EG condition when compared to the DG and PG conditions in which no such change should occur.

CHAPTER IV

RESULTS

The results chapter is divided into six main sections: (a) participants' Facebook use, (b) behavioral observations, (c) variables of interest, (d) comparison of baseline means, (d) comparison of affect which examines positive and negative affect separately, and (f) social support in the EG condition.

Facebook Use

The number of hours participants reported spending on Facebook per day ranged from less than 1 to 8 hours, with a mean of 1.40 (*SD* = 1.22). Participants reported having anywhere from 10 to 2,500 friends on their Facebook accounts. On average, participants felt that information they are exposed to on Facebook was 43% positive, 35% neutral, and 22% negative. In general, participants reported they mostly liked their Facebook friends but did not turn to them too much in times of distress. Table 7 provides specific information regarding the relationship between participants and their Facebook friends.

Table 7

Relationship between Participants and Their Facebook Friends

Demographic form prompt	*N*	Scale range	Response range	*M*	*SD*
FB helps develop closer relationships	121	1 – 5	1 – 5	3.00	1.01
Like FB friends	121	1 – 5	1 – 4	2.16	.62
Close with FB friends	121	1 – 5	1 – 4	2.93	.69
Feel connected to FB friends	120	1 – 5	1 – 4	3.00	.85
Turn to FB friends in time of distress	121	1 – 5	1 – 5	4.04	.96
Turn to FB friends in time of joy	121	1 – 5	1 – 5	2.87	1.05

Behavioral Observations

A total of nine experimental sessions were conducted: three DG, four PG, and two EG. The lab had 23 computers available for use by participants, and one instructor computer at the front that was connected to the television for projection. Participants were able to choose their seating as they entered the lab. Some students entered alone, some entered in groups; some sat alone while others sat near individuals which they appeared to already know as evidenced by their interactions. Every session had minimal talking amongst participants prior to the start of the study. In every session, participants had questions regarding how to answer items on the Demographics Form. Comments were made by participants when instructed to complete puzzles. These comments included: “Awe, I don’t like puzzles; I’m not very good at them,” or “But what if you can’t do puzzles?” Nonetheless, every participant was compliant with the request. While completing the puzzles the room was completely silent and participants maintained a focused gaze on their computer screens displaying no distraction from the task at hand. The only noise during this time was the occasional rejoice as a participant completed a puzzle; however, other participants remained unaffected by the occasional outbursts. During one EG session two participants asked if they could friend one another on Facebook since none of their other friends had responded to their post. Verbal resistance occurred in the PG and EG sessions as participants were instructed to post on their timeline or wall. Participants laughed uncomfortably and comments were made such as: “do I really have to post that,” or “are you serious,” or “my friends are going to think someone hacked my page.” Further signs of discomfort regarding posting on their

Facebook page were displayed as PG and EG sessions ended. Every PG and EG session had at least one person exit the room making comments about going to delete their post. At the end of every session at least one participant remained to ask additional questions about the study and/or when results would be available.

Variables of Interest

Table 8 presents means and standard deviations for the variable of interest. The variables of interest in this study were the positive and negative affect subscales of the PANAS; the PHQ9; and the MSPSS, both general and specific. Participants began the study reporting moderately positive mood. Their mood decreased in positivity following the stimulus, but by the end of the study had increased in levels of positivity, although not

Table 8

Means and Standard Deviations for Variables of Interest

Time	Variable	*N*	Scale range	Response range	*M*	*SD*
1	PANAS_PA	122	1 – 5	1.2 – 4.5	2.73	.73
	PANAS_NA	122	1 – 5	1.0 – 2.8	1.34	.35
2	PANAS_PA	121	1 – 5	1.4 – 4.4	2.27	.67
	PANAS_NA	122	1 – 5	1.0 – 4.2	1.99	.67
3	PANAS_PA	122	1 – 5	1.0 – 4.7	2.41	.93
	PANAS_NA	122	1 – 5	1.0 – 2.8	1.36	.37
	PHQ9	121	0 – 3	0 – 2.3	.80	.46
1	MSPSS	122	1 – 7	2.3 – 7.0	5.83	.91
2	MSPSS	122	1 – 7	2.3 – 7.0	5.74	1.05
	Specific-MSPSS	17	1 – 7	1.0 – 7.0	4.43	1.75

PANAS_PA = Positive Affect subscale for PANAS.

PANAS_NA = Negative Affect subscale of PANAS.

PHQ9 = Patient Health Questionnaire.

MSPSS = Multidimensional Scale of Perceived Social Support.

Specific-MSPSS = Multidimensional Scale of Perceived Social Support (Friend, Family, or Significant Other).

to levels as high as baseline. Participants' negative affect at the beginning of the study baseline by the end of the study. Depression symptomology for participants was low, relatively low, or increased following the stimulus, but returned to almost the same as Perceived social support was high and was stable across times. Within the EG condition, 17 of 39 participants received social support from specific individuals. The perceived social support from the 17 individuals was low.

Comparison of Baseline Means

Separate means at baseline were calculated for each experimental condition to examine mean differences across the three conditions. A one-way ANOVA was run to examine differences across conditions for variables of interest at time one (see Table 9). The ANOVA shows no differences across experimental conditions for variables of interest except for the MSPSS indicating that positive affect, negative affect, and depression symptomatology were the same at baseline across conditions. The MSPSS was significantly higher for the EG condition as compared to the DG condition (Tukey HSD, $p = .03$). The PG condition mean was between the other two groups and was not

Table 9

One-way ANOVA for Variables of Interest

Variable	*df*	*MS*	*F*	*p*	η^2
PANAS PA	2	.50	.95	.39	.02
PANAS NA	2	.06	.51	.60	.01
MSPSS	2	2.75	3.43	.04	.05
PHQ9	2	.33	1.56	.21	.03

significantly different from either. Further examination of the MSPSS variable revealed a great deal of stability in scores from time one to time two, thus this variable was removed from further analysis.

Comparison of Affect

After comparing baseline data, analyses were run to test the effect of the stimulus on positive and negative affect separately.

Positive Affect

The repeated measures ANOVA of times two and three positive affect scores and the three social support conditions was run. The repeated measures ANOVA indicated a significant within-group difference in positive affect using a Greenhouse-Geisser correction, $F(1.91, 225.21) = 24.26$, $p < .001$, $\eta^2 = .21$, and a significant linear interaction effect of positive affect by experimental group, $F(3.82, 225.21) = 5.41$, $p < .001$, $\eta^2 = .09$. Figure 2 represents a visual of these findings.

Negative Affect

The repeated measures ANOVA for negative affect indicated a significant within-group difference using a Greenhouse-Geisser correction, $F(1.61, 191.77) = 107.49$, $p < .001$, $\eta^2 = .90$. There was no statistically significant interaction for negative affect by experimental group, $F(3.22, 191.77) = 2.19$, $p = .086$, $\eta^2 = .04$. See Figure 3.

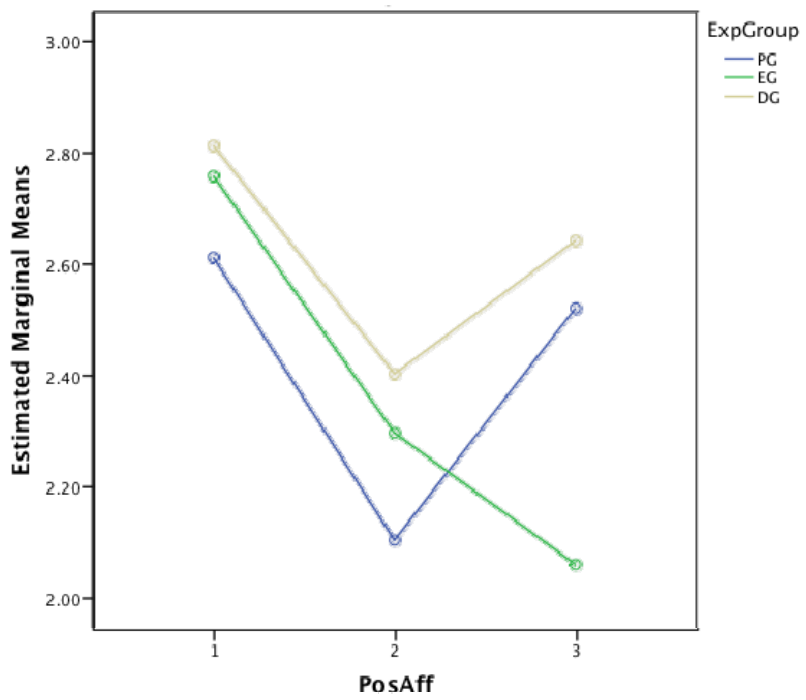

Figure 2. Estimated marginal means for positive affect.

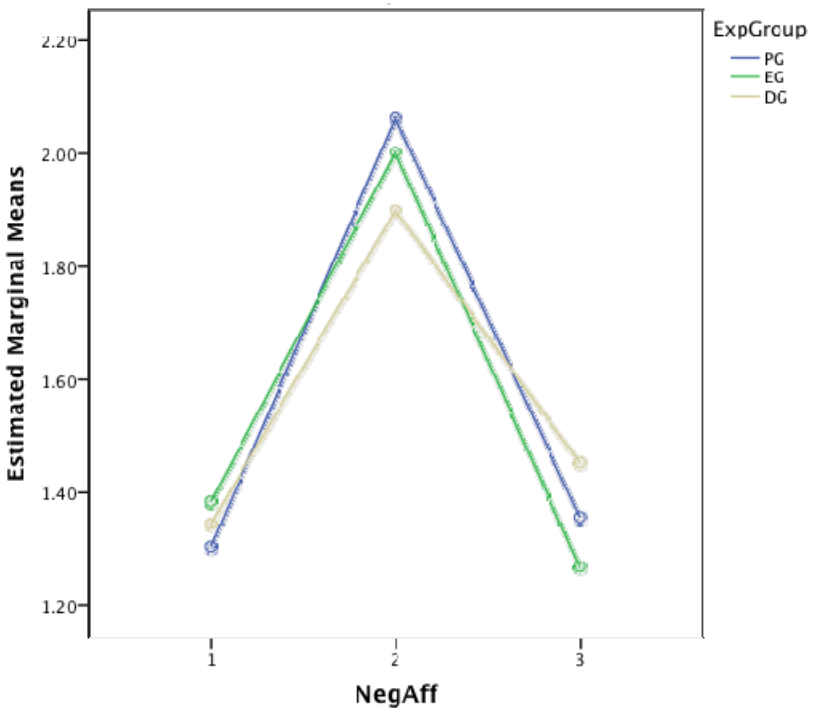

Figure 3. Estimated marginal means for negative affect.

Social Support in EG Condition

To examine social support within the EG condition (n = 39), three separate subgroups were created (see Figure 4). One subgroup (n = 22) received no response from their post. A second subgroup (n = 9) experienced social support that was rated as nonrelational (nonrelational ratings were means from 1-4.99 on the 7-point scale). The third subgroup (n = 8) experienced relational social support (relational ratings were a mean of 5.0 or more on the 7-point scale). A Shapiro-Wilk test revealed a normal distribution of the time three positive affect scores for each of the three subgroups (p > .05). A one-way ANOVA revealed statistically significant differences between

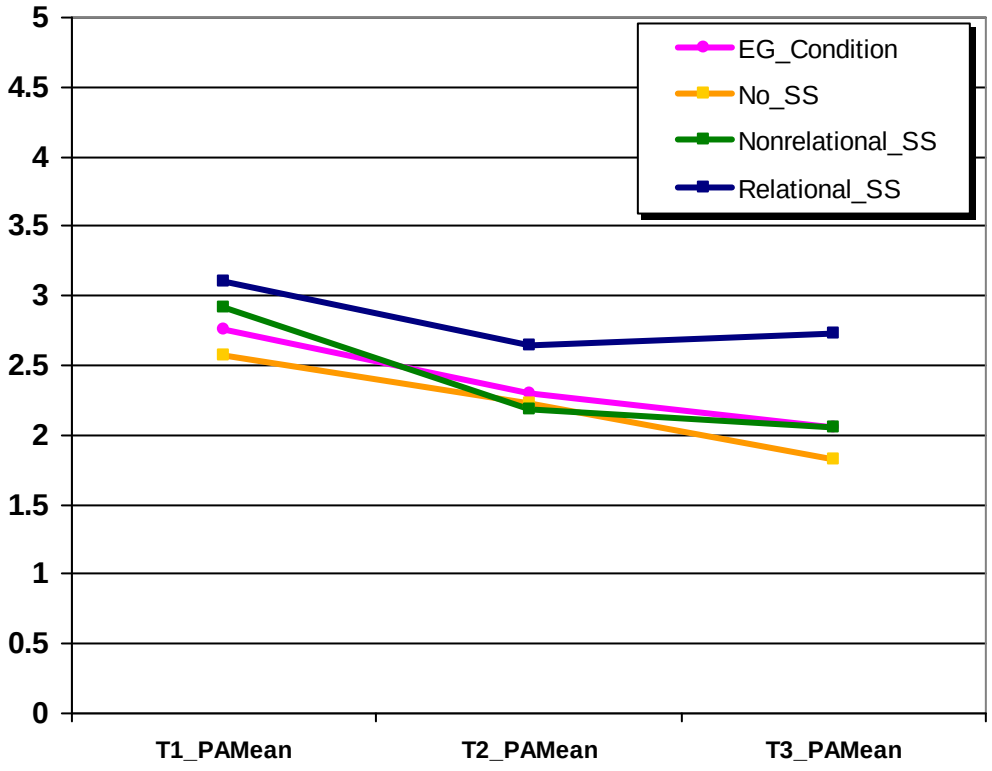

Figure 4. Positive affect by social support subgroups.

subgroups, $F(2, 36) = 4.64$, $p = .016$, $\eta^2 = .20$. Tukey HSD post-hoc analyses further showed significant differences between the no social support ($M = 1.81$) and the relational social support subgroups ($M = 2.76$). There was a trend for higher time three positive affect scores in the relational social support subgroup as compared to nonrelational social support subgroup ($M = 2.06$, $p = .15$). There were no significant differences between the no social support subgroup and the nonrelational social support subgroup ($p = .692$). Figure 5 represents these findings visually.

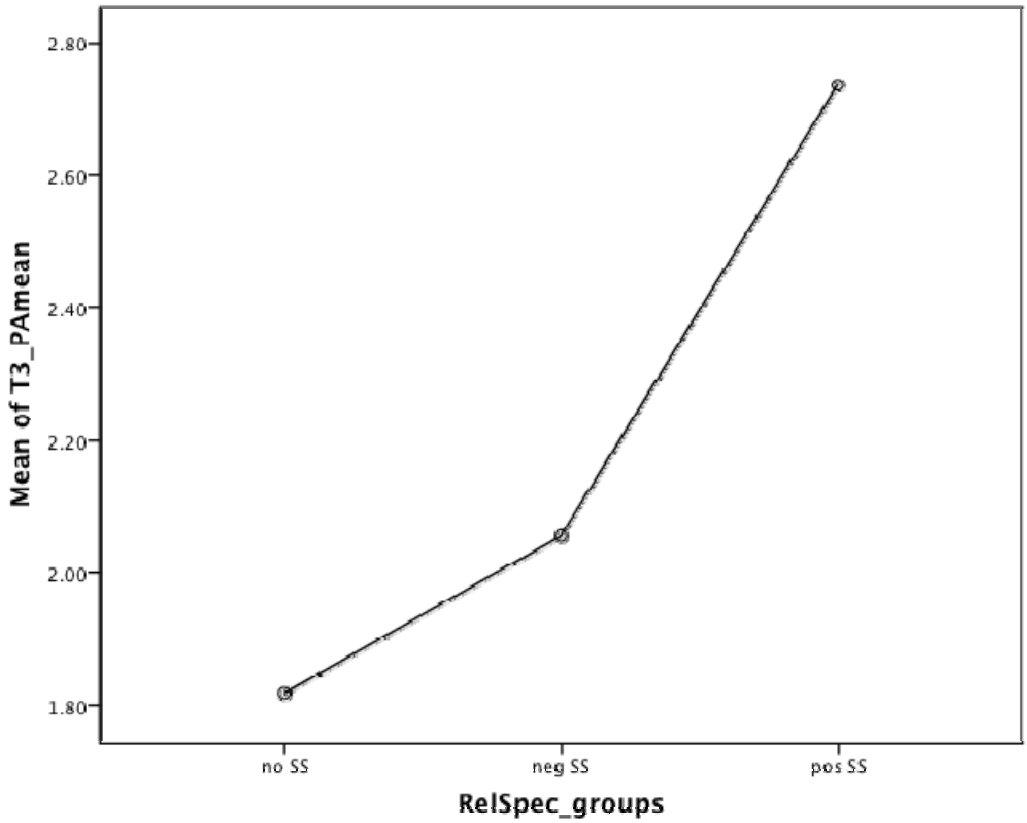

Figure 5. Mean comparisons of positive affect for social support subgroups.

CHAPTER V

DISCUSSION

The purpose of this study was to examine social support in college student populations. The study examined Facebook use, social support, and positive and negative affect in college students attending a predominately White, midsized western university located in a semirural area of the U.S. The purpose of this study was to examine if Facebook could be a viable modality for the transmission of social support for individuals attending college. Data were collected at the beginning of the Fall 2012 school semester with particular emphasis on the recruitment of individuals less likely to have a local, physical support system available (i.e., not born in state, first-time, nonresident, transfer students). Findings from the study, along with limitations and future direction for research, will be discussed.

Summary

The proposed moderation analysis was conducted by way of a repeated measures ANOVA to examine whether the change that occurred between time two affect and time three affect was a result of the introduction of social support (Baron & Kenny, 1986). The EG condition was determined to be three smaller groups rather than the expected one group: (a) no social support, (b) nonrelational social support, and (3) relational social support. Multiple comparisons of variable means indicate that perceived social support can be experienced through Facebook and that relational regulation can occur or be maintained through Facebook.

Social Support and Affect

A one-way ANOVA indicated significant differences in the MSPSS between the EG and DG conditions at baseline. EG condition means were significantly higher than that of the DG condition, indicating that participants in the EG condition reported significantly higher levels of perceived social support at the beginning of the study than participants in the DG condition.

Positive affect and negative affect were examined separately for this study. The news stories were successful in increasing distress in participants, as evidenced by a decrease in positive affect and an increase in negative affect. Negative affect patterns were the same across experimental conditions. Participants began the study with low negative affect. Negative affect increased after participants read their chosen news stories, and then decreased again almost to the same levels as at the beginning of the study. These findings were commensurate with what could be expected. The patterns for positive affect were the same for the DG and PG conditions throughout the study. In the DG and PG conditions, participants began with relatively high positive affect, decreased positive affect after reading the news stories, but then increased again by the end of the study. The EG condition showed the same pattern at the beginning and after reading the news stories, but differed at the end. As opposed to positive affect increasing at the end of the study as it had done in the other two conditions, participants in the EG condition showed a further decrease in positive affect. One possible reason that this continual decrease occurred is that participants in the EG condition returned to Facebook after posting and were given 10 minutes to interact surrounding their Facebook post. Possibly,

these participants were expecting or hoping that a relationally meaningful friend would respond to their post. Also, the social pressure of participating in a Facebook study in a group setting may have contributed to the participants low positive affect as participants may have witnessed others receiving responses from their Facebook friends while the participant may not have received any responses. More than half of the participants in the EG condition did not receive a response. Only nine out of the 39 participants in the EG condition received a response; however, these participants rated their relationship with the individual who provided the interaction as not highly supportive or nonrelational. When considering RRT, the provider of the social support is a matter of personal taste (Lakey & Orehek, 2011); therefore, even though a response occurred, it appears not to have been given by a relationally meaningful person. Only eight participants received a response from an individual who they considered relational. Therefore, eight received relationally meaningful social support; whereas, the other 31 received no or nonrelational support, which could have been the reason for the continual decrease in positive affect.

Further analysis of the subgroups found within the EG condition indicated that nonrelational social support may be better than no social support, although positive social support is optimal. Nonrelational social support occurred in the study when an individual responded to a participants Facebook post but was rated low on the specific-MSPSS, which means that potentially the participant was somewhat content that a response occurred but was dissatisfied with who offered it.

Limitations, Weaknesses, and Implications for Future Research

There were several limitations to this study. The demographics of the area in which the study took place as not representative of the population in the U.S., thus results may not be generalizable throughout the country. The culture where the study took place was relatively homogeneous: predominately White, with a dominant religious affiliation of The Church of Jesus Christ of Latter-day Saints (LDS). College students who were not of the dominant culture (race and/or religion) may experience greater difficulties in transitioning; thus, their need for virtual social support from relationally meaningful individuals may be greater than a student not dealing with this issue. In contrast, individuals who are of the dominant culture may experience the opposite. Additionally, for students not of the dominant culture, this lack of virtual social support, compounded with the lack of a physical support system, may also create results that are specific to attending college in a homogenous community. It may be worth further examination in other areas of the country, where more diverse populations exist, to replicate this study and examine the need for social support received virtually. Because RRT is such a new theory, the theory is worth examining within various cultural contexts.

The MSPSS, although a well-known and widely used measure, may not have been sensitive enough to discern changes in perceived social support in such a small amount of time. In this study, participants took the MSPSS twice, with both administrations occurring within 1 hour. There were no significant differences between time one and two administrations of the MSPSS. This may be because no significant change existed or it could be because the measure was not sensitive enough to pick up the change.

Additionally, EG condition participants took a subscale (friend, family, significant other) of the MSPSS to gather information about the relationship with the individuals with whom they interacted while on Facebook. Because the study was designed in a way that any of a participants' Facebook friends could respond, there was no way of knowing who would respond to the Facebook post, thus the specific MSPSS that were collected had no baseline for comparison.

Another issue with the assessments occurred with the Demographics Form. Two questions on the form caused issues for participants. The questions were pertaining to socioeconomic status and the degree participants were seeking. Many of the participants reported living in dorms or in apartments with roommates, but were unaware of their household income. The question pertaining to which degree participants were seeking seemed to be understood by some as which degree they wanted overall, while others understood it to be which degree they were currently pursuing. Given the inconsistencies in how these questions were answered, neither of them was usable for this study; however, future research could clarify these questions better if they are of interest for further examination.

There were two methodological concerns worth noting. The first was that the timeline varied for the three conditions. The DG condition was the shortest lasting approximately 45 minutes, and the EG condition was the longest lasting approximately 70 minutes. The PG condition was relatively similar in time to the DG condition lasting approximately 50 minutes. Of primary concern was the variance in amount of time between the introduction to the stimulus and the time three administration of the PANAS.

In the DG and PG conditions the time lapsed was approximately 20-25 minutes; however, in the EG condition the time lapsed was approximately 45 minutes. It is possible that the different results in the EG condition could be contributed to by this extended timeframe. In addition to this concern is a concern for the variations in news stories. Participants were given four news stories to choose from and were told to choose the story that was most distressing to them. The news stories were also adjusted after every session to accommodate more current stories and/or to replace news stories not being chosen by participants. Future research may test the theory by using the same news stories throughout the study or by utilizing an alternative manipulation strategy such as the International Affective Picture System.

Scheduling of sessions for participation occurred during peak Facebook usage hours and days as reported by Decker (2012), with no sessions scheduled on the reported least active day of the week. One inclusion criteria for the study was that participants had to be active users of Facebook, meaning that they had to endorse that they logged into their Facebook accounts on average at least three times per week. This was a criterion of the study because it was thought that a response to a Facebook post would most likely occur if the participant was a frequent user of Facebook. Participants Facebook friends only had 20 minutes to respond to the post that was made, if their friends were not online during this window, the study was not able to capture the potential social support. Future research could build upon this study and potentially lengthen the amount of time allowed for responses to occur and/or collect follow-up data from participants longitudinally. Also, responses may not have been given to participants Facebook post if they seemed

out of character by the participants Facebook friends. A possible remedy to this issue for future research may be to recruit individuals who endorse not only logging into their Facebook accounts frequently but also posting frequently on their timeline or wall. An alternative solution could be to also recruit participants who log into their Facebook accounts more frequently (e.g., endorse logging into account at least four times per day).

Social support literature does not state the exact moment when perceived social support occurs. Participants in the EG condition made a post to their Facebook account, left the website for 20 minutes, then logged back into their accounts. Upon returning, participants were given 10 minutes to interact surrounding their post. It is unclear whether perceived social support occured when participants initially returned to their Facebook account and saw that someone had responded to them or not, or whether participants' perceived support occurred when they were able to have an ongoing interaction. If the latter is true, participants' friends would have still needed to be online and responding in order for this to occur. Again, data collected longitudinally (e.g., 24 hours later) may indicate different results than those found in the study. In addition, participants returning to Facebook to receive social support may have once again been emotionally affected by the distressing nature of the stimulus, thus an alternative explanation for the lower time three positive affect scores in the EG condition may be their second contact with the distressing stimulus.

The original proposed analysis for this study was moderation. The EG condition was determined to be three smaller subgroups. The largest of the subgroups was the subgroup which received no social support (n = 22), meaning that the participants did not

interact with anyone during the time designated for them to interact with their Facebook friends. The second subgroup was determined to have received nonrelational social support (n = 9) as the participants rated the relationship with the Facebook friends which they interacted as negative to neutral. The final subgroup (n = 8) was determined to have received social support from relational individuals. Because the number of participants in the three subgroups was small, a comparison of means occurred to identify significant differences. Future research could utilize what has already been learned in this study and recruit a higher number of participants for the EG condition.

College students use their Facebook accounts to remain connected with individuals they already know (Pempek et al., 2009; Subrahmanyam et al., 2008), and it can be beneficial for them to maintain those previous relationships when initially transitioning to college (Swenson et al., 2008). However, remaining connected can be difficult when geographically separated from important individuals. This study indicated that Facebook was an option for remaining connected. RRT emphasized that the provider of social support was a matter of personal taste (Lakey & Orehek, 2011), thus college students can utilize Facebook to remain connected with the relationally meaningful individuals in their lives. Results indicated that positive affect can be increased when social support is received from relationally meaningful individuals, even if this support is received virtually.

Conclusions

In conclusion, this study examined social support in college student populations.

The individuals that received relational social support reported the highest levels of positive affect as compared to the individuals that received no social support or the individuals that received nonrelational social support. Individuals who received nonrelational social support reported moderate levels of positive affect, and the individuals who received no social support reported low levels of positive affect. Thus it can be said that even nonrelational social support was better than expecting social support and not receiving any.

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APPENDICES

Appendix A

Letter of Information

Department of Psychology
2810 Old Main Hill
Logan UT 84322-2810
Telephone: (435) 797-0093

USU IRB Approval: June 20, 2012
Approval Terminates: 06/19/2013
Protocol 4479
IRB Password Protected per IRB Administrator

LETTER OF INFORMATION
Social Support and Computer-Based Activities

Introduction/ Purpose Dr. Melanie M. Domenech Rodríguez, Ph.D. in the Department of Psychology at Utah State University is conducting a research study to find out more about social support. You have been asked to take part because you are enrolled at the participating university. There will be approximately 120 total participants in this research. Odessia Knowles, a graduate student in the Combined Psychology Ph.D. program, will be collecting data as part of her Master's Thesis.

Procedures If you agree to be in this research study, you will be expected to complete a Pre-Participation Screening Form and sign-up for a timeslot to complete the study. Data will be collected on-site as you complete various computer-based timed tasks and paper and pencil assessments. Data will be collected in group format. The groups will have up to 40 students present. As part of your participation you will read one typical internet-based news story and respond to its content. After reading and reacting, participants in each of the three experimental groups, will engage in different computer-based tasks, including puzzles and possibly Facebook posting. The entire process should take approximately one hour to complete.

Risks Participation in this research study may involve some risks or discomforts. These include an increase in level of distress from the experimental material (e.g., reading the news story) and fatigue from completion of self-report measures. The group format for data collection represents a loss of privacy to student participants who will be identified as having participated in the study by other students signed up during the same session. Although not expected, if you experience significant levels of distress, a referral will be made for mental health services.

Benefits Students will not experience direct benefits from this study outside the opportunity to learn about research study procedures in the process of participation, and potentially earning course credit. Extra credit may only be available for some participants as it will only be available at the discretion of their professors. This study may provide data that supports a new theory regarding social support. This theory holds significant promise for innovative social support interventions, especially for utilizing social media as a tool for supporting college students' mental health and wellbeing.

Explanation & offer to answer questions Prior to the start of participation in this study, Odessia Knowles will explain this research study to you and answer your questions. If

you have other questions or research-related problems, you may reach (PI) Dr. Melanie M. Domenech Rodríguez, Ph.D. by phone at (435) 797-3059 or by email at melanie.domenech@usu.edu.

Voluntary nature of participation and right to withdraw without consequence Participation in research is entirely voluntary. You may refuse to participate or withdraw at any time without consequence or loss of benefits. You may be withdrawn from this study without your consent by the investigator if you experience significant distress during the course of this study or if you become significantly distracting to other participants and are non-responsive to redirection.

Confidentiality Research records will be kept confidential, consistent with federal and state regulations. Only the investigator and student researcher will have access to the data which will be kept in a locked file cabinet or on a password protected computer in a locked room to maintain confidentiality. To protect your privacy, personal, identifiable information will be removed from study documents and replaced with a study identifier. Identifying information will be stored separately from data and will be kept. This code will be destroyed on approximately July 1, 2013.

IRB Approval Statement The Institutional Review Board for the protection of human participants at Utah State University has approved this research study. If you have any questions or concerns about your rights or a research-related injury and would like to contact someone other than the research team, you may contact the IRB Administrator at (435) 797-0567 or email irb@usu.edu to obtain information or to offer input.

Investigator Statement "I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered."

Melanie M. Domenech Rodríguez, Ph.D. Principal Investigator 435-797-3059 melanie.domenech@usu.edu	Odessia Knowles, B.S. Student Researcher 801-690-1038 o.knowles@aggiemail.usu.edu

Appendix B

Pre-Participation Screening Form

Code:_____

Pre-Participation Screening Form

1) Are you currently enrolled at the participating university?

   Yes No

2) Are you 18 years or older?

   Yes No

3) Do you have an active Facebook account?

   Yes No

4) Do you log into your Facebook account at least three times per week?

   Yes No

Appendix C

Demographic Form

Code:_____

Demographic Form

Part I: General Information

1) Age: _____

2) City, State, Country of birth: _____

3) Biological sex: (circle one) Female Male

4) Race/Ethnicity: (circle one)
   White
   Black
   American Indian/Alaskan Native
   Native Hawaiian/Pacific Islander
   Asian
   Multiracial
   Hispanic/Latino
   International
   Other: _____

Part II: Educational Information

1) Year of high school graduation/Year GED obtained: _____

2) High school grade point average: _____

3) College major: _____

4) Degree you are seeking:
   a. I am not seeking a degree
   b. BA/BS
   c. MA/MS
   d. PhD
   e. Other, please specify: _____

5) College status: (circle one)
   First-year
   Sophomore
   Junior
   Senior
   Graduate

6) Are you a transfer student: (circle one) Yes No

   a. If "Yes," name of school transferred from: _____

b. When did you transfer to USU?: _____

7) First time attending college: (circle one) Yes No

a. If "No," number of years since last attended college: _____

Part III: Life

1) State of residence: _____

2) Number of years lived in Cache Valley: _____

3) Currently reside: (circle one)
With parents dormitory
House/apartment Other: _____

4) Number of people living in household: _____

5) Annual household income from all sources: _____

6) First time living away from home: (circle one)
Yes No N/A

7) Number of individuals who live within 30 mile radius of household that you consider family or very close friend: _____ (If appropriate, please include individuals that live in household.)
a. Number of hours per week spent with identified family or friend: _____

8) Currently employed: (circle one) Yes No

a. Number of hours per week spent working for pay: _____

Part IV: Facebook Information

1) Number of hours per day spent on Facebook: _____

2) Number of active Facebook accounts: _____

a. Number of Facebook friends per account: _____, _____, _____

3) How much of the information you are exposed to in Facebook is positive, neutral, and negative? (please calculate a rough estimate of the percentage of each)

Positive: ___% Neutral: ___% Negative: ___%

4) Would you consider that the information on Facebook impacts your mood? (circle one)
   1 - Most of the time Facebook makes me feel better
   2 - On average, Facebook makes me feel better
   3 – Facebook makes me feel better about half the time
   4 – On average, Facebook makes me feel worse
   5 – Most of the time, Facebook makes me feel worse
   6 – The information on Facebook does not impact my mood

5) Facebook helps me develop closer relationships with my friends or family
   - Definitely
   - Mostly
   - Somewhat
   - Not much
   - Not at all

6) I like my Facebook friends
   - All
   - Most
   - Some
   - Not many
   - None

7) I am close with my Facebook friends
   - All
   - Most
   - Some
   - Not many
   - None

8) I feel connected to my Facebook friends
   - Definitely
   - Mostly
   - Somewhat
   - Not much
   - Not at all

9) I turn to my Facebook friends in times of distress
   - Absolutely yes
   - Often yes
   - Sometimes yes
   - Not much
   - Not at all

10) I turn to my Facebook friends in times of joy
    - Definitely
    - Mostly
    - Somewhat
    - Not much
    - Not at all

Appendix D

The Positive Affective and Negative Affective Schedule (PANAS)

Code:_____

The Positive Affective and Negative Affective Schedule (PANAS)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you feel this way at this moment. Use the following scale to record your answers.

(1) = Very slightly or not at all (2) = A little (3) = Moderately (4) = Quite a bit (5) = Extremely

	Very slightly or not at all	**A little**	**Moderately**	**Quite a bit**	**Extremely**
1. Interested	1	2	3	4	5
2. Distressed	1	2	3	4	5
3. Excited	1	2	3	4	5
4. Upset	1	2	3	4	5
5. Strong	1	2	3	4	5
6. Guilty	1	2	3	4	5
7. Scared	1	2	3	4	5
8. Hostile	1	2	3	4	5
9. Enthusiastic	1	2	3	4	5
10. Proud	1	2	3	4	5
11. Irritable	1	2	3	4	5
12. Alert	1	2	3	4	5
13. Ashamed	1	2	3	4	5
14. Inspired	1	2	3	4	5
15. Nervous	1	2	3	4	5
16. Determined	1	2	3	4	5
17. Attentive	1	2	3	4	5
18. Jittery	1	2	3	4	5
19. Active	1	2	3	4	5
20. Afraid	1	2	3	4	5

Appendix E

The Patient Health Questionnaire (PHQ-9)

Code:_____

The Patient Health Questionnaire (PHQ-9)

Instructions: Over the last 2 weeks, how often have you been bothered by any of the following problems?

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

add columns _____ + _____ + _____

TOTAL: _____

10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all _____ Somewhat difficult _____ Very difficult _____ Extremely difficult _____

Appendix F

The Multidimensional Scale of Perceived Social Support (MSPSS)

Code:_____

The Multidimensional Scale of Perceived Social Support (MSPSS)

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 G

Puzzle Tracker

Code: _____

Puzzle Tracker

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Sudoku																													
Sudoku 6X6																													
Sudoku for Kids																													
Jigsawdoku																													
Kakuru																													
Jigsaw																													
Sliding																													
Word Search																													

Appendix H

The Multidimensional Scale of Perceived Social Support—Family Specific

(MSPSS-FAS)

Code:_____EG

The Multidimensional Scale of Perceived Social Support – Family Specific

(MSPSS-FAS)

Instructions: Indicate how you feel about each statement based upon your Facebook interactions with your identified individual.

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. This family member really tries to help me.	1	2	3	4	5	6	7
2. I get the emotional help and support I need from this family member.	1	2	3	4	5	6	7
3. I can talk about my problems with this family member.	1	2	3	4	5	6	7
4. This family member is willing to help me make decisions.	1	2	3	4	5	6	7

Appendix I

The Multidimensional Scale of Perceived Social Support—Friend Specific (MSPSS-FRS)

Code:_____EG

The Multidimensional Scale of Perceived Social Support – Friend Specific

(MSPSS-FRS)

Instructions: Indicate how you feel about each statement based upon your Facebook interactions with your identified individual.

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. This friend really tries to help me.	1	2	3	4	5	6	7
2. I can count on this friend when things go wrong.	1	2	3	4	5	6	7
3. This friend is one with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
4. I can talk about my problems with this friend.	1	2	3	4	5	6	7

Appendix J

The Multidimensional Scale of Perceived Social Support—Significant Other Specific (MSPSS-SOS)

Code:_____EG

The Multidimensional Scale of Perceived Social Support – Significant Other Specific

(MSPSS-SOS)

Instructions: Indicate how you feel about each statement based upon your Facebook interactions with your identified individual.

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. This is a special person who is around when I am in need.	1	2	3	4	5	6	7
2. This is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3. This is a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
4. This is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7

Appendix K

Post-Questionnaire

Code:_____EG

Post-Questionnaire

1. How many friends responded to your Facebook post? _____

2. How many likes did you get on your post? _____

3. How many total comments did you get on your post (please include your responses, and include each comment made even if it were made by the same person)? _____

4. In what way(s) did you choose to interact with your Facebook friends that had responded to your post? (circle all that apply)

posts on your wall or timeline posts on their wall or timeline

email chat

other: _____

5. Did you tag anyone in your post? Yes No

If "Yes," did they respond? Yes No

6. Did you initiate interaction with any of your friends surrounding your Facebook post?

Yes No

If "Yes," please describe.