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Who Wants to Join? Variation and Strength in Social Networks

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Who Wants to Join? Variation and Strength in Social Networks

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Abstract

The main hypothesis of the present study was that more variation in an emerging adult's social network should predict higher levels of happiness and lower levels of stress. It was also predicted that introversion–extraversion would moderate these relationships. Participants were 318 college students from two small, Catholic liberal arts institutions in the Upper Midwest. The variation (i.e., friends with varied interests and activities) of an individual's social network was measured by a researcher-developed inventory (Social Network Variation Scale; SNVS). Social network strength was measured by the researcher-developed Social Network Strength Scale (SNSS). Results showed strong support for nine of ten hypotheses. People with more variation in their social network had higher levels of happiness and lower levels of stress. Similarly, people with more close or strong friends in their social network had higher levels of happiness and lower levels of stress. Autonomy mediates the relationships between variation and stress and strength and stress. Personality moderates the relationships between variation and happiness and variation and stress. These results suggest that college students might benefit from focusing time and energy on building relationships with individuals who have a variety of interests.

Keywords: emerging adulthood, social network, friendship, variation, strength, happiness, stress

Who Wants to Join? Variation and Strength in Social Networks

College students differ greatly in the nature of their college experiences. Some attend large schools; some attend small schools; some are involved in extracurricular sports or activities, and some are not; some choose to live on campus and some off campus. Although there seem to be infinite possibilities regarding what characterizes an individual's college experience, one aspect of college life is universal: the need for social support. The purpose of the present study was to investigate a neglected dimension of social networks, namely, the variety of interests and activities within a college student's social network. A person with little variation in their social network would associate exclusively with a certain type of individual such as academically focused students or people interested in online gaming. In contrast, a person with high levels of variation in their network would associate with individuals having a broad range of interests, which should give them a sense of autonomy because they have more freedom to engage in a variety of activities. The main hypothesis of the present study is that greater variation of interests and activities within a social network will be associated with greater happiness and less stress.

The following literature review will be divided into 11 sections, each examining a different aspect of relevant research. Included will be Context of Discovery, Emerging Adulthood, Social Support, Granovetter's Conception of Strong and Weak Ties, Introversion–Extraversion, Characteristics of Variation in Interests and Activities, The Measurement of Friendship Variation, Autonomy and Self-Determination, and Summary and Conclusion. The literature review will be followed by a detailed description of the study.

Context of Discovery

My interest in how social networks relate to happiness began when I observed that college students seem to have a broader sense of freedom when they have a wide variety of friends because they have more opportunities to take part in a variety of activities (i.e., autonomy). For example, I believe I have an exceptionally widespread and assorted social network: Friends who (a) like to have fun on the weekends, but may not take academics seriously; (b) like to study in the library, but do not get out as much; (c) like to hang out and talk; (d) like to play sports; (e) like to participate in other recreational hobbies and activities of interest like fishing and skiing; (f) like to go to academic or other school-related events; (g) like to study; (h) are willing to talk about emotional issues, and so on. Note that different friends can take part in multiple of the above activities (e.g., an athlete can also like to study in the library and go fishing). In short, having friends with a wide variety of interests and activities seems to provide freedom and opportunity to take part in a broad range of activities and enjoy the enrichment of different perspectives. Thus, I inferred that individuals with varied social networks would be less likely to be constrained to one type of activity because they will have someone they can call upon who will participate in whatever they want to do. College can be a time of social isolation for some, and people would be more likely to feel that way if they do not have a varied network of social connections.

I did not believe my observations were unique to my personal life; I thought they could be pertinent to the lives of college students in general. Having a variety of strong and weak social connections opens multiple possibilities for social interaction, and activities serve as a gateway to maximizing the personal and emotional rewards available in college. Based on my belief that

everyone can benefit from being part of a varied social network, I reviewed previous research to determine what others had to say about this topic.

Emerging Adulthood

Most young people in industrialized countries experience a profound and important transformation during the years from late teens to early twenties (Arnett, 2000). Arnett defines this period as *emerging adulthood*, which is distinct from both adolescence and adulthood. More specifically, the term describes young adults who do not have children, do not own a private home, and do not earn adequate income to become fully self-sufficient. Emerging adulthood is a developmental stage between 18 and 25 years of age, where individuals exit adolescence; become increasingly independent; and examine a wide range of potential life directions, ideology, and worldviews. Yet, these individuals have not attained the full independence that characterizes adulthood (Arnett, 2000). There may not be a distinct cutoff age from adolescence to adulthood because most of the criteria for reaching adulthood are gradual, intangible changes or qualities (e.g., Hendry & Kloep, 2015).

Leaving the dependency of youth and adolescence and having yet to enter the ceaseless responsibilities characteristic of adulthood, emerging adults often explore an assortment of conceivable life directions in love, work, and worldviews (Arnett, 2000). People leave for college, enter the workforce, and make life decisions of immense importance for their lives, but do not consider themselves fully independent of their parents or as full adults either (Arnett, 2000). The present study will focus on emerging adults in college who are making many important transitions, including establishing the nature of their friendship and social networks. It seems conceivable that they would need to rely on a social network that can provide a wide variety of feedback and advice.

Emerging adulthood has the potential to be associated with a great deal of stress, especially for college students. Nearly 70 percent of emerging adults in the United States go to college (U. S. Department of Labor, 2016) where they experience a broad range of potential stressors, such as academic issues, uncertainty about the future, difficulties in interpersonal relationships, dating problems, self-doubt, family issues, and so on. College students also transition from a period of strong adult supervision to greater freedom than in their previous years (Lefkowitz, 2005). Homesickness, a sense of isolation, and increased interpersonal conflict can also occur in college (Buote, Buote, Pancer, Pratt, Adams, Birnie-Lefcovitch, Polivy, and Wintre, 2007). The importance of varied support seems particularly important during the critical developmental period of emerging adulthood. The present study also examines variation in the context of autonomy.

Blakemore and Mills (2014) propose that adolescence and emerging adulthood may be critical periods for sociocultural processing (i.e., navigating the social environment through a period of biological and interpersonal transition). Such a process demands autonomy to be able to pursue a broad variety of interests and activities with friends. Large numbers of emerging adults congregate on college campuses to work toward a goal, and naturally, the opportunity for social connection is ideal. Thus, it is a time to adapt to the social nature of people having a broad variety of backgrounds, with an opportunity to develop a broad variety of social network ties. It is also helpful to have a varied social network so the individual can obtain a variety of perspectives on issues encountered in emerging adulthood.

Social network strength is also a dimension of social networks. Krackhardt (1992) argues that healthy, supportive friendships (i.e., strong ties) may be valuable in preventing psychological disorders because they reduce stress. Because of the subjective nature of stress,

strong social network ties should be able to empathize and provide support because they are close to the individual and should understand his or her life on a deeper level (Krackhardt, 1992).

Friendship networks are particularly important in emerging adulthood. Positive social support is as important in the lives of college students as soil is to flowers. Martin and Smyer (1990) found that when adults consider the most important events in their lives, they most often name events that took place between age 18 and their mid-twenties; most people have made decisions with enormous life-long ramifications by that point. Lindsey, Reed, Lyons, Hendricks, Mead, and Butler (2011) found that the top stressor in college is making important educational decisions that have huge implications for the future.

I believe that to help with such stressors and responsibilities, college students need a strong and varied social network that is available throughout the journey of emerging adulthood. For reviews of why much of one's social network needs to be geographically accessible, see Caldwell and Bloom (1982) and Markiewicz, Lawford, Doyle, and Haggart, (2006). For example, Ahmed and Brumbaugh (2014) asked college undergraduates to complete a series of questionnaires regarding adult attachment, their closest friends, themselves, and their relationships. They were then given surprise memory tests based on real people (i.e., people in their lives) or false target profiles (i.e., imaginary people) generated from their questionnaire responses. Incorrectly recalled information about imaginary people that was true of real people in their lives indicated that emerging adults used familiar friend representations unconsciously when forming impressions of new people. In other words, friends influence how people see the world. I assert that without a strong group of friends with varied interests and activities, emerging adults may feel alone and stressed on the journey of exploring different morals, perspectives, life directions, self-image, and personal goals. Furthermore, Ahmed and

Brumbaugh found that students with narrow, one-dimensional social networks (e.g., friends who focus on gaming) are more likely to have unresolved stress because they lack the social resources necessary to talk about issues outside the narrow interests that define their social network. These findings support my hypothesis, and I further posit that wider and more varied social networks should lead to higher levels of happiness.

College students with low social support may have a difficult time buffering against stress and may be more vulnerable to its detrimental effects (Chao, 2012). My hypothesis asserts that variation in interests and activities is critically important because if people become stressed because of a certain sector of their social network, they will need people outside that network to provide support. Secure relationships predict a higher capacity for intimacy, which may lead to a continuing cycle of snowballing social support. In a comprehensive study Scharf, Mayseless, and Kivenson-Baron (2004) male emerging adults were asked to complete the Adult Attachment Interview during their senior year in high school. A year later, they reported adjustment to mandatory military service. Three years after that, participants commented on their capacity for intimacy. Consistent with my hypothesis, results showed that secure attachments in social networks helped shape participants' developmental paths: a bridge to happiness in emerging adulthood. Also consistent with my hypothesis, perceived autonomy was related to improved coping with basic training and a higher capacity for mature intimacy; relationships help in the coping process. Varied attachments of different degrees should facilitate the process of finding one's place in the world through exposure to an array of different perspectives. Thus, the present study hypothesizes that a greater variety of secure attachments in an emerging adult's social network will facilitate adjustment.

New and ongoing relationships are particularly important during emerging adulthood. Ahmed and Brumbaugh (2014) found that emerging adults rely increasingly on friends rather than parents to fulfill their attachment needs. Because of that transition, the nature of their friendships helps shape how their perspective and general well-being develop in emerging adulthood. Close friendships provide opportunities for self-disclosure and validation of one's morals and beliefs (Markiewicz et al., 2006). These authors elaborate that more intimate topics such as social acceptance and sexuality are more likely to be discussed among peers rather than with parents. Intuitively, a varied network of friends should provide such attachment and belonging in a variety of areas of college life, providing a sense of perceived autonomy to participate in any activity of choice and obtain support for a variety of problems. This would, in turn, be associated with decreased stress and increased happiness.

In sum, college students across the United States take on new challenges, which is a powerful source of stress. The decisions emerging adults make in college have lifelong ramifications. Leaving the dependency of youth and adolescence marks a period where emerging adults are pushed to find new sources of social support that are present and readily available: friends. My argument is that college students need variation in interests and activities within their social network to give different perspectives and angles of support for different kinds of stress and to provide a sense of autonomy to navigate the college landscape by participating in activities they choose. Emerging adults need to explore an assortment of possible directions in work, education, social life, love, and worldview. A varied social network should help people explore different possibilities. Social networks provide opportunities for self-disclosure, validation of morals and beliefs, and a general zone of mutual comfort for people in times of

transition. A heterogeneous network should allow for numerous angles, perspectives, and autonomy, leading to an environment conducive to overall growth and happiness.

Social Support

Social support is a central concept of psychology that encompasses helping transactions between connected people (e.g., school, church, family, friendship network, etc.). The basic thesis of the present paper is that varied social networks provide better opportunities to obtain social support. Benefits derived from social support can be tangible and intangible. It is important both in times of emergency and in everyday scenarios. In times of elation and despair, humans look to their social networks for social support (Barrera, 2000). Social support has also been linked to well-being through social ties (Cowen, 1994); having close, confiding, reciprocal relationships has been linked to higher levels of social support and greater life satisfaction (Barrera, 2000).

House, Umberson, and Landis (1988) concluded upon their extensive review of the social support literature that the evidence of the health benefits of social support were convincing and highly indicative of a causal effect — as strong as smoking’s link to cancer. Barrera similarly asserted that social support is one of many constructs that can characterize a linkage between members of a social network. Social support is just one of the characteristics such as network size, density, and reciprocity that help quantify social network analysis (d’Abbs, 1982). The present study seeks to add variation to the list.

Hrabowski, Maton, and Greif (1998) found that peer support during the first year of college was the most important factor in commitment to college because peers are readily available on campus. Variation in interests and activities within a social network means one may receive social support from a variety of people, all offering different perspectives and

opportunities to participate in different activities. Previous research supports the relationship of social support to well-being. Ni, Yang, Zhang, and Dong (2015) found that social support mediates the relationship between gratitude and loneliness in Chinese college students. Using students from six institutions who completed three psychometric scales — the Gratitude Questionnaire-6, the UCLA Loneliness Scale (version 3), and the Social Support Rating Scale — both gratitude and social support offered protective effects against loneliness. Further, they found that social support mediated the relationship between gratitude and loneliness. The present study seeks to obtain similar results, but with the added twist of investigating *variation of interests and activities* within the social network.

Multidimensionality refers to relationships where one friend serves a variety of purposes in a social network (Kloos, Hill, Thomas, Wandersman, Elias, & Dalton, 2012). For example, a relationship with a roommate who shares one's class, club, and sports team would be multidimensional. Unidimensional relationships, on the other hand, are restricted to just one role. Because people who share a multidimensional relationship see each other more frequently in a variety of contexts, forming and deepening friendships tends to be easier (Kloos et al., 2012). The present study hypothesizes that multidimensional relationships are beneficial, especially if they involve various people with a variety of interests and activities. Multidimensionality of social network relationships in this study will be measured by a researcher-developed inventory.

Hirsch (1981) found that social networks high in density (i.e., when many ties exist between network members, or when most network members are friends with each other) may provide consensus on norms and advice, but lower-density networks usually include a greater variety of people with a larger variety of skills, life experiences, interests, and activities. This finding supports my hypothesis, what I will now call the *social network variation hypothesis*,

because having a lower-density network would give people the autonomy to put themselves in numerous different situations. Therefore, a greater variety of people may offer a greater variety of resources needed in college. Too much density may constrain the development of personal identity, adaptation to different situations, activities, and autonomy (Hirsch, 1981). Having too much strength at the expense of variation should not be conducive to high levels of happiness.

Using their own scale and the Chinese version of the Center for Epidemiological Studies Depression Scale, Chan and Lee (2006) measured social network size by the total number of people with whom the participant had discussed important matters in the previous six months. They discovered that network size is an effective way to predict happiness, with larger networks predicting greater happiness. On the other hand, Demir and Weitekamp (2007) determined that friendship *quality* was the best predictor of happiness. Because it is unclear which dimensions of friendship most relate to happiness, the present study investigates a new variable: variation in interests and activities within a social network, or social network variation, using a researcher-developed instrument, labeled the Social Support Variation Scale (SNVS).

If such variation is present, one may have the opportunity to gain the benefits of both network size (because they will have friends from numerous dimensions of the institution) and quality of friendships (because they will have close and unique bonds with numerous individuals).

Barrera and Ainaly (1983) proposed four factors or components of social support: directive guidance (advice), nondirective support (emotional support), positive social interaction, and tangible assistance (material aid and physical assistance). Social networks with varying interests and activities may be better able to provide each of these factors, contributing to a greater and more supportive network. For example, a close friend one knows from class may be

able to provide directive guidance regarding graduate school; a close (or best) friend may be able to provide nondirective support in difficult times; a sports team member may be able to provide positive social interaction; and a roommate may be able to provide material aid or physical assistance during times of sickness. Broadly speaking, variation in interests and activities in a social support group may lead one to be acquainted with different people who can provide different kinds of support. For that reason, it is predicted that the current study will show a strong negative relationship between the amount of social network variation and stress.

Social support has been shown to be critical in times of tragedy (e.g., Zwiebach, Rhodes, & Roemer, 2010). However, it has also been shown to help prevent stress in the first place (House, 1981). This community psychology perspective is important to emerging adults in college because of the nature of their lives. They are thrust into novel environments and face a multitude of difficult and important decisions (Arnett, 2000). For example, a student who does not get the grade he or she wants in a class may be devastated by the event with no reassurance from others about their intellectual abilities. Conversely, the same incident may be appraised as disappointing, but not tragic, for a student who has a social network providing reaffirmation of intellectual worth. A social network that consists only of individuals who are not interested in academics or believe earning low grades is acceptable or “cool” may not provide the reaffirmation of intellectual worth. Accordingly, emerging adults may benefit from a social network with a variety of interests and activities. Moreover, they can participate in different activities with certain friends, and lead an academic life with others.

To summarize, a social network is not just part of one’s life; in a sense, it *is* their life. It is where one goes for support in times of elation, despair, confusion, and for everyday fun. Because of the nature of social networks, it is critical that emerging adults have adequate variation of

interests and activities within that network. Variation can provide autonomy because one should have numerous people to contact for participation in a broad variety of activities, and it may act as a buffer against stress because one can seek support from people with diverse perspectives and gain abundant angles of advice. Additionally, one can seek support to cope with stress in one part of the network and engage in a recreational activity with another part. Having varied sorts of people in a network provides refuge from different sources of stress stemming from different causes. However, there is no perfect model for the ideal social network because people differ on innumerable dimensions — for example, the personality dimension of introversion–extraversion. This issue will be discussed later.

Granovetter's Conception of Strong and Weak Ties

Not all friends provide the same degree of benefit. Rather, people have friends of varying degrees, all adding something different to a social network. Granovetter (1983), writing from a sociological perspective, argues that people have both strong and weak ties in their social networks. He asserts that weak ties are less socially involved than strong ties. In other words, people have acquaintances they see individually or in their own small groups, but they are not integrated into their network of stronger ties (i.e., close friends). Wellman (1998) conceptualizes a strong tie using three related characteristics: (a) a sense of the relationship being intimate and special, with a voluntary investment in the tie and a desire for companionship with the tie partner; (b) an interest in being together as much as possible through interactions in multiple social contexts over a long period; and (c) a sense of mutuality in the relationship, with the partner's needs known and supported. Weaker ties typically do not know one another's weak ties, and people will not typically have as much contact with them. Weak ties may account for lots of variation in interests and activities in a social network. Still, weak ties are likely to have

close friends of their own, and therefore are enmeshed in a closely-knit clump of social structure (Granovetter, 1983). That concept is useful in the sense that the clump of social structure is different from the person's own, possibly providing one with further opportunity to pursue additional interests and activities.

Granovetter (1983) found that people with few weak ties are deprived of information from distant parts of the social system; they do not get as many different perspectives. If someone had a more varied social network, they may be exposed to different viewpoints and angles on various issues, as well as opportunity to participate in more activities. For an excellent review of why close (multidimensional) friendships may buffer against delinquency and crime, and why positivity is viewed as the norm in American culture so much that small amounts of negativity may lead people to ruminate on otherwise trivial matters, see McElhaney, Immele, Smith, and Allen (2006). The same authors further propose that more distant friends (i.e., weak ties) are not sufficient to serve as a buffer against delinquency and inspire happiness. Thus, variation in interests and activities may not be the only aspects of social support that promote happiness; it appears that people need strong ties or close friendships too.

Taking advantage of opportunities for networking both on a personal and professional level may be the first step in growing a personal social network. For example, simply making an effort to initiate conversations with people may increase subjective happiness. Even if they are weak ties, regular interaction should improve daily life. Epley and Schroeder (2014) instructed participants to connect with strangers near them, avoid connection with strangers near them, or do as they normally would on trains or busses. In both environments, participants reported a more positive (and no less productive) experience on their commute when they connected than when they did not. It seemed that commuters had a mistaken preference for solitude, potentially

because they underestimated others' interest in communication. Human beings are social animals who need social connection for their own well-being. Thus, the power of both strong *and* weak social ties to enhance well-being should not be underestimated. The implication for the present study is that variation in interests and activities within a social network may be a key to happiness. People have regular friends with whom they are close; however, variation in the strength of ties should also have a significant influence on happiness. Weaker social ties that broaden one's personal network can be associated with greater happiness. Thus, strong versus weak ties is another dimension of social network variation.

A person's strong ties may have greater motivation to provide support and are typically more readily available, according to Krackhardt (1992), who concurs for the most part with Granovetter's research but argues that Granovetter leaves out a critical aspect of friendships: the affect level within a group of strong ties, which he argues cannot be ignored. Frequent interactions that do not have a high level of intimacy are fundamentally different from those that do. Therefore, the dimension of relationship closeness is an important dimension of friendships that differentiates strong and weak ties.

Different types of friends provide different kinds of support in a social network. People need weak ties to provide new information and perspectives and bridge gaps between separate social networks. Strong ties, on the other hand, serve as a more intimate support system. The present study hypothesizes that people with different interests and activities within a social network should further increase happiness through perceived autonomy and new perspectives. Having a varied network of social ties in college, consisting of a healthy mixture of strong and weak ties, should allow one to explore more areas of the college landscape, giving them different perspectives and opportunities for personal growth and happiness.

Introversion–Extraversion

There is no one-size-fits-all description of the optimal social network. Russell, Booth, Reed, and Laughlin (1997) determined that extraversion appears to influence both network formation and maintenance. Extraverts reported having more support, more frequent interactions, and more people in their social network. Thus, introverts may have different preferences in social networks than extraverts. Introverts may not prefer to be around a variety of people (Larsen & Buss, 2014, p. 438). Thus, introversion–extraversion will be accounted for in the present study.

Many confuse the constructs of shyness and introversion. Shy people are not introverts by nature; the terms are not interchangeable (Cheek, 1989). Introverts prefer to spend time alone reading, gaming, relaxing in solitude, and so on. They tend to have a small number of very close friends, sticking to an organized, predictable lifestyle (Larsen & Kasimatis, 1990). Introverts prefer to be alone in the amity of their own solitude. Shy people, in contrast, desire to be socially integrated and have friendships, but are restricted by their own self-doubt handicaps (Henderson & Zimbardo, 2001). Introverts are not restricted by social anxiety; rather, they *prefer* to be by themselves. It should be noted that Asendorph and van Aken (2002) found that neuroticism and low extraversion correlated with social inhibition. Thus, people high in neuroticism and low in extraversion may avoid social interaction, albeit possibly for different reasons than shy individuals.

Introverts are different even on a physiological level. Eysenck (1967) asserted that introverts have higher levels of activity in the brain's ascending reticular activating system (ARAS) than extraverts. Introverts are thought to have higher resting levels of cortical arousal because their ARAS lets in higher amounts of stimulation. Introverts engage in solitary activities (e.g., low-stimulation settings such as libraries) to lower their arousal to optimal levels. On the

other hand, extraverts have suboptimal resting level of arousal, so they seek out stimulation from the environment (e.g., social interaction or sensation-seeking activities such as extreme sports or loud parties) (Claridge, Donald, & Birchall, 1981). The general tendency of introverts to be more easily overaroused than extraverts is what ultimately leads them to seek out more restrained, inhibited situations. They may feel a sense of relief after being overaroused at a large party because the gathering heightened their already overaroused state; in short, introverts do not seek out extra stimulation because they want to maintain their already-optimal level of arousal (Matthews & Gilliland, 1999).

Consequently, introverts may not desire a social network with varying interests and activities. They may not want to go out, attend crowded athletic events, or try new things. Rather, they may prefer to stick to certain types of activities with certain people because of their baseline arousal levels. They may even prefer to be with no one at all. Introverts draw energy from their own inner world and a limited social network of close friends, so having too varied a social network may be stressful for them. Thus, introversion–extroversion may be an important moderator of the relationships among variation in social networks, happiness, and stress.

The Characteristics of Variation in Interests and Activities

There is little research on the impact of variation in interests and activities in social networks. However, Granovetter (1983) argued that a good mix of stronger and weaker ties (i.e., closer, personal friends and more distant, professional-type acquaintances) is part of what makes a person's social network successful and rewarding. Additionally, weaker ties should help provide a bridge between individual social networks. College is a time of profound change and adjustment, so varied social networks are especially important for autonomy and stress-buffering purposes. Relationships in college provide a channel for assessing meaning of self and reality,

and they are an important component for individuals in satisfying deep personal and emotional needs (Alemán, 2010; Hendrickson, Rosen, & Aune, 2011). If relationships are homogeneous, a college student's experience may be homogeneous; if they are varied, college students may be exposed to more varied interests and viewpoints. Real, physically present social support is critical to satisfy emotional needs; thus, online friends are not considered in this study. Positivity, large networks, and varied activities lead to increasing opportunities for more and more varied friends and possibilities (Merrit & Snyder, 2015), and that has a positive effect on overall happiness and reduces social isolation (Alcott, 2007). The benefits different kinds of people can bring to a social network abound, thus forming the basis of the social network variation hypothesis: Variation in social networks should be positively correlated with happiness.

The premise of the study is that it feels good to have friends one can call on to participate in a variety of activities. If an individual likes to go hunting and fishing, she probably has a small group of people to participate with. But what if she wants to get coffee or go to a concert? Will she have someone with whom to go? She will probably not go to a concert by herself; accordingly, she will be happier if she feels she has a friend who can join her. Especially in emerging adulthood, there is an abundance of activities and possibilities to explore. Thus, people need friends with whom to share the experience. Because people with higher levels of variation in their social network are more likely to be able to do whatever they want whenever they desire, they are happier people in general. This is the basis of the social network variation hypothesis.

The present study will investigate social networks as a whole. As previously stated, multidimensional relationships involve individuals who participate in more than one activity with each other (e.g., a teammate with whom one also goes fishing), and a unidimensional relationship involves engaging in only one joint activity (Hirsch, 1981). Hirsch further defines

high network density as a condition where there are numerous mutual friendships within a social network, and low network density as a condition where individuals within one's social network do not know each other as well. Hirsch's (1981) study on social networks consisted of two studies.

The first study investigated the importance of density and multidimensionality of support among college students in a time of environmental stress (i.e., final exams). Density was measured with a self-report questionnaire, and multidimensionality was measured by a series of interviews over the course of 27 days. Results showed that students in low-density, as opposed to high-density, networks were more satisfied with the support they received, potentially because support from one part of the network may ameliorate stress from other parts of the network. High-density networks include people who are all interconnected, so it is difficult to get away from one facet of the network because everyone talks with each other. Low-density networks, on the other hand, are networks with more separated connections where one may seek refuge from another part of their network. Additionally, recipients received the benefit of varied feedback and other different perspectives through low-density networks; people were different and less likely to know each other, so they were more likely to have different viewpoints. This is consistent with the social network variation hypothesis because participation in a wide variety of activities should allow for different perspectives and types of support. Hirsch (1981) also found that students' satisfaction with their multidimensional relationships was the most significant predictor of overall satisfaction with their social network because they fostered emotional growth and mutual trust. This, too, is consistent with the social network variation hypothesis because it posits that variation in interests and activities includes variation in strength. One needs a few multidimensional relationships (i.e., strong ties) to provide stimulating companionship, help,

intimacy, emotional security, and so on. In sum, low-density and multidimensional friendships favored the most varied interactions and role complexity, which are important in times of life change. Results of that study led to a second study of women in stressful situations (widowed and mature women aged 30 or over) who had recently returned to college full time.

In Hirsch's (1981) second study, a series of questionnaires indicated that higher satisfaction with cognitive guidance was associated with improved mood and less symptomatology. Higher self-esteem was related to greater satisfaction with socializing experiences. No other relationship was significant. Results showed that networks with fewer relationships among one's children and friends were related to significantly fewer symptoms, improved mood, and greater self-esteem, which supports the network variation hypothesis. Widows needed support other than from their children to cope with the death of their spouse. They already had strong ties with their children, so different perspectives outside of the family sphere helped widows cope with the life change. People are sure to have disagreements with their close friends; if one has only a single group of friends, no outlet is available to provide support or refuge from stress in one facet of the social network, or varied perspectives on other forms of stress. One may be trapped in stress without a varied social network that allows for autonomy. Based on interviews similar to those of the first study, multidimensionality was related to increased self-esteem and satisfying social support. The second study showed large networks of people who may not know each other were associated with the greatest satisfaction with social support. Again, these findings support the social network variation hypothesis because those with high social network variation should have access to different types of guidance, leading to a higher likelihood that the recipient will be satisfied.

Morin and Seidman (1986) obtained similar results with schizophrenic patients. They replicated Hirsch's (1981) finding that people with social networks outside of their families had better outcomes. Additionally, they found that low-density networks provide more opportunities for refuge in one facet of a social network from another area in that network with which one has conflict or disagreement. Stated more simply, one is more likely to have others on whom to rely when a segment of one's social network is in conflict. That prevents one from feeling socially isolated in stressful times because there is less dependency on any one network segment. In other words, there are alternative areas of the social network able to provide the needed support.

The present study differs from that of Hirsch (1981) on multiple dimensions. First, Hirsch measured college students under environmentally-induced stress over a period of 27 days. The present study is not interested solely in stressful situations; it investigates the daily lives of college students as measured in a one-shot study. Social network variation is hypothesized to be a fundamental correlate of happiness, so it must be accounted for in all situations. Second, the present study is interested not only in the stress-buffering and coping effects of social support, but also the freedom or autonomy associated with having a varied network. Autonomy to participate in a variety of activities should help buffer against stress in the first place through the ability to navigate the college landscape more flexibly. Third, the measurements are radically different. Hirsch conducted a series of interviews and used the Daily Interaction Rating Form (DIRF) to measure network density and diversity, whereas the present study measures variation, breadth, dimensionality, and strength of an individual's social network using researcher-developed inventories. Fourth, Hirsch did not consider introversion–extraversion. Introverted individuals may be more comfortable with a smaller social network with high density and

multidimensionality (i.e., a friendship that involves engaging in at least two different kinds of important activities).

The Premise of Friendship Variation

Friendships in college provide a channel for assessing meaning of self and reality, providing an avenue for the experience of different perspectives and viewpoints, and an opportunity for growing through interdependency (Alemán, 2010; Hendrickson et al., 2011). They may lead to self-determination and affirmation, validate self-knowledge, confirm assumptions, and assist effectively in navigating the college landscape (Alemán, 2010). Further, people tend to have higher levels of life satisfaction when they have friends who are close to them in proximity (McKee, Harrison, & Lee, 1999). Emerging adults often lose immediate access to support from their parents and hometown friends when they move to college, so they need to make friends on their college campus. However, having a homogenous network may hinder one's ability to participate in a variety of activities and blind one to other perspectives. Thus, a varied social network should provide numerous angles from which to approach and resolve issues, leading to a greater capacity for growth through interdependency, less stress, and increased happiness. More simply, social networks with higher variation in interests and activities should be positively correlated with happiness — the social network variation hypothesis.

People tend to feel comfortable around individuals like themselves. That may be a significant reason homogeneous groups are commonly seen around campus. Although friendships with similar (i.e., from their academic major) people may help alleviate stress and raise self-esteem, such friendships may have negative consequences for more overarching happiness (Hendrickson et al., 2011) because the lack of variation, may create a monoculture of

thinking. People may feel comfortable with the people they are around the most, but that may restrict opportunities to branch out and explore more of what is available interpersonally (e.g., social events and other activities) and intrapersonally (e.g., perspective taking). Granovetter (1983) theorizes that weak ties should facilitate movement across different social groups and settings, leading to more activities and perspectives. Taking that into consideration, the present study posits that having a variety of weaker and stronger ties with varied interests and activities should lead to a broader perspective on life as a whole; an absence of weak ties would restrict information only to a single circle, thus creating the aforementioned monoculture. Hendrickson et al. (2011) investigated international students studying abroad in Hawai'i and found that they benefited from having connections with host-country students. The present study differs in that it seeks to find the correlates of variation in interests and activities within a social network in a sample of emerging adults.

Kim (2001) stated that connections with host nationals are important for the adjustment process of international students due in part to their purpose as sources of information of the host culture's communication patterns. Those ties give people access to networks with which they would not otherwise be affiliated, offer information and resources they could not gain from strong ties or co-national friends, and may even give more autonomy to participate in different activities with people who are interested in them. Hendrickson et al. (2011) conclude that students studying abroad in the U.S. benefit from making connections with students from the host country, which allows individuals to feel more socially connected, leading to higher satisfaction and happiness. The present study seeks to test those findings in traditional U.S. college students. It is evident that emerging adults need the same kind of varied social networks that international students do. Grounded in previous research, varied social networks provide a

basis for navigating new social worlds. For a review of how interpersonal behaviors are developed and other potential benefits of variation in interests and activities within a social network, see Lee, Draper, and Lee (2001). For a review of academic success, see Glass and Westmont (2013).

The present study does not consider friends on social media such as Facebook because they are not necessarily readily available and present in individuals' everyday lives. However, some (e.g., Manago, Taylor, & Greenfield, 2012; Miczo, Mariani, & Donahue, 2011) argue that social media are beneficial in that they facilitate emotional disclosure, which is the key feature of intimacy, through status updates and so on. For review of other factors regarding computer-mediated communication, see Miczo et al. (2011), Ledbetter (2008), and Reich, Subrahmanyam, and Espinoza, (2012). However, the majority (e.g., Heeks, 2012; Ye & Lin, 2015), agree that face-to-face, physical friendships increase subjective well-being (SWB), and virtual friendships may actually have a negative effect on subjective well-being. Thus, the present study will not attempt to include the impact of online relationships.

Granovetter (1973) suggests that strong ties are similar in interests, personality, and so on, as well as mutually connected on an emotional level, so the information shared in the friendship tends to be redundant. Weak ties may need to be integrated into a social network because strong ties tend to be closer, more similar friends. Thus, it is hypothesized that a variety of both strong and weak ties should provide different perspectives because they are likely to have had different life experiences. Additionally, weaker ties provide refuge from stress among stronger ties, and vice versa. A variety of ties is more essential for innovation, bridging parts of the social system, and providing new information, perspectives, and possible new activities. Having a variety of perspectives may add valuable information to one's worldview. Having

mostly very close friends or more distant acquaintances is not as healthy. The present study investigates the ramifications of having variation in strength of ties in one's social network.

Autonomy and Self-Determination

With the increasing importance of positive psychology (Lomas, Hefferon, & Lomas, 2015), it is established that happiness is connected to numerous benefits, including increased mental and physical health (Lyubomirsky, Sheldon, & Schkade, 2005). Among the potential determinants of happiness, social relations appear to be a strong indicator, according to Westaway, Olorunju, and Rai (2007), who measured seven independent variables (oneself, family life, friends, time to do things, neighbors, social life, and health). Satisfaction with other people was a major determinant of happiness in all races. Consistent with my hypothesis, previous research (e.g., Lin-Chu et al., 2014; Madanagopal & Thenmozhi, 2015) has supported the notion that one must have a perceived sense of autonomy to be satisfied. Madanagopal and Thenmozhi (2015) found that higher levels of job autonomy were related to higher levels of satisfaction. Those with low degrees of interest variation may have a limit on autonomy because one may feel like one must do what the group wants to do. In contrast, the current study hypothesizes that freedom to participate in a variety of activities at will should relate to higher overall happiness. This may be related to a work setting that limits autonomy: restraints on autonomy relate to lower job satisfaction, so restraints on autonomy in social networks may relate to lower satisfaction with people in a social network.

Self-determination (i.e., the feeling that one is competent to bring about desired outcomes) is a critical factor in psychological health (Bandura, 1963). Conversely, feeling that behavior and goals are not necessarily attainable through personal competence may lead to a pervasive sense of helplessness (Abramson, Metalsky, & Alloy, 1989), which may inhibit

happiness. Without people to assist in reaching goals, whether internal or external, people may become helpless. Social networks should help people with their endeavors, and varied networks are hypothesized to do so the most effectively. Thus, a person with a more varied social network is more likely to be happy and less likely to experience helplessness. Deci and Ryan (1985) argue that people must feel autonomous and self-determined in their daily lives to feel capable, happy, and enjoy the best psychological health. An absence of perceived autonomy in everyday endeavors may lead to negative emotions (Csikszentmihalyi & Figurski, 1982). According to Deci and Ryan (1985), autonomy involves feeling that one's activities and goals are self-chosen and are concordant with intrinsic interests and values. Freedom to participate, attend, or be involved with anything of choice is thought to be related to happiness; a variety of friends means a variety of interests, so people should be able to take part in more varied activities if they have different people with whom to do so, leading to the highest levels of happiness. Being confined to a restricted range of activities and interests should lead to more distress.

Using the Self-Determination Scale as a measure of autonomy, Sheldon, Ryan, and Reis (1996) found support for the notion that autonomy is associated with greater well-being. Well-being was measured each day with a nine-item checklist of four positive and five negative mood adjectives. Participants also completed a seven-item "state" Psychological Vitality Scale. People who rated their days higher on the Self-Determination Scale (autonomy) tended to have better days in general. They also found that people tend to have better days on weekends than weekdays, possibly because people engage in more self-selected (i.e., autonomous) activities on weekends. Because autonomy is so critical to happiness, it will be examined using the Self-Determination Scale (SDS) in the present study.

Having a large network of varied social ties (i.e., positive relations with others) predicts a stronger sense of independence (i.e., autonomy) because the person is not reliant solely on a limited social circle. If some friends wish to engage in an undesired activity, a person with a wider network will have alternative friends and activities from which to choose (Granovetter, 1983). Handley, Inder, Kelly, Attia, Lewin, Fitzgerald, & Kay-Lambkin (2012) supported the notion: high friendship availability (i.e., having people who are physically available) and high sense of belonging in the community were associated with lower risk of suicide, and low friendship availability was associated with increased risk of suicide. Further, transitioning from a close friendship with a high school friend to a close relationship with a college friend mediates adjustment to college (Swenson, Nordstrom, & Hiester, 2008). See Galvin, Boone, BurnSilver, Thornton, Ojima, and Jawson. (2009) for similar findings in physical therapy patients. It seems detrimental to autonomy and happiness if one's social network does not allow a wide range of activities and interests or leaves one consistently isolated. Merritt and Snyder (2015) found that children exposed to large numbers of people and situations are more likely to exhibit normative behaviors and participate in extracurricular activities. Thus, even young children benefit from a varied social network. The present study hypothesizes that being involved in a variety of interests and activities with a variety of people should be positively correlated with happiness.

Varying types of support may lead to autonomy because one is not reliant exclusively on one group of people, which should lead right back to happiness. It seems detrimental to happiness and autonomy if an individual is restricted to a certain range of activities and interests. The importance of variation in interests and activities in social networks is too great to be ignored. Variation in social networks should give emerging adults the framework and

empowerment they need to find their place in society and function as individual and independent people: in other words, the social network variation hypothesis.

So, the present study highlights finding associations between variation in interests and activities in social networks, social network strength, autonomy, happiness, and stress; taking into consideration the preferences of introverts. If the role of social networks is as critical as the research literature suggests, variation in interests and activities should only add more support, possible activities, and perspectives. The present study argues that the positive effects of variation in social networks on stress and happiness may be bidirectional. Correlations among the four measures employed in this study are hypothesized to support that notion.

Summary and Conclusion

Varied social networks provide a wide range of benefits. One person may be useful for professional networking, another may satisfy deep, emotional needs (Granovetter, 1983), and another may participate in a mutual hobby. Living without weaker ties may lead to a deprivation of information from various viewpoints and angles because a network of close ties tends to gravitate toward similar perspectives. Epley and Schroeder (2014) showed that participants who made an effort to speak with strangers on their daily commute showed more positive outcomes than when they did not, suggesting that weaker ties can contribute to happiness. Stronger ties have greater motivation to provide support and are typically more readily available (Krackhardt, 1992). Because the nature of close friendships is fundamentally different from less personal ones, one must also have stronger ties in their social network for more intimate, emotional needs.

For most young people in industrialized countries, the years from late teens to early twenties are of profound transformation and importance (Arnett, 2000). There is no distinct biological mark of emerging adulthood. Rather, the stage is based on gradual, intangible changes

or qualities (Arnett, 2003). Leaving the dependency of adolescence, emerging adults moving to college are thrust into highly stressful novel situations where they explore an overflow of possible life directions in love, work, and worldviews (Arnett, 2000). Countless opportunities remain open, and little about the future has been decided. Blakemore and Mills (2014) propose that emerging adulthood may be a critical time for learning how to navigate the social environment, which is facilitated by a supportive and varied social network. Consequently, the proposed study will involve college students, who are the largest group of emerging adults.

Because emerging adults rely increasingly on their friends rather than their parents (Ahmed & Brumbaugh, 2014), it is clear that they need to build their network in college because they are not around the people they were before college. Chao (2012) asserts that college students with low social support may have a difficult time buffering against stress and may be more vulnerable to its detrimental effects — a large testament to the importance of studying factors that might be associated with less stress. Varied attachments of different degrees should facilitate the process of finding one's place in the world through being exposed to an array of different perspectives and the opportunity to participate in a variety of activities. Varied networks should lead to more wide-ranging perspectives, increased perceived autonomy, and higher overall happiness.

Having a large network of varied social ties (i.e., positive relations with others) predicts a stronger sense of independence (i.e., autonomy) because the person is not reliant solely on his or her own closest friends. Having a large network available for social support encourages healthy habits (Maturo & Cunningham, 2013) and increases social skills, self-efficacy, and overall happiness (Chan & Lee, 2006). The role of social networks in adjustment is critical because they can provide a channel for assessing meaning of self, reality, and validation; increase self-

efficacy; reduce levels of stress, anxiety, and depression; and help people overcome problems. The social network variation hypothesis predicts that networks varied in interests and activities should give emerging adults the framework and empowerment they need to find their place in society, function as individual and independent persons, and most of all, increase overall happiness. Thus, I conducted an empirical study.

The Empirical Study: Variation and Strength in Social Networks

The purpose of the present section is to describe the empirical study that tests the social network variation hypothesis using a sample of college students. Emerging adults whose social network includes people with varied interests and activities should be less stressed and have higher levels of happiness than those with homogeneous networks. The variation and strength of an individual's social network will be measured by two researcher-developed inventories, the Social Network Variation Scale (SNVS) and the Social Network Strength Scale (SNSS). Social network variation will be measured by asking about the nature of each participant's social network and whether they have someone with whom to do various activities. Social network strength will be measured by asking participants to provide the initials of up to twelve close friends and specify which of the six friendship functions those respective close friends provide.

Social network variation should relate to higher levels of perceived autonomy, as measured by the 10-item Self-Determination Scale (SDS; Sheldon & Deci, 1996). Individuals with connections interested in a wide variety of activities are assumed to have the autonomy to participate in numerous different activities such as studying, going out, attending athletic events, or going to a play; all within their immediate social network. This should be associated with higher levels of happiness and lower levels of stress. In contrast, people having social networks

with narrow interests are assumed not to have the freedom to participate in a wide range of activities, because people in their social network do not have a broad range of interests.

Social network strength (in terms of stimulating companionship, help, intimacy, emotional security, etc.) should relate to higher levels of happiness and lower levels of stress. Only a few people in a social network need to be strong ties, and the rest may be weaker. Without at least some strong ties (e.g., very close friend, significant other), individuals will not receive adequate, meaningful social support in stressful times. Thus, a lack in social network strength represents lack of variation and the threat of absence of perceived autonomy because they are not able to obtain emotional support within their social network.

It is predicted that introversion–extraversion will moderate these relationships. Although numerous reviews discuss social support’s stress-buffering effects (e.g., Barrera, 2000; Cohen & McKay, 1984), introverted individuals may be more comfortable with a smaller social support system with high density and multidimensionality (i.e., a friendship that involves engaging in at least two different kinds of important activities).

The following hypotheses were tested in the present study.

Hypothesis 1: Variation in social networks (SNVS) should be positively correlated with happiness (OHQ).

Hypothesis 2: Strength in social networks (SNSS) should be positively correlated with happiness.

Hypothesis 3: Variation in social networks should be negatively correlated with stress (PSS).

Hypothesis 4: Strength in social networks should be negatively correlated with stress.

Hypothesis 5: Autonomy (SDS) should be positively correlated with variation.

Hypothesis 6: Autonomy should be positively correlated with happiness.

Hypothesis 7: Autonomy should be negatively correlated with stress.

Hypothesis 8: Autonomy should mediate the relationship between variation and happiness.

Hypothesis 9: Introversion–extraversion should moderate the relationship between variation and happiness.

Hypothesis 10: Introversion–extraversion should moderate the relationship between variation and stress.

Method

Participants

The participants were 318 college students from two small, Catholic, single-sex liberal arts institutions in the upper Midwest, enrolling about 79% Caucasian students, and with a joint academic curriculum and course catalog that practically cause the two campuses to function as a single institution. About 3,900 students attend the combined institutions, 70% of whom are Catholic, and 90% from the upper Midwest. Although one campus enrolls only males and the other only females, virtually all classes are coeducational. Participation was limited to the Sophomore, Junior, and Senior classes because they had had adequate time to develop their social networks. Of the 318 participants, 202 were females and 115 were males. In the sample, 1.9% were 18 years old, 10.1% were 19 years old, 28.6% were 20 years old, 39.3% were 21 years old, 18.6% were 22 years old, and 1.3% were 23 or older.

Measures

Social Network Variation Scale (SNVS). Social network variation was measured by a score on the researcher-developed Social Network Variation Scale (SNVS). The first section asks the participants' feelings about their social network. The second section lists different activities the participant would like to pursue, how likely they are to desire to participate in the

activity, and how likely they are to have someone with whom to participate in the specific activity. The score of the SNVS was computed by finding the total for both sections. The SNVS was found to be highly reliable (63 items; $\alpha = .928$). See below for the full inventory:

Social Network Variation Scale

How many semesters have you attended CSB/SJU? 0 1 2 3 4 5 6 7 8 9 10 11 12

What is your expected graduation year? 2017 2018 2019 2020

Please read each statement and rank how true each one is of you.

1 = Very untrue of me.

2 = Untrue of me.

3 = Somewhat untrue of me.

4 = Neutral.

5 = Somewhat true of me.

6 = True of me.

7 = Very true of me

1. My friendships are very important to me.
2. My social network is an important part of my life.
3. Variety in interests and activities in my social network gives me more freedom to do things.
4. I like to study by myself.
5. I initiate conversation with people daily.
6. If I want to do something with a friend and they are unavailable, there are others I could call.
7. My friends and I tend to be involved in the same activity.
8. I socialize with a variety of people, so I am exposed to a variety of interests.
9. My social group consists of a mixture of close friends and casual acquaintances.
10. My social group consists only of close friends.
11. My social group consists only of casual acquaintances.
12. I don't have any friends.
13. I participate in a wide variety of activities in my social life.
14. I do fun things with a lot of different people.
15. I know different people with whom I discuss different topics.
16. I feel disconnected from the world around me.
17. I feel distant from people.
18. I don't feel like I participate with anyone.
19. I don't feel like I participate with any group.
20. I have friends available who are able to do different things with me.
21. I have so many friends that I rarely feel lonely.
22. Each of my friends has several different interests.
23. If I want to do something new, it is easy to find a friend who will do it with me.
24. Each of my friends brings different interests to my social network.
25. My friends are all different from each other.

Please select how likely you are to want to do the particular activity under “Do the activity.” Note that this may be different from how frequently you do the activity. Please select how likely you are to have someone with whom to participate in the activity under “Have someone to participate with me.”

0 = Never

1 = Rarely

2 = Occasionally

3 = A moderate amount

4 = A great deal

1. Study by myself in a quiet location such as the library.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
2. Study with a partner or group.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
3. Go to a movie or stream a movie or TV show.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
4. Participate in outdoor activities (e.g., fishing, hiking, biking, beach, rock wall, etc.).
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
5. Get coffee or snacks.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
6. Play recreational sports or intramurals.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
7. Play a musical instrument, sing, or listen to music.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
8. Read and/or talk about books or literature.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
9. Go shopping.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
10. Go to a dining hall.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
11. Chat/play video games/hang out with friends.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
12. Try something new.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
13. Go stargazing, relax, watch TV, or engage in leisure time.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
14. Go on a run, exercise, or lift weights.

- Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
15. Make a meal or grill out.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
16. Volunteer.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
17. Participate in a hobby.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
18. Go to a concert, play, or fine arts event.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
19. Go to class, participate in class, or talk about class.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
20. Date or have a romantic relationship.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
21. Go out to parties or to the bars.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
22. Attend a varsity athletic event.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
23. Go back to my home town.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
24. Talk with family and friends who are not on campus.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
25. Go out to eat.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
26. Participate in groups or organizations on or off campus.
Do the activity: 0 1 2 3 4
Have someone to participate with me: 0 1 2 3 4
27. Hold leadership roles.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4
28. Study abroad or go on campus trips outside of MN.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4
29. Live with friends on or off campus.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4
30. Host meals, gatherings, or parties.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4
31. Have intimate or emotional conversations.
Do the activity: 0 1 2 3 4

- Have someone to participate with: 0 1 2 3 4
32. Attend an educational or informational event.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4
33. Attend a recreational or extracurricular event put on by a school organization.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4
34. Attend a cultural event.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4
35. Go to the opposite campus on the Link.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4
36. Attend church or other religious function.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4
37. Seek advice from an older student, faculty, or mentor of some kind.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4
38. Just having someone to be with.
Do the activity: 0 1 2 3 4
Have someone to participate with: 0 1 2 3 4

Social Network Strength Scale (SNSS). Social network strength was measured by the researcher-developed Social Network Strength Scale. Numerous friendship strength inventories exist, but they do not fit exactly what was needed for the present study. Strength initially has been measured as a dichotomous variable (i.e., you either have it, or you do not). I wanted to measure it as a multidimensional variable. The Social Network Strength Scale asks the respondent to list the first and last initials of up to 12 friends. It then asks the respondent to check anywhere from zero to all six of the friendship functions each friend serves. The reason it asks for initials is to make sure the respondent has an actual friend in mind, not some hypothetical probability. It derives its six friendship functions from the McGill Friendship Questionnaire–Friendship Function (MFQ-FF; Mendelson, & Aboud, 1999): (a) stimulating companionship, (b) help, (c) intimacy, (d) reliable alliance, (e) self-validation, and (f) emotional security. The role of *stimulating companionship* encompasses engaging in pleasant, entertaining, and interesting activities. *Help* addresses the provision of direction, advice, support, and other forms of

assistance. *Intimacy* concerns understanding of the states and needs of the other, providing openness to honest expression of thoughts, emotional states, and private information. *Reliable alliance* reflects availability and continuous loyalty. *Self-validation* includes the purpose of reassuring, encouraging, and assisting one another to uphold a positive self-image. Lastly, *emotional security* covers the delivery of comfort and trust in novel or threatening circumstances. Participants were asked to write down the first and last initials of a maximum of 12 “very close” friends. A checklist of the six friendship functions appears next to each initial selected by the participant who is then asked to click each function the respective friend provides. The total number of checked boxes are summed; higher numbers (social network strength scores) indicate higher social network strength. The SNSS was found to be highly reliable (12 items; $\alpha = .959$).

See below for the full scale:

Social Network Strength Scale

Think of up to twelve (12) very close friends you see regularly. Write down their first initials in the space provided. When you cannot think of any more very close friends, stop listing. For each very close friend, click the boxes next to each function the friend provides. You may click anywhere from 0 boxes to all 6 boxes. Refer to the descriptions below for descriptions of the friendship functions. When you are finished, click “continue.”

- ***Stimulating companionship:*** *Engaging in pleasant, entertaining and interesting activities.*
- ***Help:*** *The provision of direction, advice, support, and other forms of assistance.*
- ***Intimacy:*** *Understanding of the states and needs of the other, providing openness to honest expression of thoughts, emotional states, and private information.*
- ***Reliable alliance:*** *Availability and continuous loyalty.*
- ***Self-validation:*** *The purpose of reassuring, encouraging, and assisting one another to uphold a positive self-image.*
- ***Emotional security:*** *The delivery of comfort and trust in novel or threatening circumstances.*

Initial	Function
	<ul style="list-style-type: none"> ▪ Stimulating companionship ▪ Help ▪ Intimacy ▪ Reliable alliance ▪ Self-validation ▪ Emotional security
	<ul style="list-style-type: none"> ▪ Stimulating companionship ▪ Help ▪ Intimacy ▪ Reliable alliance ▪ Self-validation ▪ Emotional security

	<ul style="list-style-type: none"> ▪ Help ▪ Intimacy ▪ Reliable alliance ▪ Self-validation ▪ Emotional security
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Oxford Happiness Questionnaire (OHQ). Happiness was measured by the 29-item Oxford Happiness Questionnaire (OHQ; Hills & Argyle, 2002). Each question can be answered using a six-point Likert scale using reverse scoring on 12 of the items. Scores range from 1 to 6, with higher scores indicating higher levels of happiness. For example, “I am well satisfied about everything in my life” is a question that seeks to find overall happiness. Refer to Appendix C for the full questionnaire.

Perceived Stress Scale (PSS). Stress was measured by the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). Although there are newer scales available, I employed this one because it is the most widely cited. The PSS is a ten-item measure designed to evaluate the degree to which participants perceive their lives as stressful. Individuals rate each item on a five-point Likert scale ranging from 1 (not at all satisfied) to 5 (very satisfied). A sample question is “I am well satisfied about everything in my life.” Higher scores indicate greater perceptions of life stress; lower scores reflect lower perceptions of stress. Refer to Appendix D for the full scale.

Self-Determination Scale (SDS). Autonomy was measured by the Self-Determination Scale (SDS; Sheldon & Deci, 1996). The 10-item scale has two factors: Self-Contact and Choicefulness. Questions ask participants to report which of two statements has more truth. For example, “My emotions sometimes seem alien to me” versus “My emotions always seem to belong to me” is a self-contact item and “What I do is often not what I’d choose to do” versus “I am free to do whatever I decide to do” is a choicefulness item. The scale has good internal

consistency (alphas ranging from .85 to .93 in numerous samples) and adequate test-retest reliability. It has also been consistent as a strong predictor of psychological health outcomes, such as self-actualization, empathy, and life satisfaction, resistance to peer pressure, and creativity. Refer to Appendix E for the full scale.

Mini-IPIP. Introversion-extraversion was measured by the introversion–extraversion items on the Mini-IPIP (Donnellan, Oswald, & Lucas, (2006). This measure has comparable internal consistencies as larger measures. A sample item is “I am the life of the party.” Refer to Appendix F for the full inventory.

Procedure

Each participant took an online survey at his or her own convenience. A link to the survey was emailed to them. Various instructors on campus from disciplines such as environmental studies, global business leadership, Hispanic studies, political science, psychology, theatre, and theology were asked to solicit participation of students in their classes, some with the added incentive of small amounts of extra credit. This sample provided a wide variety of majors, thus yielding a more representative sample of the institution as a whole. By the same token, participants in theology and Hispanic studies classes were likely to represent a diverse range of majors because those courses are part of the core curriculum. The main idea of this study was to investigate variation in interests and activities, so it was imperative that a wide variety of participants was included. Introductory psychology students were also offered course credit for taking the survey.

When subjects finished the survey, they were then automatically directed to another form that asked for their name and the instructor for whose class they completed the survey for extra credit. The confirmation form was used to provide the necessary feedback to instructors.

Furthermore, there was no connection between the research portion of the survey and the confirmation form, thus maintaining the confidentiality of subjects' responses to the research portion of the survey while allowing feedback to cooperating instructors. Table 1 shows descriptive statistics for the measures used in the study.

Table 1
Descriptive Statistics the Variables Included in the Study

Measure	<i>M</i>	SD	Skewness	Kurtosis	Cronbach's Alpha
Variation	237.83	31.31	-.539	.485	.928
Strength	33.97	16.38	.281	-.725	.959
Happiness	127.27	19.08	-.654	.137	.930
Stress	38.32	7.10	.407	-.189	.848
Autonomy	38.59	6.21	-.589	-.082	.844
Introversion	11.02	3.97	.379	-.724	.790

Results

The reliability of all of the measures employed in the present study was satisfactory, as depicted in Table 1.

Table 2
Bivariate Correlations among Key Variables in the Study

	Variation	Strength	Happiness	Stress	Autonomy	Introversion	GPA
Variation	1	.450**	.569**	-.231**	.366**	-.573**	.150*
Strength	.450**	1	.344**	-.156**	.202**	-.202**	.168**
Happiness	.569**	.344**	1	-.648**	.704**	-.472**	.206**
Stress	-.231**	-.156**	-.648**	1	-.619**	.158**	-.172**
Autonomy	.366**	.202**	.704**	-.619**	1	-.254**	.070
Introversion	-.573**	-.202**	-.472**	.158**	-.254**	1	.011
GPA	.150*	.168**	.206**	-.172**	.070	.011	1

* $p < .01$

** $p < .001$

Pearson correlations examining the relationship among variation, strength, happiness, stress, autonomy, and introversion are reported in Table 2. Social network variation in interests

and activities was found to be correlated with all other dependent variables. Hypothesis 1 was supported; variation was correlated with happiness, $r(316) = .569, p < .001$. Hypothesis 2 was supported; strength was correlated with happiness, $r(316) = .344, p < .001$. Hypothesis 3 was supported; variation was negatively correlated with stress, $r(316) = -.231, p < .001$. Hypothesis 4 was supported; strength was negatively correlated with stress, $r(316) = -.156, p < .001$. Hypothesis 5 was supported; variation was correlated with autonomy, $r(316) = .366, p < .001$. Hypothesis 6 was supported; autonomy was correlated with happiness, $r(316) = .704, p < .001$. Hypothesis 7 was supported; autonomy was negatively correlated with stress, $r(316) = .619, p < .001$. Other interesting correlations not hypothesized are found in Table 2.

Next, multiple regression was used to test whether variables were still correlated after controlling for four dependent variables: introversion, GPA, gender, and autonomy. Table 3 shows that variation still predicts happiness when controlling for introversion. Table 4 shows that strength still predicts happiness when controlling for introversion. Table 5 shows that variation still predicts lower levels of stress when controlling for introversion. Table 6 shows that strength still predicts lower levels of stress when controlling for introversion. In sum, both the strength and variation measures make unique contributions to the prediction of both happiness and stress in college students independent of other variables included in the study.

Table 3

Multiple Regression of Happiness

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	70.564				5.653	.000
Introversion	-1.028	-.211	-.207	-.170	-3.189	.002
Variation	.281	.446	.409	.360	6.750	.000

- a. Dependent Variable = Happiness
- R² = .353
- Adjusted R² = .347
- R = .594^a

Table 4

Multiple Regression of Happiness

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	139.152				34.773	.000
Introversion	-2.004	-.416	-.433	-.406	-7.942	.000
Strength	.295	.252	.279	.246	4.807	.000

a. Dependent Variable = Happiness

R² = .283

Adjusted R² = .248

R = .532^a

Table 5

Multiple Regression of Stress

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	47.512				8.644	.000
Introversion	.144	.080	.066	.065	1.014	.311
Variation	-.044	-.188	-.155	-.153	-2.396	.017

a. Dependent Variable = Stress

R² = .059

Adjusted R² = .051

R = .243^a

Table 6

Multiple Regression of Stress

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	37.636				22.683	.00
Introversion	.236	.132	.131	.129	2.232	.026
Strength	-.056	-.130	-.129	-.127	-2.190	.029

a. Dependent Variable = Stress

R² = .041

Adjusted R² = .035

R = .203^a

Table 7 shows that variation still predicts lower levels of stress when controlling for GPA, which is presumed to be a proxy for intelligence. Table 8 shows that strength still predicts happiness when controlling for GPA. Table 9 shows that variation still predicts lower levels of

stress when controlling for GPA. Table 10 shows that strength still predicts lower levels of stress when controlling for GPA.

Table 7

Multiple Regression of Happiness

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	27.973				2.511	.013
GPA	4.624	.099	.118	.098	1.777	.077
Variation	.346	.549	.551	.540	9.826	.000

a. Dependent Variable = Happiness
 $R^2 = .330$
 Adjusted $R^2 = .324$
 $R = .575^a$

Table 8

Multiple Regression of Happiness

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	92.061				10.711	.000
GPA	6.405	.144	.152	.142	2.512	.013
Strength	.381	.328	.329	.322	5.703	.000

a. Dependent Variable = Happiness
 $R^2 = .146$
 Adjusted $R^2 = .140$
 $R = .382^a$

Table 9

Multiple Regression of Stress

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	59.655				12.817	.000
GPA	-2.917	-.178	-.181	-.176	-2.779	.006
Variation	-.047	-.200	-.202	-.198	-3.121	.002

a. Dependent Variable = Stress
 $R^2 = .083$
 Adjusted $R^2 = .075$
 $R = .288^a$

Table 10

Multiple Regression of Stress

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	48.196				15.149	.000
GPA	-2.356	-.148	-.147	-.146	-2.495	.013
Strength	-.054	-.153	-.125	-.123	-2.111	.036

a. Dependent Variable = Stress

R² = .045

Adjusted R² = .038

R = .211^a

Table 11 shows that variation still predicts happiness when controlling for gender. Table 12 shows that strength still predicts happiness when controlling for gender. Table 13 shows that variation still predicts lower levels of stress when controlling for gender. Table 14 shows that strength still predicts lower levels of stress when controlling for gender. In sum, both the SNSS (social network strength) and SNVS (social network variation) performed as expected when gender was controlled.

Table 11

Multiple Regression of Happiness

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	39.108				4.550	.000
Gender	1.308	.033	.039	.032	.587	.558
Variation	.356	.564	.560	.555	10.175	.000

a. Dependent Variable = Happiness

R² = .325

Adjusted R² = .319

R = .570^a

Table 12

Multiple Regression of Happiness

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	110.091				26.223	.000
Gender	1.817	.046	.049	.046	.804	.422
Strength	.404	.344	.342	.340	6.041	.000

a. Dependent Variable = Happiness

R² = .126

Adjusted R² = .119

R = .354^a

Table 13

Multiple Regression of Stress

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	47.558				13.103	.000
Gender	3.411	.223	.227	.221	3.562	.000
Variation	-.061	-.264	-.265	-.261	-4.202	.000

a. Dependent Variable = Stress

R² = .102

Adjusted R² = .095

R = .320^a

Table 14

Multiple Regression of Stress

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	36.870				22.900	.000
Gender	2.556	.173	.174	.171	2.978	.003
Strength	-.079	-.183	-.183	-.181	-3.148	.002

a. Dependent Variable = Stress

R² = .055

Adjusted R² = .049

R = .235^a

Table 15 shows that variation still predicts happiness when controlling for autonomy.

Table 16 shows that strength still predicts lower levels of stress when controlling for autonomy.

The next two tables show different results. Table 17 shows that autonomy may contribute to the

negative association between variation and stress. Similarly, Table 18 shows that autonomy may contribute to the negative association between strength and stress. Stated differently, autonomy may be the reason variation and strength in one’s social networks predicts lower levels of stress. These results lend credence to the SNVS and SNSS because every multiple regression shows that variation and strength in social networks still predict higher levels of happiness and lower levels of stress, even when controlling for personality, intelligence, and gender. Additionally, the same is true when controlling for autonomy, but not when trying to predict stress.

Table 15

Multiple Regression of Happiness

	<i>B</i>	β	Partial	Part <i>r</i>	<i>T</i>	Significance
(Constant)	2.662				.388	.698
Autonomy	1.805	.593	.677	.557	13.506	.000
Variation	.229	.366	.495	.344	8.342	.000

a. Dependent Variable = Happiness
 $R^2 = .635$
 Adjusted $R^2 = .631$
 $R = .797^a$

Table 16

Multiple Regression of Happiness

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	41.390				8.112	.000
Autonomy	2.023	.667	.692	.655	15.443	.000
Strength	.224	.195	.270	.191	4.51	.000

a. Dependent Variable = Happiness
 $R^2 = .533$
 Adjusted $R^2 = .529$
 $R = .730^a$

Table 17

Multiple Regression of Stress

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	69.239				21.066	.000
Autonomy	-.769	-.641	-.623	-.607	-11.907	.000
Variation	-.004	-.015	-.019	-.015	-.285	.776

a. Dependent Variable = Stress
 $R^2 = .418$
 Adjusted $R^2 = .413$
 $R = .647^a$

Table 18

Multiple Regression of Stress

	<i>B</i>	β	Partial	Part <i>r</i>	<i>t</i>	Significance
(Constant)	67.493				29.845	.000
Autonomy	-.739	-.614	-.609	-.602	-12.720	.000
Strength	-.013	-.029	-.037	-.029	-.611	.542

a. Dependent Variable = Stress
 $R^2 = .385$
 Adjusted $R^2 = .380$
 $R = .620^a$

Following the procedures outlined by Wilson-Doenges (2015) two mediation hypotheses and two moderation hypotheses were tested. Results indicated that autonomy did mediate the relationship between variation and stress, as shown in Figure 1. The relationship between variation and stress was reduced to nonsignificance when autonomy was in the model. In other words, variation is negatively associated with stress *because of* autonomy. Similarly, Figure 2 shows that autonomy mediates the relationship between social network strength and stress. The negative relationship between strength and stress was reduced to nonsignificance when autonomy was in the model. In other words, strength is negatively correlated with stress *because of* autonomy. Results indicate that autonomy may be the reason variation and strength predict lower levels of stress.

Figure 1

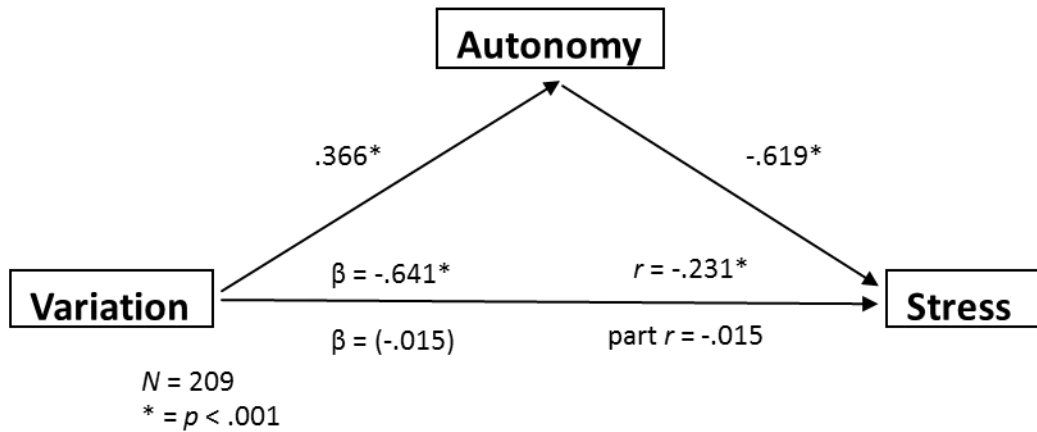
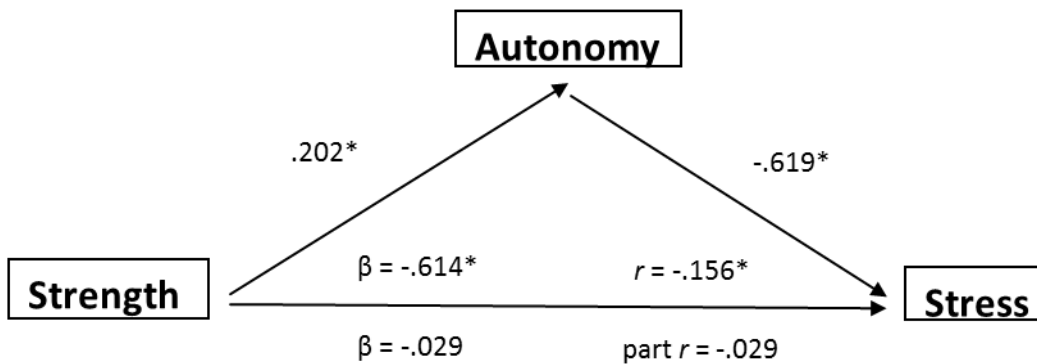


Figure 2



Hypotheses 9 and 10 were supported: Personality moderates the relationships between variation and happiness and variation and stress. Specifically, variation only predicts high levels of happiness and low levels of stress in people who are not highly introverted. Highly introverted individuals may not need as varied or strong of a social network to be happy, as shown in Tables 19 and 20.

Table 19

Introversion Moderates the Relationship between Variation and Happiness

Level of Introversion	Association (<i>r</i>) between Variation and Happiness
High	.269
All Levels	.569*

**p* < .001

Table 20

Introversion Moderates the Relationship between Variation and Stress

Level of Introversion	Association (<i>r</i>) between Variation and Stress
High	-.098
All Levels	-.231*

**p* < .001

Table 21 indicates that female participants reported higher social network variation and social network strength than male participants. Female participants also reported higher levels of stress than males. No other gender differences were statistically significant. Table 21 summarizes these findings.

Table 21

Gender Differences for Variables in the Study

	Males (<i>SD</i>)	Females (<i>SD</i>)	<i>t</i>	<i>df</i>	Effect Size	Sig. (2 tailed)
Variation	<i>M</i> = 231.25 (31.93)	<i>M</i> = 241.50 (30.45)	-2.543	255	.33	.012
Strength	<i>M</i> = 30.82 (15.28)	<i>M</i> = 35.88 (16.70)	-2.673	315	.31	.007
Happiness	<i>M</i> = 124.75 (20.28)	<i>M</i> = 128.64 (18.24)	-1.637	274	.20	.113
Stress	<i>M</i> = 36.92 (6.65)	<i>M</i> = 39.14 (7.23)	-2.560	286	.31	.009
Autonomy	<i>M</i> = 38.92 (5.77)	<i>M</i> = 38.35 (6.42)	.751	297	.09	.439
Introversion	<i>M</i> = 11.02 (4.19)	<i>M</i> = 11.04 (3.84)	-.037	312	.00	.971

*Equal variances assumed

The mean for GPA (*M* = 3.38) for the present study, was representative of the mean GPA for the entire population of the campuses at which the study was conducted (*M* = 3.36 for one campus; *M* = 3.15 for the other; *M* = 3.26 combined). This could support an argument that the sample was representative of students in general. An issue with online surveys in general is that

more motivated, conscientious students tend to take the surveys. Because I intended the participants to be representative of college students in general, I conducted the surveys in ways that ensure better representation of those with lower GPAs (i.e., offering small incentives for those enrolled in specific classes to take the surveys).

General Discussion

The present study found intriguing and novel results. I will discuss of each of the hypotheses in numerical order.

Hypothesis 1: Variation in Social Networks is Positively Correlated with Happiness

The data showed strong support for Hypothesis 1. Variation in one's social network (SNVS) was positively correlated with happiness (OHQ). The premise of the study was that it feels good to have friends on whom one can call to participate in a variety of activities. If an individual likes to go hunting and fishing, she probably has a small group of people with whom to participate. But what if she wants to get coffee or go to a concert? Will she have someone to go with? She will probably not go to a concert by herself, so according to the results, she will be happier if she feels she has a friend to participate with her. Especially in emerging adulthood, there is an abundance of activities and possibilities to explore (Arnett, 2000). Thus, people need friends with whom to share the experience (Buote et al., 2007). Hypothesis 1 was supported; people with higher levels of variation in their social network are more likely to be able to do whatever they want whenever they desire, and as a result are happier people in general.

Hypothesis 2: Strength in Social Networks is Positively Correlated with Happiness

The data showed strong support for Hypothesis 2. Strength in one's social network (SNSS) was positively correlated with happiness (OHQ). Strength in social networks is critical because it can provide a channel for assessing meaning of self, reality, and validation, increase

self-efficacy, reduce levels of stress, anxiety, and depression, and help people overcome problems (Chan & Lee, 2006). Social networks including close friends give emerging adults the framework and empowerment they need to find their place in society, function as individual and independent persons and, most of all, increase overall happiness (Chan & Lee, 2006). It is optimal if one is able to do any activity one wants whenever one wants, but it may not be worth as much if no close or strong friends are involved. Without at least some strong ties (e.g., very close friend, significant other), individuals will not receive adequate meaningful social support in stressful times. Thus, a lack in social network strength represents lack of variation and the threat of absence of perceived autonomy because emerging adults are not able to obtain emotional support within their social network.

Hypothesis 3: Variation in Social Networks is Negatively Correlated with Stress

The data showed strong support for Hypothesis 3. Variation in social networks (SNVS) was negatively correlated with stress (PSS). It may be stressful to have a homogenous social network because the same things may be done or talked about day after day. Thus, one may become bored of a repetitive lifestyle if one does not have the option to undertake and experience a variety of interests and activities. Imagine an individual whose social network is solely interested in the party culture and going out to bars. What if he wants to attend a play or extracurricular event on campus? Will he have someone to go with? He may not be able to explore different options and perspectives if his social network does not allow him to do so, thus creating stress. Correspondingly, imagine that the people in his social network are in a bad mood or do not want to do anything. Without variation, the individual may be less likely to be able to escape the stressful situation and participate in a different activity.

Hypothesis 4: Strength in Social Networks is Negatively Correlated with Stress

The data showed strong support for Hypothesis 4. Strength in social networks (SNSS) was negatively correlated with stress (PSS). People rely on others in times of stress for comfort, emotional validation and support, and simply to take their mind off problems. It seems obvious that people with a strong social network will be less stressed. Emerging adults moving to college are thrust into highly stressful novel situations where they explore an overflow of possible life directions in love, work, and worldviews (Arnett, 2000). Thus, they need close or strong friends with whom to navigate their thoughts, feelings, and the physical world.

Hypotheses 5, 6, and 7: Autonomy is Positively Correlated with Variation and Happiness; and Negatively Correlated with Stress

The data showed strong support for Hypotheses 5, 6, and 7. Regarding Hypothesis 5, it makes intuitive sense that autonomy (SDS) was positively correlated with variation (SNVS) because variation gives people the autonomy to do whatever they desire whenever they desire. Because a varied social network grants individuals the freedom to choose from a wide variety of activities and topics to discuss, people will then have higher perceived levels of autonomy. Regarding Hypothesis 6, it then makes intuitive sense that autonomy (SDS) was correlated with happiness (OHQ). If variation grants people autonomy, that autonomy should predict happiness. It should make people happy to be able to choose between varied interests and activities. Regarding Hypothesis 7, it also makes intuitive sense that autonomy (SDS) was negatively correlated with stress (PSS). Not having the option to escape a stressful social climate or a repetitive routine may create stress. Imagine that an individual's main friend group wants to consume alcohol in excess and act boisterously on a given night, but the individual wants to stay in and quietly watch a basketball game. If the individual does not have others with whom to

watch the game, she may feel pressured to act in ways she does not want to, which may be a source of stress.

Hypothesis 8: Autonomy Mediates the Relationship between Variation and Happiness

The data did not provide support for Hypothesis 8. Autonomy (SDS) did not mediate the relationship between variation (SNVS) and happiness (OHQ). However, I found that autonomy (SDS) did mediate the relationship between variation (SNVS) and stress (PSS). This says that variation alone is not enough. If an unassertive individual has high variation, this may not buffer against stress because they are excessively dependent upon their social groups. They need to feel a sense of autonomy or separation to experience the stress-buffering impact of variation. Even if one has a variety of different people with whom to participate in different activities, he may not feel the same autonomy if he is too dependent on one or more groups. For example, he may be too connected to one segment of his network, and thus not perceive autonomy to reach out to other segments as much. Alternatively, one may be so dependent on each segment of his social network that he cannot make his own decisions. This is an exciting line for future research.

Hypotheses 9 and 10: Introversion–Extraversion Moderates the Relationships between Variation and Happiness and Variation and Stress

The data showed strong support for Hypotheses 9 and 10. Personality moderated the relationship between variation (SNVS) and happiness (OHQ), and the relationship between variation (SNVS) and stress (PSS). Specifically, variation only predicts happiness in individuals who are not highly introverted. This may be because highly introverted individuals may not prefer to be around a variety of people. Similarly, introverts prefer to spend time alone reading, gaming, relaxing in solitude, and so on. They tend to have a small number of very close friends, sticking to an organized, predictable lifestyle (Larsen & Kasimatis, 1990). Introverts prefer to be

alone in the amity of their own solitude. Thus, being around a variety of people in a variety of situations may be stressful and overwhelming to highly introverted individuals.

Summary and Formulation

Although emerging adults' lives differ drastically, one thing that may universally improve their lives is variation in social networks. I was inspired to conduct this study during my own undergraduate experience because I observed that college students seem to have a broader sense of freedom when they have a wide variety of friends because they have more opportunities to participate in a variety of activities. I saw it often when people with a homogenous social network felt they had to imbibe alcohol on weekends, hang out solely with people from their preferred sport, go fishing every weekend, and so on. I believed people would be happier if they had the choice to opt out of those activities to make time for other interests they might like to pursue. Having autonomy and not feeling the need to follow one particular group seemed like it would benefit individuals in a number of ways.

Because so many young people in industrialized countries are thrust into a society where they have to change and make critical life decisions (Arnett, 2000), I chose emerging adulthood as the developmental period to study. Emerging adults need to explore different possibilities in work, love, and worldviews (Arnett, 2000). Considering the stress emerging adults face, healthy, supportive friendships should help prevent psychological disorders because of their stress-buffering effects (Krackhardt, 1992). Emerging adults often live away from their family and childhood friends for the first time (Ahmed & Brumbaugh, 2014). McKee, Harrison, and Lee (1999) posit that friendships in college provide a channel for assessing meaning of self and reality, an avenue for the experience of different perspectives and viewpoints, and an opportunity for growing through interdependency. Emerging adults often lose immediate access to support

from their parents and hometown friends when they move to college, so they need to make friends on their college campus. However, having a homogenous network may hinder one's ability to participate in a variety of activities and blind one to other perspectives. Thus, a varied social network should provide numerous angles from which to approach and resolve issues, leading to a greater capacity for growth through interdependency, less stress, and increased happiness. More simply, higher variation in interests and activities should be positively correlated with happiness — the social network variation hypothesis.

Because people look to their social networks for social support (Barrera, 2000), I thought they needed various connections to help fill that void. I observed that college students may benefit from having a broad array of social connections, which should help lower their stress levels by providing outlets for self-disclosure, or simply taking their mind off stressors through different activities.

Hirsch (1981) found that social networks with individuals who all know each other engender an environment where all people generally agree on most topics, but lower-density networks usually provide a social environment with a wider perspective on life. This is consistent with the social network variation hypothesis because people with lower-density networks should then be able to seek out various interests to discuss and activities in which to participate. On the contrary, too much density (i.e., all people are connected with each other) may cause an individual to become trapped in a homogenous group with homogenous interests. However, the present study shows that people need strong friends in their social network too. It is possible that people with varied social networks have more of an opportunity to build strong relationships because they are exposed to a wider variety of individuals with whom they may enjoy social interaction.

Further, Hirsch (1981) found that people in low-density networks were more satisfied with the support they received. I believe this is because they can turn to one segment of their social network while another segment is not available. Hirsch (1981) also found that strong friendships predict overall satisfaction with one's social network. This supports my conclusion that people not only need a varied social network, but also a few strong ties providing more intimate friendship functions (e.g., emotional security). Although Hirsch (1981) measured college students in times of high stress, the present study examined college students' daily lives. I investigated the perceived freedom of having a varied social network. My results support the notion that the autonomy to participate in a variety of activities helps increase happiness and prevent stress. Hirsch (1981) also left personality out of the equation. The present study showed that introverted individuals may not need the same varied social network that others do.

In a sense, a social network is not just a part of one's life. Rather, it *is* their life. One cannot do things as simple as get lunch with someone, have a meaningful discussion, or play a game without a social network. Variation may provide autonomy because one should have numerous people to contact to participate in a wide variety of activities, and it may act as a buffer against stress because one can seek support from people with various perspectives and gain abundant angles of advice. Everything from seeking comfort in a time of stress to going fishing with a partner depends on the variation and strength of one's social network.

When time is limited, researchers may be forced to use an extremely brief measure of personality to eliminate redundancy (Gosling, Rentfrow, & Swann Jr., 2003). The present study certainly fits that situation: time was limited because the whole survey took about 30 minutes to complete. The Five-Item Personality Inventory (FIPI) and Ten-Item Personality Measure (TIPI) examined in Gosling, Rentfrow, and Swann (2003) reached adequate levels in convergent and

discriminant validity, test-retest reliability, and patterns of external correlates. Furthermore, extraversion performed the best across the criteria. Although more comprehensive measures should be used when time and space are not in short supply, very brief instruments can stand as sensible replacements for longer personality instruments, especially when conditions call for brief measures.

According to Ehrhart et al. (2009), the TIPI was the most-downloaded article on the *Journal of Research in Personality's* web site from January to March 2009. There is a high degree of convergence between the factors that underlie the TIPI and larger personality inventories (Ehrhart et al., 2009). They also found that the strongest positive relation was found for TIPI extraversion and FFM extraversion ($r = 1.00$). Thus, there is strong evidence that very brief measures of personality, especially introversion-extraversion, may be reliably and validly used when time and space are limited. Future research should continue, examining whether similar processes may be used to reduce the length of the SNVS.

A good mix of stronger and weaker ties (i.e., closer, personal friends and more distant, professional-type acquaintances) is part of what makes a person's social network successful and rewarding. Additionally, weaker ties should help provide a bridge between individual and social networks (Granovetter, 1983). Knowing individuals from various backgrounds and social groups should help one navigate through the social structure of college. More simply, they can help introduce an individual to different groups and thus explore different options. This supports the notion that people may become stuck in a single cluster of interests and activities if they only "belong" to one social group. If an individual "belongs" to more than one social group, he has more options for how to spend his time. The social network variation hypothesis was supported in the present study. A person should feel happy if she has the choice to go fishing, attend a play,

go out on a weekend night, go to a coffee shop, travel, and so on. She is happier because she has the option to do whatever she desires whenever she desires.

A large part of why I thought variation would be correlated with happiness and negatively correlated with stress is the notion that one must have a perceived sense of autonomy to be satisfied (Lin-Chu et al., 2014; Madanagopal & Thenmozhi, 2015). Similar to the way the work setting may limit autonomy, I hypothesized that a restrictive social network may also limit autonomy. Self-determination is a critical factor in psychological health (Bandura, 1977), so that is why I thought the perceived competency to participate with any group of people would be a correlate of happiness. Deci and Ryan (1985) argue that people must feel autonomous and self-determined in their daily lives to feel capable, happy, and enjoy the best psychological health, thus supporting the social network variation hypothesis; people who choose to do whatever they desire whenever they desire should be happier in general. I further assert that feeling pressured into an activity may lead to stress. In sum, the present study shows that having a large network of varied social ties predicts a stronger sense of independence (i.e., autonomy) because the person is not reliant solely on a limited social circle. If some friends wish to engage in an undesired activity, a person with a more varied social network will have alternative friends and activities from which to choose.

Varying types of support lead to autonomy because one is not reliant exclusively on one group of people, which leads to happiness. It seems detrimental to happiness and autonomy if an individual is restricted to a certain range of activities and interests. The importance of variation in interests and activities in social networks is too great to be ignored. I contend that variation in social networks gives emerging adults the framework and empowerment they need to find their

place in society and function as individual and independent people — the social network variation hypothesis.

Because variety in interests and activities in social networks is linked to higher levels of happiness and lower levels of stress, change in the way people view friendship circles may be warranted. People may be advised to make an effort to meet and befriend people from different kinds of backgrounds and with varied interests. Further, widely held stereotypes that people with different interests should not have contact with each other should be broken. Colleges and universities may be advised to offer different services for facilitating the process of college students meeting a variety of people. Individuals should not associate solely with people who share the most direct interests with them; they should have a circle of close friends, with a broader network of weaker connections in multiple facets of their college or greater community. Broadly speaking, people benefit from social interaction. Focusing one's time and energy on building valuable relationships should be a priority, which is likely to have lasting impacts in numerous aspects of well-being.

Limitations and Future Directions

The sheer length of the survey is a potential limitation of the study. It took up to 30 minutes, so response fatigue may have been a serious issue. I did not use obvious questions to check for respondent fatigue. Because of the length of the survey, participants may have responded accurately to questions at the beginning of the survey, but not at the end.

Because the survey was administered on a small, predominantly White, liberal arts college campus, the results may not be generalizable to the general population. I was unable to survey people who attend large public universities, community colleges, or people who did not

attend college. Although my sample size is not considered large, it is within the sample size recommendations for adequate statistical power.

The fact that the measures for variation and strength in one's social network are completely new is significant. I developed the scales specifically for the study because there was nothing in the extant literature that captured the essence of what I wanted to measure. This is an exciting new direction for future research. It will be interesting to see if different measures replicate these findings and whether the researcher-developed scales work in different settings or contexts. This is the first study to utilize these scales to study variation in social networks in general. I encourage future researchers to study these scales and the specific area in general. It would also be interesting to study variation and strength in social networks in an experiment.

Future research should be conducted on the importance of social media friends. The present study posits that real, physically present social support is critical to satisfy emotional needs; thus, that aspect of friendship was not assessed in the present study. Social media friends are not necessarily readily available and present in individuals' everyday lives. However, some (e.g., Manago, Taylor, & Greenfield, 2012; Miczo, Mariani, & Donahue, 2011) argue that social media are beneficial in that they facilitate emotional disclosure, which is the key feature of intimacy, through status updates and so on. Van Zalk, van Zalk, Kerr, and Hakan (2013) found that shy adolescents may benefit from exclusively online friends, and that those online friendships may increase self-esteem. That self-esteem, in turn, may facilitate the formation of offline friendships. It is possible that online friends may serve similar functions as face-to-face acquaintances, so it would be interesting to replicate this study to include — or be limited to — online friends.

Another avenue for future research would be regarding the potential differences between individualistic and collectivistic cultures. Ferguson, Kasser, and Seungmin (2011) found that people from individualistic cultures report higher well-being than collectivistic cultures, possibly because of perceived sense of autonomy. Of citizens from the three countries they surveyed, Denmark showed the highest levels of autonomy and life satisfaction, followed by the U.S. (individualistic) and South Korea (collectivistic). Thus, the notion that autonomy is necessary for happiness is supported. However, there are seemingly infinite variables to be considered in this area of study.

According to Arménio and Cunha (2009), people from collectivistic cultures (i.e., with an interdependent sense of self) show higher levels of well-being than people from individualistic cultures (i.e., with an independent sense of self) because of their perceptions of camaraderie in their organizations. Generally speaking, collectivists tend to perceive more camaraderie in their organizations than individualists. Arménio and Cunha (2009) conclude that people from these two contrasting cultures do not operate in the same way; people from collectivistic cultures tend to derive happiness from the success of the organization, and individualists derive happiness from their own personal success. This could mean that social network variation could predict different things in different cultures. Because autonomy is valued differently in other cultures, it would be interesting to see if social network variation predicts happiness in collectivistic cultures.

The present study did not take ethnicity into account. Specifically, it would be interesting to find out if racially diverse social networks serve different or additional purposes to social networks with variation in interests and activities. This study sampled from college campuses enrolling nearly 80% White students. It would also be interesting to study whether racial

minorities need different sorts of social networks than White individuals. In light of perceived prejudice and other racial issues, future research should examine racial differences in social network variation.

Finally, it would be interesting to examine the need for social network variation in childhood, adolescence, and throughout adulthood. Because this study employed a sample of college students, it did not examine other age groups. There are a number of potential wrinkles researchers may tease out in this regard: (a) whether young children need to play with nonfamily members, (b) whether adolescents need to get out of the house to socialize, (c) whether there is a difference in the needs of adults who are married versus adults who are not, and (d) whether older adults need the same varied social networks to be happy as emerging adults do (i.e., socioemotional selectivity). There are numerous smaller segments of society that would be fascinating to investigate. Among a long list are single adults with children versus childless single adults. It may also be interesting to study social network variation among prisoners. People may have very different needs depending on their particular stage of lifespan development.

In sum, the present study showed that variation and strength of social networks in emerging adulthood were related to happiness (positively) and stress (negatively). A priority for future research should be to investigate whether shorter versions of the SNVS and SNSS would retain the validity of the longer versions used in the present study. Investigations of the generalization of these findings to different cultures and ethnic groups would also be helpful. Finally, it would be interesting to know whether online social networks provide variation and strength. Creation of two reliable and valid measures of social network variation and strength has provided a solid foundation for future research.

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Appendix A

Social Network Variation Scale

How many semesters have you attended CSB/SJU? 0 1 2 3 4 5 6 7 8 9 10 11 12

What is your expected graduation year? 2017 2018 2019 2020

Please read each statement and rank how true each one is to you.

1 = Very untrue of me.

2 = Untrue of me.

3 = Somewhat untrue of me.

4 = Neutral.

5 = Somewhat true of me.

6 = True of me.

7 = Very true of me.

1. My friendships are very important to me.
2. My social network is an important part of my life.
3. Variety in interests and activities in my social network gives me more freedom to do things.
4. I like to study by myself.
5. I initiate conversation with people daily.
6. If I want to do something with a friend and they are unavailable, there are others I could call.
7. My friends and I tend to be involved in the same activity.
8. I socialize with a variety of people, so I am exposed to a variety of interests.
9. My social group consists of a mixture of close friends and casual acquaintances.
10. My social group consists only of close friends.
11. My social group consists only of casual acquaintances.
12. I don't have any friends.
13. I participate in a wide variety of activities in my social life.
14. I do fun things with a lot of different people.
15. I know different people with whom I discuss different topics.
16. I feel disconnected from the world around me.
17. I feel distant from people.
18. I don't feel like I participate with anyone.
19. I don't feel like I participate with any group.
20. I have friends available who are able to do different things with me.
21. I have so many friends that I rarely feel lonely.
22. Each of my friends has several different interests.

- 23. If I want to do something new, it is easy to find a friend who will do it with me.
- 24. Each of my friends brings different interests to my social network
- 25. My friends are all different from each other.

Please select how likely you are to want to do the particular activity under “Do the activity.” Note that this may be different from how frequently you do the activity. Please select how likely you are to have someone with whom to participate in the activity under “Have someone to participate with me.”

0 = Never.

1 = Rarely.

2 = Occasionally

3 = A moderate amount

4 = A great deal

1. Study by myself in a quiet location such as the library.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
2. Study with a partner or group.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
3. Go to a movie or stream a movie or TV show.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
4. Participate in outdoor activities (e.g., fishing, hiking, biking, beach, rock wall, etc.).
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
5. Get coffee or snacks.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
6. Play recreational sports or intramurals.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
7. Play a musical instrument, sing, or listen to music.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
8. Read and/or talk about books or literature.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
9. Go shopping.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4

10. Go to a dining hall.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
11. Chat/play video games/hang out with friends.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
12. Try something new.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
13. Go stargazing, relax, watch TV, or engage in leisure time.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
14. Go on a run, exercise, or lift weights.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
15. Make a meal or grill out.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
16. Volunteer.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
17. Participate in a hobby.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
18. Go to a concert, play, or fine arts event.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
19. Go to class, participate in class, or talk about class.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
20. Date or have a romantic relationship.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
21. Go out to parties or to the bars.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
22. Attend a varsity athletic event.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
23. Go back to my home town.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
24. Talk with family and friends who are not on campus.
 - a. Do the activity: 0 1 2 3 4

- b. Have someone to participate with me: 0 1 2 3 4
- 25. Go out to eat.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
- 26. Participate in groups or organizations on or off campus.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with me: 0 1 2 3 4
- 27. Hold leadership roles.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 28. Study abroad or go on campus trips outside of MN.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 29. Live with friends on or off campus.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 30. Host meals, gatherings, or parties.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 31. Have intimate or emotional conversations.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 32. Attend an educational or informational event.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 33. Attend a recreational or extracurricular event put on by a school organization.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 34. Attend a cultural event.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 35. Go to the opposite campus on the Link.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 36. Attend church or other religious function.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 37. Seek advice from an older student, faculty, or mentor of some kind.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4
- 38. Just having someone to be with.
 - a. Do the activity: 0 1 2 3 4
 - b. Have someone to participate with: 0 1 2 3 4

Appendix B

Social Network Strength Scale

Think of up to twelve (12) very close friends you see regularly. Write down their first initials in the space provided. When you cannot think of any more very close friends, stop listing. For each very close friend, click the boxes next to each function the friend provides. You may click anywhere from 0 boxes to all 6 boxes. Refer to the descriptions below for descriptions of the friendship functions. When you are finished, click “continue.”

- ***Stimulating companionship:*** *Engaging in pleasant, entertaining and interesting activities.*
- ***Help:*** *The provision of direction, advice, support, and other forms of assistance.*
- ***Intimacy:*** *Understanding of the states and needs of the other, providing openness to honest expression of thoughts, emotional states, and private information.*
- ***Reliable alliance:*** *Availability and continuous loyalty.*
- ***Self-validation:*** *The purpose of reassuring, encouraging, and assisting one another to uphold a positive self-image.*
- ***Emotional security:*** *The delivery of comfort and trust in novel or threatening circumstances.*

Initial	Function
	<ul style="list-style-type: none"> ▪ Stimulating companionship ▪ Help ▪ Intimacy ▪ Reliable alliance ▪ Self-validation ▪ Emotional security
	<ul style="list-style-type: none"> ▪ Stimulating companionship ▪ Help ▪ Intimacy ▪ Reliable alliance ▪ Self-validation ▪ Emotional security
	<ul style="list-style-type: none"> ▪ Stimulating companionship ▪ Help ▪ Intimacy ▪ Reliable alliance ▪ Self-validation ▪ Emotional security
	<ul style="list-style-type: none"> ▪ Stimulating companionship ▪ Help ▪ Intimacy ▪ Reliable alliance ▪ Self-validation

	<ul style="list-style-type: none">▪ Reliable alliance▪ Self-validation▪ Emotional security
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Appendix C

Oxford Happiness Questionnaire

Instructions:

Below are a number of statements about happiness. Please indicate how much you agree or disagree with each by entering a number in the blank after each statement, according to the following scale:

1 = strongly disagree

2 = moderately disagree

3 = slightly disagree

4 = slightly agree

5 = moderately agree

6 = strongly agree

Please read the statements carefully; some of the questions are phrased positively and others negatively. Don't take too long on individual questions; there are no "right" or "wrong" answers (and no trick questions). The first answer that comes into your head is probably the right one for you. If you find some of the questions difficult, please give the answer that is true for you in general or for most of the time.

The Questionnaire:

1. I don't feel particularly pleased with the way I am. (R)
2. I am intensely interested in other people.
3. I feel that life is very rewarding.
4. I have very warm feelings toward almost everyone.
5. I rarely wake up feeling rested. (R)
6. I am not particularly optimistic about the future. (R)
7. I find most things amusing.
8. I am always committed and involved.
9. Life is good.
10. I do not think that the world is a good place. (R)
11. I laugh a lot.
12. I am well satisfied about everything in my life.

13. I don't think I look attractive. (R)
14. There is a gap between what I would like to do and what I have done. (R)
15. I am very happy.
16. I find beauty in some things.
17. I always have a cheerful effect on others.
18. I can fit in (find time for) everything I want to.
19. I feel that I am not especially in control of my life. (R)
20. I feel able to take anything on.
21. I feel fully mentally alert.
22. I often experience joy and elation.
23. I don't find it easy to make decisions. (R)
24. I don't have a particular sense of meaning and purpose in my life. (R)
25. I feel I have a great deal of energy.
26. I usually have a good influence on events.
27. I don't have fun with other people. (R)
28. I don't feel particularly healthy. (R)
29. I don't have particularly happy memories of the past. (R)

To calculate your score:

Step 1. Items marked (R) should be scored in reverse:

For example, if you gave yourself a "1," cross it out and change it to a "6."

Change "2" to a "5"

Change "3" to a "4"

Change "4" to a "3"

Change "5" to a "2"

Change "6" to a "1"

Step 2. Add the numbers for all 29 questions. (Use the converted numbers for the 12 items that are reverse scored.)

Step 3. Divide by 29. So your happiness score = the total (from step 2) divided by 29.

Appendix D

Perceived Stress Scale

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 dealt successfully with irritating life hassles?... 0 1 2 3 4
5. In the last month, how often have you felt that you were effectively coping with
important changes that were occurring in your life?..... 0 1 2 3 4
6. In the last month, how often have you felt confident about your ability
to handle your personal problems?..... 0 1 2 3 4
7. In the last month, how often have you felt that things were going your way?..... 0 1 2 3 4
8. 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
9. In the last month, how often have you been able
to control irritations in your life?..... 0 1 2 3 4
10. In the last month, how often have you felt that you were on top of things?..... 0 1 2 3 4
11. In the last month, how often have you been angered
because of things that were outside of your control?..... 0 1 2 3 4
12. In the last month, how often have you found yourself thinking about
things that you have to accomplish?.....0 1 2 3 4
13. In the last month, how often have you been able to control
the way you spend your time?..... 0 1 2 3 4
14. 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

Appendix E

Self-Determination Scale

Instructions: Please read the pairs of statements, one pair at a time, and think about which statement within the pair seems more true to you at this point in your life. Indicate the degree to which statement A feels true, relative to the degree that Statement B feels true, on the 5-point scale shown after each pair of statements. If statement A feels completely true and statement B feels completely untrue, the appropriate response would be 1. If the two statements are equally true, the appropriate response would be a 3. If only statement B feels completely true and statement A feels completely untrue, the appropriate response would be 5.

1. A. I always feel like I choose the things I do.

B. I sometimes feel that it's not really me choosing the things I do.

Only A feels true 1 2 3 4 5 Only B feels true

2. A. My emotions sometimes seem alien to me.

B. My emotions always seem to belong to me.

Only A feels true 1 2 3 4 5 Only B feels true

3. A. I choose to do what I have to do.

B. I do what I have to, but I don't feel like it is really my choice.

Only A feels true 1 2 3 4 5 Only B feels true

4. A. I feel that I am rarely myself.

B. I feel like I am always completely myself.

Only A feels true 1 2 3 4 5 Only B feels true

5. A. I do what I do because it interests me.

B. I do what I do because I have to.

Only A feels true 1 2 3 4 5 Only B feels true

6. A. When I accomplish something, I often feel it wasn't really me who did it.

B. When I accomplish something, I always feel it's me who did it.

Only A feels true 1 2 3 4 5 Only B feels true

7. A. I am free to do whatever I decide to do.

B. What I do is often not what I'd choose to do.

Only A feels true 1 2 3 4 5 Only B feels true

8. A. My body sometimes feels like a stranger to me.

B. My body always feels like me.

Only A feels true 1 2 3 4 5 Only B feels true

9. A. I feel pretty free to do whatever I choose to.

B. I often do things that I don't choose to do.

Only A feels true 1 2 3 4 5 Only B feels true

10. A. Sometimes I look into the mirror and see a stranger.

B. When I look into the mirror I see myself.

Only A feels true 1 2 3 4 5 Only B feels true

Scoring Information for the SDS. First, items 1, 3, 5, 7, 9 need to be reverse scored so that higher scores on every item will indicate a higher level of self-determination. To reverse score an item, subtract the item response from 6 and use that as the item score. Then, calculate the scores for the Awareness of Self subscale and the Perceived Choice subscale by averaging the item scores for the 5 items within each subscale. The subscales are:

Awareness of Self: 2, 4, 6, 8, 10

Perceived Choice: 1, 3, 5, 7, 9

Appendix F

Mini-IPIP

You will see four (4) statements, one at a time, and you will be asked to evaluate the extent to which you agree with them. Please answer honestly with regard to how you see yourself in the present moment, not how you would like to be in the future. There are no incorrect answers, nor any personality profile that is inherently more desirable than another.

- I am the life of the party.

 - Very inaccurate
 - Moderately inaccurate
 - Neither accurate nor inaccurate
 - Moderately accurate
 - Very accurate

- I don't talk a lot.

 - Very inaccurate
 - Moderately inaccurate
 - Neither accurate nor inaccurate
 - Moderately accurate
 - Very accurate

- I talk to a lot of different people at parties.

 - Very inaccurate
 - Moderately inaccurate
 - Neither accurate nor inaccurate
 - Moderately accurate
 - Very accurate

- I keep in the background.

 - Very inaccurate
 - Moderately inaccurate
 - Neither accurate nor inaccurate
 - Moderately accurate
 - Very accurate