

SOCIAL NETWORKS AND PERSONALITY IN A LIBERAL ARTS COLLEGE

by

Amrita Gopaldas

A Thesis Submitted to the Faculty of
The Harriet L. Wilkes Honors College
in Partial Fulfillment of the Requirements for the Degree of
Bachelor of Art in Liberal Arts and Sciences
with a Concentration in Psychology

The Harriet L. Wilkes Honors College of
Florida Atlantic University
Jupiter, Florida
May 2012

SOCIAL NETWORKS AND PERSONALITY IN A LIBERAL ARTS COLLEGE

By
Amrita Gopaldas

This thesis was prepared under the direction of the candidate's thesis advisor, Dr. Kevin Lanning, and has been approved by the members of her supervisory committee. It was submitted to the faculty of the Wilkes Honors College and was accepted in partial fulfillment of the requirements for the degree of Bachelor of Arts in Liberal Arts and Sciences.

SUPERVISORY COMMITTEE:

Dr. Kevin Lanning

Dr. Rachel Corr

Dean, Wilkes Honors College

Date

Acknowledgements

I would like to thank Dr. Kevin Lanning for his supervision, and motivation throughout researching and writing my senior thesis. I would not have been able to do this research without Dr. Lanning's support and guidance. Dr. Rachel Corr has been one of my most memorable instructors at Florida Atlantic University and I'd like to thank her for her assistance with my thesis. I am grateful to Florida Atlantic University for the research grant that I received for my thesis research. Kimberly Macdonald was my supportive research partner throughout the year, and without her contributions this research would not have been accomplished. I would like to thank my classmates and students from the Harriet L. Wilkes Honors College for their participation in our research. In addition, I would like to thank my family and friends for their support and encouragement throughout my college education.

ABSTRACT

Author: Amrita Gopaldas
Title: Social Networks and Personality in a Liberal Arts College
Institution: Honor s College at Florida Atlantic University
Thesis Advisor: Dr. Kevin Lanning
Degree: Bachelor of Arts in Liberal Arts and Sciences
Concentration: Psychology
Year: 2012

In this study, relationships between social networks and personality at a small liberal arts college were examined. Participants were asked to list members of their social networks, the activities in which they participated, and to complete the Sentence Completion Test (SCT), and the California Psychological Inventory (CPI). On the CPI, individuals with high scores on measures related to extraversion (particularly the CPI Sociability scale) will have a greater network size and report a larger number of activities. In addition, the extent to which participants formed relationships with individuals with similar levels of ego development, and similar personality profiles, that is, the degree of homophily in relationships were evaluated. Finally, it was examined whether this homophily increased over time, that is, whether students increasingly gravitated towards others with similar personalities during the college years.

Table of Contents

Introduction.....	1
Methods.....	15
Results.....	18
Discussion.....	27
Appendix.....	following page 30
References.....	31

Social Networks and Personality in a Liberal Arts College

The Harriet L Wilkes Honors College of Florida Atlantic University is a small liberal arts college with about 300 students. Classes at The Honors College consist of an average of 15 students which results in a low student to faculty ratio (fau.edu, 2011). The small classes allow professors to know each student by name and to know them well. Most of the Honors College students reside on campus in the two residential halls, and it is a requirement to reside on campus for your first two academic years. In addition, a majority of students have most of their meals in the dining hall located on campus, and have the opportunity to study, work, and participate in several on-campus activities. The Honors College could be viewed as a total institution. A total institution is defined as a place where people reside and work together for a considerable time period in a particular location (Goffman, 1961). This study examined relationships between social networks and personality at The Honors College.

Social Networks and Friendship Formation

Social networks are patterns of personal relationships among a group of individuals (Burt, 1992 in Flynn, Reagans, Guillory, 2010). Studies show that the majority of people spend approximately 80% of their waking hours interacting or in the company of other people (Emler, 1994; Kahneman, Kruegar, Schkade, Schwarz, & Stone, 2004 in Cacioppo, Christakis, & Fowler, 2009) and as a result, social psychologists are becoming more interested in studying the perception of social networks, which are also known as “cognitive networks” (Flynn et al., 2010). In research,

social relationships have been measured with two main approaches. The first approach looks at social relationships in a structural way, which includes the amount and frequency of social ties to family members, friends, or other individuals (Berkman & Syme, 1979; Donald & Ware, 1982 in Bolger & Eckenrode, 1991). The second approach focuses on the functional aspects of relationships, which is the quality and support provided by these relationships (House & Kahn, 1985; Tardy, 1985; Vaux, 1988 in Bolger & Eckenrode, 1991). Psychologists try to answer the questions “Can people judge who is friends with whom?” and “Who influences whom?” in their social groups (Flynn et al., 2010).

Social networks can be studied from the communication and interaction at different levels: a dyad which is the relationship between a pair and is the smallest possible social group, a triad which is the relationships between three individuals, and at the level of the overall group which looks at the distance between people. The network-levels of friendships are important and as is the tendency for friends to share mutual friends (Schaefer, Simpkins, Vest, & Price, 2011). The majority of social network data is information that is reported by individuals (Bondonio, 1998). When looking at social networks, mutual friends are important to consider. Triadic closure is the likelihood for friends to share mutual friends (Schaefer et al., 2011). For example, if Ana is friends with Jasmine and Lindsay then it is likely that Jasmine and Lindsay are also friends. The significance of triadic closure strengthens as individuals get older.

Friendships are typically voluntary relationships that vary in terms of stability (Ellis & Zarbatany, 2007). Selecting and maintaining relationships depends on a combination of several different factors.

Studies on adolescents have shown that approximately half of close friendship pairs are stable over a year (Bowker, 2004; Degirmencioglu, Urberg, Tolson, & Richard, 1998 in Ellis & Zabatany, 2007). There are gender differences in social networks, but these are not consistent in studies. Ladd (1990) found that peer acceptance is related to the formation and stability of friendships, but a few years later Parker and Seal's (1996) study found that peer acceptance is related to the number of friends and not the stability of the relationships. This shows that individuals who are well-liked can develop a greater number of friendships but may not have stable or successful relationships.

Caldwell, Bogat, and Cruise (1989) concluded that the size of a network does not positively relate to mature levels of development. This research showed that mature levels of development are more related to the structure of support networks rather than the network size. Intimacy in relationships was linked to mature ego identity development. There are evident gender differences when evaluating the process of ego identity. Males tend to focus on a future self that is related to autonomy and occupation, whereas females focus more on connectedness to others (Gilligan, 1982; Josselson, 1987 in Caldwell, et al., 1989). These gender differences could contribute to the development of social networks, but there are no consistent results that relate gender to the social network size (Booth, 1972; Weiss & Lowenthal, 1975 in Caldwell, et al., 1989). Berndt & Hoyle (1985) found that girls' social networks are more likely to remain the same size; whereas boys' networks increase in size over a year whereas Ellis & Zabatany (2007) revealed that girls had larger social networks and their number of friends increased over time when compared to boys.

Personality and Extraversion in Social Networks

Psychologists study the relationship between personality and other factors over time and extensive research has examined the consistency of personality (Funder, Tomlinson-Keasey, & Widaman, 1993). In Western cultures, personality is typically reported as less stable between the years of 18 and 30 due to several life transitions, such as starting college, or entering into a new career (McCrae & Costa, 1990 in Asendorpf & Wilpers, 1998), but after the age of 30 McCrae and Costa (1990) reported that personality does not change significantly (in Funder et al., 1993). “Personality shapes lives, but life experiences do not influence personality” (Funder et al., 1993, 95).

Personality is an important characteristic that influences the size of an individual’s social network (Pollet, Roberts, & Dunbar, 2011). There are five domains that make up the Big Five personality traits: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. Among these five domains, extraversion is the trait that is most related to relationships and social networks. Extraverts are defined as more sociable, outgoing, cheerful, and energetic when compared to introverts who tend to be shy, and reserved (Fishman, Ng, & Bellugi, 2010; Kalish & Robbins, 2006, in Pollet et al., 2011). Extraverts tend to enjoy social activities and attention from others. Eysenck’s (1970) model of Extraversion consists of five trait levels: Sociability, Impulsiveness, Activity, Liveliness, and Excitability (in Funder et al., 1993). There is a positive correlation between extraversion and network size among college students in cross-sectional and longitudinal studies (Bolger & Eckenrode, 1991; Swickert, Rosentreter, Hittner & Mushrush, 2002; Asendorpf & Wilpers, 1998 in Pollet et al., 2011).

Extraversion tends to decline with age (McCrae et al., 1999 in, Pollet et al., 2011). Extraversion is a trait that predicts number of friends; however it does not predict the emotional closeness in relationships (Pollet et al., 2011). Extraverts also report that they enjoy and participate in more social activities (Asendorpf & Wilpers, 1998 in Pollet et al., 2011).

Asendorpf and Wilpers (1998) studied personality effects and looked at the Big Five factors of personality and how these are related to the development of social relationships in a university setting. This study was conducted over 18 months in which assessments of The Big Five factors of personality and relationships questionnaires were given to participants. They found that Extraversion predicted different characteristics of relationships. When Extraversion was looked at, it was found that when participants were more extraverted and sociable and less shy, their peer network increased over the next few months but after one year this increase was not evident. Extraversion and Sociability contributed to the participants' overall quality of interactions and the number of people in their social networks.

In summary, personality is found to influence aspects of social relationships but the changes in social relationships did not have an effect on the Big Five factors (Asendorpf & Wilpers, 1998). A problem in the study is that the participants were overwhelmingly female. They note that more women participate in studies related to relationships. Men are less willing to communicate about relationships and this could impact their participation in these studies (Eagly, 1987 in Asendorpf & Wilpers, 1998). Gender differences were not evaluated in this study because of the unequal participation.

The California Psychological Inventory (CPI)

The California Psychological Inventory (CPI) was developed to assess several important psychological characteristics in everyday life (Gough, & Bradley, 1996). It is a pencil-paper test that has a true-false format. The folk scales have been revised several times and the CPI has appeared in a number of formats, including the presently administered 434 and 260 item versions. After it is scored, it contains 20 folk scales that assess characteristics, and three vector scales that each assesses a broad theme.

The goal of the CPI is to assess individuals on concepts that they use in their daily lives (Gough, 1996). The version containing 434 items typically takes participants 45 to 60 minutes to complete. All CPI reports are computer-generated through prepaid answer sheets that the administer mails to the publisher (Gough, 1996). The CPI is an internationally established assessment that has cross-cultural use and can predict non-test behaviors (Hakstein, Farrell, & Tweed, 2002).

The CPI was developed before the Big Five trait domains. Soto and John (2009) organized the California Psychological Inventory (CPI) into the Big Five personality domains. There are no current studies that look at long-term longitudinal data that use the new Big Five measures, but this research is important to find out how the Big Five predicts relationships, career choices, and other decisions years later (Soto & John, 2009). Only one of the Big Five domains – Extraversion – is highly correlated with the CPI scales (McCrae, Costa, & Piedmont, 1993). The fact that the CPI includes multiple scales that are related to Extraversion reflects the breadth of this construct. Hogan (1983) found that Sociability and Ambition together are similar to Extraversion on the Big Five domain. In addition, Soto and John (2009) found that Dominance is also correlated to

Extraversion. Hakstein et al. (2002) found that themes related to Extraversion are Sociability, Social Presence, and Self-Acceptance

The content on the CPI is more complex than other personality tests, such as the Big Five Inventory, and items may contain a combination of the Big Five scales. For example, “the item *Am nervous when meeting new people* combines content relevant to both Extraversion (meeting new people) and Neuroticism (nervous). Such items complicate the task of assessing the Big Five domains in a way that clearly distinguishes them” (Soto, & John, 2009, p. 27). In their study of comparing the CPI to the Big Five domains, Soto and John (2009) found that 406 of the 434 CPI items significantly correlated to one or more of the Big Five domains. When the CPI is compared to other personality tests, it is often preferred because of its availability at a reasonable cost and it is internationally accessible to researchers (Hakstein et al., 2002).

Construct validity in measurements

“Validity is the degree to which a measurement actually reflects what one thinks or hopes it does” (Funder, 2010). A *construct* is the term used to describe “something that cannot be directly seen or touched, but which affects and helps to explain many different things that are visible” (Funder, 2010, 72-73). For example, intelligence and sociability are attributes that are personality constructs because we do not see them but know they exist and affect behavior. In personality, we would expect the theory that behaviors of sociability will correlate, such as attending several parties, talking to a lot of people on the phone, etc. (Funder, 2010).

When we test the theory behind a construct it is called *construct validation* (Cronbach & Meehl, 1955 in Funder, 2010). When measuring a construct, like sociability, researchers gather the different measures that could contribute to sociability and then correlations between these measures are calculated to ensure validity of the measures. You cannot reach an ultimate truth when measuring a construct but when different measures produce the same or similar results then we believe that we are measuring a construct that is real (Funder, 2010).

Homophily in Relationships

Lazarsfeld & Merston coined the term *homophily* to refer to “a tendency for friendships to form between those who are alike in some designated respect” (1954). Homophily begins when children choose their friends based on their similarities then engage in activities that increase their similarities (Hafen, Laursen, Burk, Kerr, & Stattin, 2011). In relationships there is “the tendency of like to attract like” (McPherson, Smith-Lovin, & Cook, 2001 in Cacioppo, Christakis, & Fowler, 2009).

Friends tend to be more similar to one another depending on behavior, the duration of the relationship, and their sociodemographic characteristics (Schaefer, Simpkins, Vest, & Price, 2011). Friends seemed to increase their similarity as the duration of their relationship increased. The sociodemographic characteristics that could contribute to homophily are gender, sex, race, grade and socioeconomic status (Brown & Larsen, 2009 in Schaefer, et al., 2011). Attitude, academic achievement, physical health, and behavioral similarity are other factors of homophily (McPherson, Smith-Lovin, & Cook, 2001; Kandel, 1978; Schaefer et al., 2011).

When friends are similar and enjoy participating in activities, it promotes stronger relationships, and could decrease potential conflict. “Similarity is hypothesized to be not just an attractor but also a tie that holds friendships together” (Hafen et al., 2011).

Individuals around the same age tend to be more similar because they have similar activities or develop at around the same age. “Cohort similarity” is the phenomenon that describes the similarity between same-age friends that live in analogous circumstances, and this increases the correlations between these individuals (Hafen et al., 2011).

Bukowshi, Motzoi, and Meyer (2009) found that similarity distinguishes friends from nonfriends. Hafen et al. (2011) discussed how the duration of the relationship is important when evaluating similarity.

Werner and Parmelee (1979) found that rather than knowing the fact that your friend agrees with you, a stronger relationship is established when friends participate in enjoyable activities together. Friends seemed to be more similar on “observable behaviors rather than on internal attributes” (Hafen et al., 2011). It is easier to choose friends based on if they enjoy the same activities rather than knowing about their personal views. Hafen et al. (2011) found that relationships that are built on limited similarity are relationships that are most likely not going to last for a long period of time, and those that are more similar are likely to remain friends.

Larger settings, such as attending school classes and extracurricular activities, contribute to creating and maintaining adolescent friendships. Schaefer, Simpkins, Vest, and Price (2011) found that extracurricular activities were related to current friendships and advanced the creation of new friendships. In larger settings, there are several homophilous friendships that could be possible but only a few close relationships are

formed. An example of homophily is formed during activity coparticipation.

Extracurricular activity settings promote the likelihood of friendships because of the environment and participation required by adolescents. Adolescents have to spend time with one another and build relationships with other participants during the activity. In addition, the extracurricular activities bring individuals who enjoy similar activities and interests together, and this similarity can promote the development of friendships (Fredricks et al., 2002; Loder & Hirsch, 2003; Wigfiend, Eccles, Schiefele, Roeser, & Davis-Kean, 2006 in Schaefer et al., 2011).

An individual's attitude or behavior is often persuaded by his or her close friends (Kandel, 1978). Selection and socialization are two processes where similarity occurs among individuals at one point in time. *Selection* is when homophily occurs when people select each other based on a certain existing characteristic that he or she already has and then becomes friends; whereas *socialization* occurs when people tend to influence or reinforce similar attributes among one another (Hogue & Steinberg, 1995). "It appears that social selection is the most important factor contributing to similarities in attitudes, behaviors, and, more generally, deviant styles. Children and adolescents do not congregate randomly; they choose activities that are compatible with their own dispositions and select companions who are similar to themselves" (Funder et al., 1993, 344).

There have been several longitudinal studies on real-life friendships that found that similarity in attitudes promotes liking and that liking creates similarity (Newcomb, 1961; Curry & Kenny, 1974 in Kandel, 1978). "Strength of liking is related to degree of similarity on a variety of attributes such as attitudes, values, and personality traits"

(Berscheid & Walster, 1969; Lazarsfeld & Merton, 1954; Newcomb, 1961 in Kandel, 1978). These studies on strength of liking were researched and correlated from one point in time.

Homophily of peer group behaviors have been displayed when looking at smoking, alcohol and drug use, sexual behavior, academic orientation, and aggression (Urberg, Chen, & Shya, 1991; Bauman & Fisher, 1986; Kandel, 1978; Brown, Clasen, & Eicher, 1986; Billy & Udry, 1985; Delgado-Gaiten, 1986 in Hogue & Steinberg, 1995). Kandel's longitudinal study looked at homophily in high school students and evaluated their similarity in growth, continuation, and dissolution among friends. It focused on the selection and socialization of friends that used an illicit drug (marijuana). This study included information on what individuals were like before a friendship occurred, data during the friendship, and data on previous friends after the friendship was terminated. It was concluded that behavior, such as drug use, contributes to the socialization effects of friendships. Friendships in the process of formation are more likely to last than friendships that occurred based on prior homophily (Kandel, 1978). In addition, peer groups and social networks are constantly changing in their homophilic structures (Hogue & Steinberg, 1995).

Profile Similarity

In addition to these characteristics, personality psychologists have examined the degree of similarity of personality between friends (Funder & Ozer, 1987).

A psychological phenomena known as profile similarity is the similarity between two profiles on psychological tests (Furr, 2008). This is when the first profile which is an

individual's self-scores of variables from one time is compared to a second profile of scores which is the same set of variables obtained from a different person. Profile similarity is an approach to homophily.

Overall similarity refers to the correlation between two raw profiles and is also known as agreement, correspondence, or consistency. A type of overall similarity is distinctive similarity and this shows the similarities and differences on each trait between the two individuals' profiles in a relationship. Profile normativeness is a term that Furr (2008) refers to as the extent an individual's profile reflects the average profile in a study. Normativeness is important and can influence profile similarity. A sample-level approach to normativeness is when "the average similarity between pairs of profiles is compared to a normative level of similarity across the entire sample" (Furr, 2008, p. 1273).

Luo and Klohnen (2005) performed a study where they evaluated if people selected and married partners who are relatively similar to themselves. This study is an example of a sample-level approach. They looked at the similarity between husbands and wives by performing a correlation between each husband and wife's self-reported personality trait scores, and then calculated the mean correlation of this. Luo and Klohnen then created a similarity correlation between a randomly selected husband's profile and compared this to a randomly selected wife's profile from a different couple, and also calculated the mean correlation of this similarity. The average similarity between the married couples was compared to the mean similarity of randomly selected pairs. They looked at over 20 domains of personality and attitude and found that married couples were similar to each other and that the average married couple had a "significantly higher similarity than would be expected based on the sample

normativeness for only 5 domains (particularly in attitude domains)” (Furr, 2008). This study shows that the average profile-similarity between acquainted individuals was higher than unacquainted profile-similarities.

Ego development and the Sentence Completion Test (SCT)

Ego development is a construct and one of the popular ways to measure it is through administering Loevinger’s (1987) Sentence Completion Test, consisting of a set of sentence stems that participants are asked to complete. The responses from the SCT indicate participants’ beliefs, attitudes, and other mental states. Hy & Loevinger’s (1996) measure of ego development contains eight stages in which we can be categorized. In order of lowest to highest, the stages include: the impulsive, self-protective, conformist, self-aware, conscientious, individualistic, autonomous, and integrated. Computers cannot be as precise and experienced as trained raters are in rating the sentence completions.

In an assessment, multiple sentence completions, rather than a single response, are used so that an average of these sentence completions can be computed to provide a more robust estimate of ego level. The most reliable results from the Sentence Completion Test (SCT) are obtained if the full 36-item form is used, but shorter forms of the test can be used as an alternative way of rating ego level. Investigators have used versions of the SCT that contain 12, 15, or 18 items but reliability decreases for ego development level (Loevinger, 1979). The SCT is another measurement to compare the degree of homophily in relationships and to assess if individuals in social networks have a similar ego level.

Jane Loevinger et al. (1985) studied ego development at a technological institute and at a liberal arts university. The study used the SCT and found that although men and

women left college with the same level of ego development, when women entered college they were slightly ahead of men. The majority of people stabilize their character development in late adolescence or early adult life. Generally, it was found that when studying personality in college, seniors tended to be more liberal, sophisticated, and also more tolerant when compared to freshmen (Feldman & Newcomb, 1969 in Loevinger et al., 1985). College students tend to become more liberal, more understanding, more open minded and more independent over their four years of undergraduate studies.

Hypotheses

It was hypothesized that individuals with high scores on measures related to extraversion, social poise and engagement will have a greater number of people nominated in their social network, a greater number of times that other participants nominated them, and will list a larger number of activities in which they are involved.

In addition, the degree of *homophily* (the extent to which participants created relationships with individuals similar to them) was evaluated. It was hypothesized that participants' ego development and similar personality profiles would be more similar to their friends listed in their social networks than to the average random participant.

It was also examined whether this homophily varied with the participant's college year. The hypothesis that homophily would increase over time was analyzed. For example, a senior would be more similar to his or her friends compared to a freshman in college.

Methods

Overview

Participants in this study listed members of their social networks and the activities in which they participated. From this data, a social engagement scale was created which consisted of the number of nominations a participant made, the number of times a participant was nominated, and the number of activities the participant listed that he/she was involved in. Students in this study also had to complete the Sentence Completion Test (SCT), and the California Psychological Inventory (CPI) and these results were compared to the social engagement scale. This study looked at the role of personality in two main aspects of the social network: homophily and extraversion. The SCT and the CPI are tests that have not been compared before in previous studies.

Participants

This study consisted of two parts: an online survey and the California Psychological Inventory (CPI). The first survey was titled “Are you in? A study of personality and social networks in the Wilkes Honors College.” (Refer to Appendix). The participants were asked demographic questions, and to list members of their social networks, the activities in which they participated, and to complete the Sentence Completion Test (SCT). There were 129 participants that completed this survey: 35 males, 90 females, and 4 who did not identify a gender. There were 66 participants that completed the California Psychological Inventory (CPI): 16 males, and 50 females.

Participation was obtained through several methods, including advertising with flyers in the residential halls, the creation of a Facebook event for which invitations were

sent online to Honors College students, and a presentation in a first-year class (Forum) on the study. Participation for this study was voluntary, but promotional pens with the survey link were given to students as an incentive when they took the CPI. Students who completed the CPI were also informed that they would receive feedback on their CPI profiles. In addition, extra credit was awarded to Honors College students in Psychology classes.

Materials

The online survey asked demographic questions, such as age, gender, and ethnicity, and also asked questions about the students' personalities and membership in their social networks. When asked about the participants' social network, the first question was "Which Honors College students are most central in your network" and this had 6 blank spaces to obtain the participants' closest friends, then the survey asked "Are there other Honors College students who belong in your network?" and this had a blank box where participants could list as many individuals as they desired. This survey also asked academic related questions such as the number of college semesters and academic grades. Refer to Appendix 1 to see the complete survey.

The first part of the study used a version of Loevinger's Sentence Completion Test (SCT). It was a mix of 18 items from the 36-item version. Each item on the Sentence Completion Test had the beginning of a sentence (a stem) that participants had to type in a response to complete. Twelve of the items on the SCT were scored by an undergraduate Psychology student at the Honors College.

The second part of the study consisted of the 434 item version of the California Psychological Inventory (Gough, 1996). This is a paper-pencil test that the participants completed in classrooms on the MacArthur Campus of Florida Atlantic University, or participants had the option of responding to the measure at their convenience (24 participants completed the CPI in a location of their choice). The tests were scored by Consulting Psychologists Press and students were given a prepaid client feedback report on their CPI.

Procedure

The first survey was completed online from December 2011 to February 2012. This survey took participants approximately 30 minutes to complete. The California Psychological Inventory (CPI) was taken from January to March 2012. The CPI took approximately 45-60 minutes to complete. Each participant was given a unique code name and the responses were sorted before scoring was started.

Results

As previously stated, personality is a set of characteristics that may influence the size of an individual's social network (Pollet, Roberts, & Dunbar, 2011). Among the Big Five personality domains, extraversion is the trait that is most related to relationships and social networks. The results looked at if participants with higher scores on measures related to extraversion have a greater network size and report a larger number of activities.

CPI scales were correlated with the number of activities, nominations made, number of times nominated, and social engagement (sum of 3 standardized variables: number of activities, nominations made, and number of times nominated).

Table 1 shows the correlations between the measures of social engagement and the results of the CPI scales for all 66 participants that took the test. These results support the hypothesis that individuals with high scores on measures of Extraversion on the California Psychological Inventory (CPI) report a greater network size and greater number of nominations. As predicted, the Class I Scales have the highest correlations when looking at the overall or social engagement scale. Class I Scales evaluate how the participant approaches other people, and describes qualities such as self-confidence, poise, and initiative. The scales in this class include: Dominance, Capacity for Status, Sociability, Social Presence, Self-Acceptance, Independence, and Empathy and these are the scales that are interpreted to be Extraversion scales. Participants that score high on these measures of the CPI are self-confident, ambitious, talkative, at ease in any situation, socially outgoing, independent, and pleasant to be with.

Table 1

Correlations between measures of social engagement and CPI scales: All participants

Scale name		Number of Activities	Nominations of others	Times nominated by others	Overall ^a
CLASS I SCALES					
Dominance	Do	0.37	0.19	0.26	0.38
Capacity for Status	Cs	0.21	0.25	0.11	0.25
Sociability	Sy	0.18	0.35	0.34	0.41
Social Presence	Sp	0.11	0.32	0.23	0.31
Self-Acceptance	Sa	0.31	0.17	0.27	0.35
Independence	In	0.39	0.24	0.23	0.39
Empathy	Em	0.23	0.24	0.30	0.37
CLASS II SCALES					
Responsibility	Re	0.17	0.30	0.17	0.29
Socialization	So	0.04	0.30	0.09	0.19
Self-Control	Sc	0.14	0.21	0.06	0.18
Good Impression	Gi	0.15	0.18	0.17	0.24
Communality	Cm	0.24	0.34	0.06	0.28
Well-Being	Wb	0.25	0.33	0.15	0.33
Tolerance	To	0.05	0.34	0.21	0.29
CLASS III SCALES					
Achievement via Conformance	Ac	0.18	0.37	0.27	0.39
Achievement via Independence	Ai	0.04	0.14	-0.03	0.06
Intellectual Efficiency	Ie	0.20	0.14	0.06	0.18
CLASS IV SCALES					
Psychological Mindedness	Py	0.14	0.13	0.01	0.12
Flexibility	Fx	-0.11	0.00	-0.06	-0.08
Femininity/ Masculinity	FM	-0.12	0.06	0.00	-0.02

^a Overall = sum of standardized variables (Number of activities, nominations of others, and times nominated by others)

N = 66. Correlations above 0.25 are significant a $p < .05$.

Pollet et al. (2011) found that extraverts participate in more social activities and our results show that measures of Dominance, Independence, and Self-Acceptance correlated significantly with a larger number of activities. Nominations of others, times nominated by others, and overall social engagement all have the highest correlation with the Sociability scale. Other CPI scales that were correlated with social engagement included the Class I Scales of Dominance (0.38) and Independence (0.39) and the Class III scale of Achievement via Conformance (0.39). Participants that score high in this scale are seen by others as capable and reliable so this could be an explanation for this high correlation.

Table 2 shows the correlations between the measures of social engagement and the results of the CPI scales for the 16 male participants that participated in the CPI.

There are no consistent results that relate gender to the social network size (Booth, 1972; Weiss & Lowenthal, 1975 in Caldwell, et al., 1989). Ellis & Zarbatany (2007) revealed that girls had larger social networks and their number of friends increased over time when compared to boys. This cannot be sufficiently evaluated in this study because the results were taken at one point in time and the sample does not have an equal number of each gender. Only 16 participants out of the 35 that participated in the study took the CPI.

Table 2

Correlations between measures of social engagement and CPI scales: Male participants only

Scale name		Number of Activities	Nominations of others	Times nominated by others	Overall ^a
CLASS I SCALES					
Dominance	Do	0.34	0.09	0.28	0.34
Capacity for Status	Cs	0.22	-0.30	-0.08	-0.05
Sociability	Sy	0.03	-0.15	0.22	0.10
Social Presence	Sp	-0.13	0.09	0.18	0.09
Self-Acceptance	Sa	0.29	0.04	0.26	0.29
Independence	In	0.56	0.12	0.25	0.42
Empathy	Em	0.35	-0.05	0.28	0.30
CLASS II SCALES					
Responsibility	Re	0.14	0.13	0.05	0.13
Socialization	So	0.04	0.16	0.08	0.11
Self-Control	Sc	0.38	0.13	-0.11	0.13
Good Impression	Gi	0.27	-0.25	-0.08	-0.02
Communality	Cm	0.02	0.05	-0.05	-0.01
Well-Being	Wb	0.04	-0.14	-0.02	-0.03
Tolerance	To	0.05	0.13	0.46	0.34
CLASS III SCALES					
Achievement via Conformance	Ac	-0.06	0.30	0.23	0.20
Achievement via Independence	Ai	0.05	-0.18	-0.07	-0.08
Intellectual Efficiency	Ie	0.39	-0.10	0.18	0.24
CLASS IV SCALES					
Psychological Mindedness	Py	0.03	0.00	-0.33	-0.19
Flexibility	Fx	0.16	0.05	0.13	0.16
Femininity/ Masculinity	FM	0.19	0.26	0.36	0.38

^a Overall = sum of standardized variables (Number of activities, nominations of others, and times nominated by others)

N = 16. Correlations above 0.5 are significant a $p < .05$.

For the male participants, the highest correlation to the overall social engagement scale is independence. When looking at the Class I Scales, the highest correlations for all participants for the overall social engagement scales are: Dominance (0.34), Independence (0.42), and Empathy (0.30). The highest CPI scale from Class IV that was correlated to the social engagement scale was Femininity/Masculinity (0.38). When comparing male participants CPI correlations to all participants the correlations are lower. When solely looking at males, the Sociability scale is 0.10 is not statistically significant when compared to all participants (0.41) therefore females contribute to the high scores on this scale.

The results for females are similar to those for the combined sample and there were a higher number of female participants than male. For the female participants, the highest correlation to the overall social engagement scale is Sociability. Here, it is 0.52 and for males it is only 0.10. This shows that nominations made and times nominated by female participants was higher correlated to this Sociability scale. This could be a result of females being more comfortable and willing to participate and report on their relationships.

Table 3

Correlations between measures of social engagement and CPI scales: Female participants only

Scale name		Number of Activities	Nominations of others	Times nominated by others	Overall ^a
CLASS I SCALES					
Dominance	Do	0.36	0.24	0.23	0.39
Capacity for Status	Cs	0.18	0.40	0.15	0.36
Sociability	Sy	0.17	0.48	0.38	0.52
Social Presence	Sp	0.15	0.41	0.22	0.39
Self-Acceptance	Sa	0.26	0.24	0.20	0.33
Independence	In	0.31	0.30	0.17	0.37
Empathy	Em	0.10	0.35	0.26	0.36
CLASS II SCALES					
Responsibility	Re	0.21	0.34	0.28	0.41
Socialization	So	0.12	0.33	0.20	0.33
Self-Control	Sc	0.08	0.22	0.19	0.25
Good Impression	Gi	0.07	0.29	0.27	0.32
Communality	Cm	0.37	0.39	0.13	0.43
Well-Being	Wb	0.31	0.43	0.21	0.46
Tolerance	To	0.06	0.39	0.11	0.29
CLASS III SCALES					
Achievement via Conformance	Ac	0.25	0.40	0.29	0.47
Achievement via Independence	Ai	0.01	0.22	-0.04	0.10
Intellectual Efficiency	Ie	0.12	0.20	-0.02	0.14
CLASS IV SCALES					
Psychological Mindedness	Py	0.13	0.18	0.08	0.19
Flexibility	Fx	-0.27	-0.02	-0.18	-0.21
Femininity/ Masculinity	FM	-0.12	-0.01	0.04	-0.04

^a Overall = sum of standardized variables (Number of activities, nominations of others, and times nominated by others)

N = 50. Correlations above 0.28 are significant a $p < .05$.

Table 4

Correlations between measures of social engagement and SCT level: All participants, males only, females only

	Number of Activities	Nominations	Times Nominated	Overall ^a
SCT level: All participants	0.28	0.08	-0.00	0.17
SCT level: Male participants	0.36	-0.08	-0.23	0
SCT level: Female participants	0.17	0.22	0.16	0.02

^a Overall = sum of standardized variables (Number of activities, nominations of others, and times nominated by others)

N= 35 males, N = 90 females.

Table 4 shows that the number of activities and ego level is significantly correlated for all participants. The significant correlation between the number of activities listed and ego level is mostly due to the male participants. This could be due to the small sample size for male participants. The difference between males and females for number of activities is not significant. In addition, the difference in the correlations between males and females for times nominated approaches significance ($p=.06$).

Homophily was assessed by the (reversed) squared difference between the sum of the 12 items on the Sentence Completion Test. On average participants had similar ego development levels to their friends nominated. There were 105 participants took the SCT and also had friends that took the test. 5 participants were one or more ego level above their friends. 4 participants were one or more ego level below their friends. And the remaining participants were within one ego level of their friends.

Table 5

Correlations between similarities of CPI to participants' nominated friends

	CPI
Male-nominated friends	0.75
Female-nominated friends	0.70
All nominated friends	0.71
Random*	0.64

*Random = Average of all correlations between CPI profiles.

The second major focus of the study was examining the similarity between participants. The extent to which participants formed relationships with individuals with similar levels of ego development, and similar personality profiles, that is, the degree of homophily in relationships.

On the CPI, homophily was assessed by computing the correlation between profiles over the 20 scales. However, we did not examine the similarity in mean level or elevation of the profiles.

Table 5 shows that the CPI profiles of male participants resembled those of their friends ($r = .75$). For females, the similarity in the profiles of friends was slightly less than this (.70). For the sample as a whole, the correlation between people nominated was 0.71 which was greater than the correlation between people at random which was 0.64. Even though this difference does not appear significant, this result shows that in this study participants are more similar to the participants that they nominated compared to

Table 6

Correlations between participants' CPI mean and the mean of their nominated friends' CPI scores

Class year	Similarity between friends
First	0.69
Second	0.68
Third	0.71
Fourth	0.72
Overall	0.71
People at random	0.64

N=66

Finally, it was examined whether students increasingly gravitated towards others with similar personalities during the college years. To assess this, the correlations between participants' CPI scores and the mean of their nominated friends' CPI scores were looked at, and then the participants' results by class year were compared.

Table 6 shows a slight increase in the correlation between participants in their fourth year of college compared to the other three years. These correlations are not significant but it is a possibility that this difference would be significant if the sample size was greater.

Discussion

In regards to social networks, the current study solely looked at the structural approach to measuring social relationships. It focused on the amount of social ties a participant reported rather than the quality or support of the relationship.

In 1968, Walter Mischel criticized the field of personality arguing that correlations between self-report measures and on measures of actual behavior were rarely more than .30. In the present study we found a number of correlations that were substantially higher than this between self-report measures and measures of behavior.

Previous studies have concluded that there is a positive correlation between extraversion and network size among college students in cross-sectional and longitudinal studies (Bolger & Eckenrode, 1991; Swickert, Rosentreter, Hittner & Mushrush, 2002; Asendorpf & Wilpers, 1998 in Pollet et al., 2011). In addition, the current study supported the hypothesis that individuals with high scores on measures of Extraversion on the California Psychological Inventory (CPI) reported a greater network size. Certain CPI scales in particular worked for this hypothesis, including the Responsibility and Achievement by Conformance Scales. These scales were associated with the number of nominations (this could be because participants who named many friends were exhibiting not merely sociability, but also compliance with the demands of the study).

Pollet et al. (2011) found that extraverts participate in more social activities and our results show that measures of Dominance, Independence, and Self-Acceptance correlated significantly with a larger number of activities.

The results did not support the hypothesis that participants form relationships with individuals with similar levels of ego development. There are several possible reasons for this. One of these is that we assessed ego development only on the basis of 12 items and as rated by a single judge. As a result, these ratings would be expected to be less reliable and valid than ratings of ego development computed over all 18 items. More substantively, this study could possibly support Caldwell, Bogat, and Cruise's (1989) conclusion that mature levels of development are more related to the structure of support networks rather than the network size. Previous studies have shown that there are evident gender differences when evaluating the process of ego identity (Gilligan, 1982; Josselson, 1987 in Caldwell, et al., 1989) and this is evident in the current study.

There was a slightly greater correlation on CPI results for participants that were friends versus random participants but this difference did not appear to be statistically significant. This could be due to the small sample size or due to the fact that not all of the participants took the CPI or participated in the study. It may also be because our measure of homophily focused only on the correlation between profiles, and did not take into account differences or similarities in the elevation of profiles.

The hypothesis that homophily increases over time could not be sufficiently evaluated. The results show a slight increase in the correlation of senior's CPI results compared to their friends but this is not significant. Again, the sample size for this hypothesis is too small and a longitudinal study would be beneficial to conclude this.

“In examining the impact of extraversion on social networks, it is important to assess not only network size, but also the nature and quality of relationships within the network” (Pollet et al., 2011). In Milardo's study, individuals listed all people that are

important to them and then had to rate the quality of their relationship with each person (Milardo, 1992 in Asendorpf & Wilpers, 1998). While participants in our study were asked to provide three tiers of friendships, we did not systematically examine these in the present study. This would show the “relationship status” of the listed individual and this method could have been more useful when evaluating relationships in the current study (Asendorpf & van Aken, 1994 in Asendorpf & Wilpers, 1998). Research on personality effects and relationships are limited and longitudinal studies are needed for evaluating this to avoid the problem of the relationship status being measured only once (Asendorpf & Wilpers, 1998). This current study would be improved in the relationships were evaluated at more times than just in the first assessment.

The main limitation of the study is the small sample size. For future studies, a more diverse and larger sample would be beneficial and most likely change and improve the findings in this study. The majority of participants in this study shares the same environment and resides on campus and so this factor is a limitation in the study. In further studies, distinguishing between relationships that are created through work or voluntarily would be something interesting to evaluate (Eagle, Pentland, & Lazer, 2009 in Pollet et al., 2011). Longitudinal designs will further help the limitations on this study to investigate how the social networks change over time and it would be beneficial to evaluate the quality and consistency of relationships.

The Honors College could be described as a total institution where the majority of participants take classes together, eat in the dining hall, study, and participate in activities on campus. The sample could be viewed as a limitation but is also a characteristic of the study that allows examination of a more cohesive social network. This study was desired

so that concrete social networks could be evaluated and because this college consists of approximately 300 students, it is a good environment to study close relationships. The total institution aspect of the College allows for a unique opportunity to examine a largely self-contained set of relationships.

Hafen, et al. stated, “adolescents who remained friends from one year to the next tended to be more similar than those who did not, during the friendship and, to a lesser extent, before the friendship. Comparisons with random pairs of same-age peers revealed that age-group homophily accounts for most of the similarity between unstable friends but only a fraction of the similarity between stable friends.” When looking at homophily in this study, it could be argued that the participants in the sample size are highly similar to one another to begin with due to cohort similarity. The sample did not contain in-school and out-of-school and so this cannot be generalized to the general population. Roberts et al. (2008 in Pollet et al., 2011) found in their study that if age was controlled for, there was no correlation between extraversion and the size of a network. Our study controls for age because almost everyone that participated was the same age.

Introduction

Welcome to the HC Social Network!

Are you in? A study of personality and social networks in the Wilkes Honors

Adult Consent Form

Note: Please print a copy of this page using the command in your browser.

1) Title of Research Study: An investigation of personality and social networks in a public liberal arts college.

2) Investigator: Kevin Lanning, Professor, Wilkes Honors College

3) Purpose: The purpose of this research study is to assess aspects of personality and social behavior in students at the Wilkes Honors College.

4) Procedures: Participation in this study will involve completion of two surveys at SurveyMonkey.com and one paper form of the California Psychological Inventory (CPI). Each survey will take approximately 30 minutes to complete, and the CPI will take approximately 45-60 minutes to complete. The CPI can either be taken during scheduled sessions in classrooms on the MacArthur campus of Florida Atlantic University, or participants can have the option of responding to the measure at their convenience.

5) Risks: While every precaution will be taken to keep your responses confidential, portions of your responses will be seen by students working on research projects and honors theses. Because of this, a number of precautions will be undertaken to insure the confidentiality of your responses. (These precautions are described in the section on 'Data Collection and Storage' below). Despite these precautions, it is possible that some of your responses could be recognized as your own by those working on the project. Otherwise, the risks involved with participation in this study are no more than one would experience in regular daily activities.

6) Benefits: Potential benefits that subjects may attain from participation in this research study include self-insight from the personality feedback and from reflecting on the questionnaire items. Participants will also benefit from the knowledge of having furthered research into the effects of a liberal arts college. In addition, it is possible that some faculty may offer extra credit in Honors College courses for participation.

Are you in? A study of personality and social networks in the Wilkes Honors

7) Data Collection & Storage: All of the results will be kept confidential and secure and only the people working with the study will see your data, unless required by law. **Because students will be working on the project and the Honors College community is small, a number of precautions will be taken to maximize the confidentiality of responses. First, the name of every student will be replaced by a unique code number every time it appears in the dataset, and the only information that explicitly links these numbers with names will be a single password protected computer file kept in the laboratory of the Principal Investigator, Dr. Lanning. Second, most of the data files used by students working on the project will include only summary statistics (means, standard deviations, and correlations), and cannot be traced to individual respondents. Finally, where this second condition is impossible and student researchers will see your individual responses (including text responses such as sentence completions and comments), these will be presented in a separate data file apart from all other information that could identify participants.** This original data file will be retained during the duration of this study plus anticipated follow-ups, and in no event after June 2017.

8) Contact Information: For related problems or questions regarding your rights as a research subject, contact the Florida Atlantic University Division of Research at (561) 297-0777. For other questions about the study, you should call the principal investigator, Kevin Lanning, at (561) 799-8652.

9) Consent Statement: I have read or had read to me the preceding information describing this study. All my questions have been answered to my satisfaction. I am 18 years of age or older and freely consent to participate. I understand that I am free to withdraw from the study at any time without penalty. I have received a copy of this consent form.

Name (*last name, first name*)

Today's date (*MM/DD/YYYY*)

Are you in? A study of personality and social networks in the Wilkes Honors

Welcome to the HC Social Network!

The first part of the survey is about you (demographics).

Are you known at the HC by any nickname(s)? (*e.g., WJ, Jimmy, Lizzie*)

Email

Cell phone

Age

- 18
- 19
- 20
- 21
- 22
- 23-26
- 27 or older

Gender

- Male
- Female
- Other/prefer not to say

With which of the following races do you most closely identify?
(*You may choose more than one.*)

- White or European American
- Black or African American
- Asian or Asian American
- Latino/a
- Prefer not to say
- Other

Are you in? A study of personality and social networks in the Wilkes Honors

When do you expect to graduate? *Please include the academic term and year. (e.g., Spring 2012)*

Are you in? A study of personality and social networks in the Wilkes Honors

Your Social Network

The second part of the survey asks about your social network.

Which Honors College students are most central in your network?
(The order of listing doesn't matter. Please provide both first and last names.)

-
-
-
-
-
-

Are there other Honors College students who belong in your network? *(Please list as many people as are applicable. There is no right answer about the number of people to include. Please separate names with commas: e.g., Sally Fischer, Mac Hall, Chris Kamal)*

In addition to those persons listed above, are there any other Honors College students who you would like to have in your social network? *(This may include new acquaintances, potential friends, or anyone that you have not yet had the opportunity to get to know well. Please separate names with commas.)*

Outside of schoolwork, are there other activities that you regularly and frequently engage in? *(Please be specific: e.g., work at Publix in Abacoa, dance, play ultimate frisbee, watch TV, play video games, volunteer at Jupiter Med Center, intern at Scripps)*

Are you in? A study of personality and social networks in the Wilkes Honors

Sentence Completion Test

The third part of the survey is a sentence completion test.

Please complete the following sentences.

When
people are
helpless

Women are
lucky
because

A good
father

A girl has a
right to

When they
talked about
sex, I

A wife
should

I feel sorry

A man feels
good when

Rules are

A good
mother

When I am
with a
man/woman

Sometimes
he/she
wished that

My father

If I can't get
what I want

Usually
he/she felt
that sex

For a
woman a
career is

Are you in? A study of personality and social networks in the Wilkes Honors

My

conscience

bothers me

if

A man

should

always

Are you in? A study of personality and social networks in the Wilkes Honors

Academic history

The final part of the survey asks questions about your academic history.

Academic timeline: Please place a check in one box in each row below. (e.g., In the Fall 2010 semester, I was at the HC (off campus housing)).

	At the HC (<i>on campus housing</i>)	At the HC (<i>off campus housing</i>)	At another college	In high school	Other*
Fall 2011	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spring 2011	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fall 2010	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spring 2010	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fall 2009	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spring 2009	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fall 2008	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spring 2008	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fall 2007	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spring 2007	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fall 2006	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*If you listed "other" for any of these semesters, please explain here (e.g., *Fall 2010: study abroad*)

Is this your first semester in college?

- Yes, I am attending college for the first time
- No, I have completed one or more semesters at the HC or another college/university

If Yes: Overall unweighted high school GPA (e.g., 3.21)

If No: Overall college GPA

Are you in? A study of personality and social networks in the Wilkes Honors

Expected Honors College GPA for **this** semester

- 4.00 (A)
- 3.67 (A-)
- 3.50 (A-/B+)
- 3.33 (B+)
- 3.17 (B+/B)
- 3.00 (B)
- 2.84 (B/B-)
- 2.67 (B-)
- 2.50 (B-/C+)
- 2.33 (C+)
- 2.17 (C+/C)
- 2.00 (C)
- 1.50 (C/D)
- 1.00 (D)
- 0.50 (D/F)
- 0.00 (F)

What is your primary academic focus (concentration) at the Honors College?

Are you in? A study of personality and social networks in the Wilkes Honors

Thank you!

Thank you for your participation. You will receive a follow-up email to participate in the next part of our study. **Since this is a study of interaction, please encourage your HC friends to participate.**

If you have any additional comments about the study, you may enter them below.

Thank you again, and we hope you will consider continuing our study.

References

Asendorpf, J. B., & Wilpers, S. (1998). Personality effects on social relationships. *Journal of Personality and Social Psychology, 6*, 1531-1544.

Bolger, N., & Eckenrode, J. (1991). Social relationships, personality, and anxiety during a major stressful event. *Journal of Personality and Social Psychology, 61*, 440-449.

Bondonio, D. (1998). Predictors of accuracy in perceiving informal social networks. *Social Networks, 20*, 301-330.

Bukowski, W. M., Motzoi, C., & Meyer, F. (2009). Friendship as process, function, and outcome. In K. Rubin, W. M. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 217–231). New York: Guilford Press.

Cacioppo, J. T., Christakis, N. A., Fowler, J. H. (2009). Alone in the crowd: The structure and spread of loneliness in a large social network. *Journal of Personality and Social Psychology, 97*, 977-991.

Caldwell, R. A., Bogat, G. A., & Cruise, K. (1989). The relationship of ego identity to social network structure and function in young men and women. *Journal of Adolescence, 12*, 309-313.

Ellis, W. E., & Zarbatany, L. (2007). Explaining friendship formation and friendship stability: The role of children's and friends' aggression and victimization. *Merrill-Palmer Quarterly, 53*, 79-104.

Fishman, I., Ng, R., & Bellugi, U. (2010). Do extraverts process social stimuli differently from introverts? *Cognitive Neuroscience*, 2, 67-73.

Flynn, F. J., Guillory, L., Reagans, R. E. (2010). Do you two know each other? Transitivity, homophily, and the need for (network) closure. *Journal of Personality and Social Psychology*, 5, 855-869.

Funder, D. C. (2010). *The Personality Puzzle*. New York, NY: Norton & Company, Inc.

Funder, D. C., Parke, R. D., Tomlinson-Keasey, C., & Widaman, K. (1993). *Studying Lives Through Time: Personality and Development*. Washington, DC.

Funder, D. C. & Ozer, D. J. (1987). Behavior as a function of the situation. *Journal of Personality and Social Psychology*, 44, 107-112.

Furr, R. M. (2008). A framework for profile similarity: Integrating similarity, normativeness, and distinctiveness. *Journal of Personality*, 76, 1267-1316.

Goffman, Erving (1961). *Asylums: essays on the social situation of mental patients and other inmates*. Anchor Books.

Gough, H. G. (1996). *California Psychological Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Hafen, Laursen, Burk, Kerr, & Stattin. (2011). Homophily in stable and unstable adolescent friendship: Similarity breeds constancy. *Personality and Individual Differences*, 51, 607-612.

Hakstian, A. R., Farrell, S., & Tweed, R. G. (2002). The assessment of counterproductive tendencies by means of the California psychological inventory. *Journal of Selection and Assessment*, 10, 58-85.

- Hogue, A., & Steinberg, L. (1995). Homophily of Internalized Distress in Adolescent Peer Groups. *Developmental Psychology, 31*, 897-906.
- Hy, X. & Loevinger, J. (1996). *Measuring Ego Development*. Mahwah, New Jersey: Lawrence Erlbaum.
- Kandel, D. B. (1978). Homophily, selection, and socialization in adolescent friendships. *American Journal of Sociology, 84*, 427-436.
- Killworth, P. K., Bernard, H. R., McCarty, C. (1984). Measuring Patterns of Acquaintanceship. *Current Anthropology, 25*, 381-398.
- Loevinger, J. (1979). Construct validity of the Sentence Completion Test of ego development. *Applied Psychological Measurement, 3*, 281-311.
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology, 27*, 415-444.
- Mischel, W. (1973). Toward a cognitive social learning reconceptualization of personality. *Psychological Review, 80*, 252-283.
- Pollet, T. V., Roberts, S. G. B., & Dunbar, R. I. (2011). Extraverts have larger social network layers: But don't feel emotionally closer to individuals at any layer. *Journal of Individual Differences, 32*, 161-169.
- Schaefer, D. R., Simpkins, S. D., Vest, A. E., & Price, C. D. (2011). The contribution of extracurricular activities to adolescent friendships: new insights through social network analysis. *Developmental Psychology, 47*, 1141-1152.
- Soto, C. J., & John, O. P. (2009). Using the California Psychological Inventory to assess the Big Five personality domains: A hierarchical approach. *Journal of Research in Personality, 43*, 25-38.

Werner, C., & Parmelee, P. (1979). Similarity of activity preferences among friends: Those who play together stay together. *Social Psychology Quarterly*, 42, 62–66.